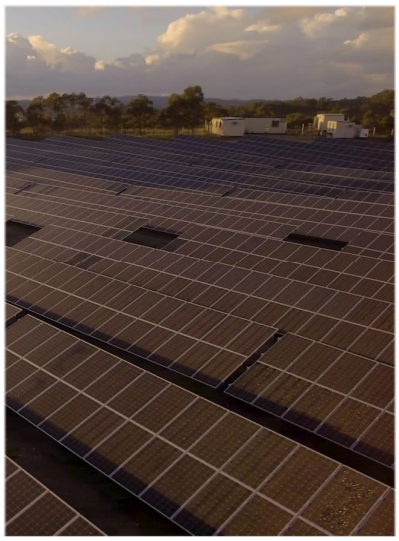
Biodiversity Management Plan

Walla Walla Solar Farm

December 2022

Project Number: 22-060



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Acronyms and abbreviations

Item	Definition
AC	Alternating current
APVMA	Australian Pesticides and Veterinary Medicines Authority
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BCD	Biodiversity Conservation Division
BDAR	Biodiversity Development Assessment Report Final V1.6 (June 2022)
BEP	Biodiversity Enhancement Plan
Biosecurity Act	*Biosecurity Act 2015* (NSW)
CoA	Conditions of Approval
CoC	Condition of Consent
Cth	Commonwealth
DPE	Department of Planning and Environment
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EMS	Environmental Management Strategy
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
ESCP	Erosion and Sediment Control Plan
EWMS	Environmental Work Method Statement
FM Act	*Fisheries Management Act 1994* (NSW)
FRV	FRV Services Australia
GHC	Greater Hume Council
ha	hectares
HBT	Hollow-bearing tree
km	kilometres
kV	kilovolt

Item	Definition
LGA	Local Government Area
m	metres
MOD2	Modification 2 (determined on 5 August)
MW	megawatt
NSW	New South Wales
GRS	GRS Constructors Pacific Rim Pty Ltd
PAD	Potential Archaeological Deposit
PCT	Plant Community Type
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PV	Photovoltaic
SER	Site Environmental Representative
SSD	State Significant Development
TEC	Threatened Ecological Community
TPZ	Tree protection zone
WoNS	Weed of National Significance
WWSF	Walla Walla Solar Farm (the Project)

1. Introduction

1.1 Purpose and objectives

FRV Services Australia (FRV) have approval for the construction, operation and decommissioning of a 300 megawatt (MW), alternating current (AC), photovoltaic (PV) solar farm, referred to as Walla Walla Solar Farm (WWSF or the Project) (SSD-9874). The Project is located on rural land approximately 4.3 kilometres (km) north-east of Walla Walla and 10 km southwest of Culcairn, southern NSW. GRS have been engaged by FRV Services Australia (FRV) to construct the Project.

A modification (SSD-9874 MOD 2) to the Project was approved on 5 August 2022 pertaining to increases in maximum daily construction traffic and the array footprint to 415.4 ha (4%), along with site layout and access. Further, an amendment to the biodiversity offset credit requirements was undertaken.

The most recent version of the Biodiversity Development Assessment Report for Walla Walla Solar Farm (Final V1.6 June 2022) (BDAR). The most recent BDAR reflects revision of the biodiversity offset credit requirements.

This BMP is an implementation plan for conservation and protection, restoration and enhancing the biodiversity value through all phases of the WWSF Project. It sets out the objectives and relevant management actions, along with identifying the mitigation measures necessary to deliver the outcomes of the assessment process and consent conditions of approval along with those recommendations outlined in the Biodiversity Enhancement Plan (BEP) comprised in the Project BDAR. Ultimately, the BMP will be a subplan in the WWSF Environmental Management System (EMS). The Project

The scope of works under the contract includes all works necessary to design, construct, test, commission, energise, decommission, and train staff in the operation of a 300 MW solar farm.

The proposal would include the following elements:

- One primary access point of Benambra Road at northeast corner of the development site.
- Two minor access points on Schneiders Road, facilitating traffic movements east to west only and operation access on Benambra Road for the substation.
- Single-axis tracker photovoltaic solar panels mounted on steel frames (approximately 700,000PV solar panels).
- Onsite 330kV substation.
- A site operations and maintenance building, switch room and vehicle parking areas.
- Internal inverter stations to allow conversion of DC module output to AC electricity.
- Underground electrical conduits and cabling to connect the arrays on the array site.
- Internal access tracks to allow for site maintenance.
- Perimeter security fencing.
- 330kV electrical transmission line to connect the proposal to the existing transmission line.
- Native vegetation screening to break up views of infrastructure and enhance biodiversity values onsite.

During construction, the Project site will be accessed from Benambra Road, which runs along the northern boundary of the site and intersects Olympic Highway (A41). Olympic Highway provides access to the region's transport network.

The construction phase of Walla Walla Solar Farm is anticipated to last approximately 16 to 20 months from the commencement of site establishment work. Construction hours will be Monday – Friday 7am to 6pm and 7am to 1pm on Saturdays, unless otherwise approved by the NSW Department of Planning and Environment (DPE).

The anticipated capital investment value of the Project is $399 million.

1.2 Environmental Management System

The BMP is part of the Project's overall Environmental Management System (EMS). Mitigation and management measures identified in this BMP will be incorporated into site or activity-specific Environmental Work Method Statements (EWMS).

When used concurrently, the overarching EMS, BMP and other subplans, procedures and EWMS form management guides that clearly identify the necessary environmental management actions for reference by the proponent's personnel and contractors.

The review and document control processes for this plan are described in the EMS. A summary of consultation regarding this plan is included in Appendix A.

2. Planning

2.1 Relevant legislation and guidelines

2.1.1 Legislation

Legislation relevant to the development and implementation of the BMP includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *National Parks and Wildlife Act 1974* (NPW Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Biosecurity Act 2015*

2.1.2 Guidelines and standards

Guidelines and standards relevant to the development and implementation of the BMP include:

- NSW National Parks & Wildlife Service. 2001. Policy for the Translocation of Threatened Fauna in NSW: Policy and Procedure Statement No. 9 Threatened Species Unit, Hurstville NSW
- Australian Standard AS 4373 Pruning of Amenity Trees
- Australian Standard 4970 – 2009 Protection of Trees
- Murray Regional Strategic Weed Management Plan 2017 – 2022 – Local Land Services, NSW Government
- Murray Regional Strategic Pest Animal Management Plan 2018 – 2023 – Local Land Services, NSW Government (2018)
- Enhancing farm dams: what to plan in and around your dam. Sustainable Farms and Local Land Services 2021.

2.1.3 Definitions

Commonly restoration, rehabilitation, regeneration, and enhancement are used interchangeably to describe land management including vegetation planting. These will be clarified here, as they each relate to specific management strategies in the BMP. These definitions have been sourced from the glossary of terms in the National Standards for the Practice of Ecological Restoration in Australia (SERA, 2022).

- **Restoration** – the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed with the intent to return it to a prior condition.
- **Rehabilitation** - the process of reinstating a level of ecosystem functionality (but not substantiative native biota) on degraded sites where ecological restoration is not the aim.
- **Regeneration** – recovery or recruitment of species from in-situ propagules or propagules that have colonised the site without human intervention. May occur spontaneously or after facilitation (e.g. weed control). Aka natural regeneration.

- **Revegetation** – establishment, by any means, of plants on sites that may or may not involve local or indigenous species.

The definitions above are used intentionally throughout this BMP. Where the term 'enhance' was found in the source documents, it has been assumed the intention is a combination of the above listed terms especially "restoration" and "rehabilitation".

2.1.4 Conditions of consent and mitigation measures

The Conditions of Approval (CoA) and mitigation measures relevant to this BMP are listed in Table 2-1 and Table 2-2, respectively, below. A cross reference is also included to indicate where the requirement is addressed in this Plan or other Project management documents.

Table 2-1 Schedule 3 of the Project Development Consent and where each condition is addressed within the BMP (this document)

CoC	Condition requirement	Reference
Vegetation Clearance		
Schedule 3 CoC 14	The Applicant must not clear any native vegetation or fauna habitat located outside the approved development footprint shown in Appendix 1 of the COC.	Section 6.7 Figure 4-1
Biodiversity Management Plan		
Schedule 3 CoC 16	Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with BCD, and to the satisfaction of the Secretary in writing. This plan must: (a) include a description of the measures and timeframes that would be implemented for: ○ protecting vegetation and fauna habitat outside the approved disturbance areas; ○ managing the remnant vegetation and fauna habitat on site; ○ minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; ○ minimising the impacts to fauna on site and implementing fauna management protocols; ○ avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; ○ rehabilitating and revegetating temporary disturbance areas with species that are endemic 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 ○ controlling weeds, feral pests and pathogens; • include a program to monitor and report on the effectiveness of mitigation measures; and • include details of who would be responsible for monitoring, reviewing and implementing the plan. Following the Secretary's approval, the Applicant must implement the Biodiversity Management Plan. *Note: if the biodiversity credits are retired via a Biodiversity Stewardship Agreement, then the Biodiversity*	This BMP

CoC	Condition requirement	Reference
	Management Plan does not need to include any of the matters that are covered under the Biodiversity Stewardship Agreement.	

Table 2-2 Mitigation measures relevant to biodiversity management from the approved Project Submissions Report

ID	Mitigation measure	Reference
LAND USE		
LU4	A Pest and Weed Management Plan would be prepared to manage the occurrence of noxious weeds and pest species across the site during construction and operation. The Pest and Weed Management Plan must be prepared in accordance with Greater Hume Shire and DPE requirements. Where possible integrate weed and pest management with adjoining landowners. Pest control would likely be carried out on a district-wide basis.	Section 6.9 & 6.11 Appendix I
BIODIVERSITY		
BD1	Timing works to avoid critical lifecycle events such as breeding or nursing: • Hollow-bearing trees would not be removed during breeding and hibernation season (Spring to Summer) • If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna would occur.	Section6.6 Appendix B
BD2	Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing. A trained ecologist or licensed wildlife handler would be present during clearing events and complete: • Pre-clearing checklist • Tree clearing procedure.	Section 6.7 Appendix C Appendix D Appendix E

ID	Mitigation measure	Reference
BD3	Relocate habitat features (fallen timber, hollow logs) from the development site to adjacent area for habitat enhancement.	Section 6.3
BD4	Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing.	Section 6.2 Figure 4-1
BD5	No stockpiling or storage within dripline of any mature trees.	Section 6.4
BD6	In areas to clear adjacent to areas to be retained, chainsaws would be used rather than heavy machinery to minimise risk of unauthorised disturbance.	Section 6.4
BD7	Access to the Box-Gum Woodland EEC would not be permitted via vehicles to reduce understorey impacts and clearing.	Section 6.4
BD8	A Construction Environmental Management Plan would include measures to avoid noise encroachment on adjacent habitats such as avoiding night works as much as possible.	Table 6-6
BD9	Light spill from the proposal would be reduced by: • Avoiding night works • Directing lights away from vegetation • Using light shields where appropriate.	Table 6-6
BD11	Prior to construction commencing, exclusion fencing, and signage would be installed around habitat or vegetation to be retained and protected.	Section 6.7 Figure 4-1
BD12	A weed management procedure would be developed for the proposal to prevent and minimise the spread of weeds. This would include: • Management protocol for declared priority weeds under the *Biosecurity Act* 2015 during and after	Section 6.9 Appendix I

ID	Mitigation measure	Reference
	construction • Weed hygiene protocol in relation to plant, machinery, and fill • Any occurrences of pathogens such as Myrtle Rust and Phytophthora would be monitored, treated, and reported. The weed management procedure would be incorporated into the Biodiversity Management Plan.	
BD13	Staff training and site briefing to communicate environmental features to be protected and measures to be implemented, including but not limited to: • Site induction • Toolbox talks.	Section 7.2
BD14	Preparation of a Biodiversity Management Plan that would include protocols for: • Protection of native vegetation to be retained • Best practice removal and disposal of vegetation • Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist • Weed management • Pest animal management • Unexpected threatened species finds • Exclusion of vehicles through sensitive areas • Rehabilitation of disturbed areas.	This document
BD15	Screening and landscaping plantings (up to 50 m where practicable) to be comprised of local indigenous species representative of the vegetation in the development site.	Section 6.5
BD16	Install approximately 120 nesting boxes for birds and mammals across the development site. • Nesting boxes will be designed to meet the requirements of target species including Squirrel Gliders, bats,	Section 6.13

ID	Mitigation measure	Reference
	parrots and owls • Nesting boxes will be monitored periodically for use and/or replacement.	
BD17	10 retained dams would be planted with native riparian vegetation and transformed into small created wetlands for wildlife.	Section 6.5
BD19	Staff training and site briefing to communicate impacts of traffic strikes on native fauna, including but not limited to: • Awareness training during site inductions regarding enforcing site speed limits • Site speed limits to be enforced to minimise fauna strike	Section 7.2
BD20	Involve a local Landcare group or educational institution in ongoing biodiversity monitoring and enhancement. and communicate outcomes with third parties to contribute knowledge of how biodiversity can be preserved on solar farms.	Section 3 & 6.3
BD21	Plain wire instead of barbed used on perimeter fence and stock fencing to reduce impacts on birds and Squirrel Glider. No barbed wire to be used on any Project fencing.	Section 6.7 Figure 4-1
BD22	Perimeter fence location to avoid, where possible, segmenting patches of native vegetation to facilitate native fauna movements.	Section 6.7 Figure 4-1
BD23	All staff induction and regular communications to cover environmental features retained and protection measures to be implemented (including but not limited to): • Retained dams, trees and vegetation communities • Site speed limits to be enforced to minimise fauna strike • Vehicle hygiene and biosecurity.	Section 7.2

3. Consultation

A Biodiversity Enhancement Plan (BEP) (Appendix F) is incorporated into the BDAR (Appendix J) undertaken in collaboration with the Holbrook Landcare Network. The BEP has been developed to make provision for the ecological restoration, rehabilitation, and ongoing maintenance of retained native vegetation habitat and dams on the Project site.

BCD was provided this BMP for review on 2 September 2022 and 25 October 2022. Comments were received back both times (29 September and 10 November 2022) and have been addressed in this BMP. Consultation is summarised in Appendix A.

4. Existing environment

4.1 Environmental aspects

The following sections summarise the existing ecological features within and adjacent to the Project site, including species, communities, and habitats. The ecological constraints, features and general Project layout of the site are presented in the Walla Walla Solar Farm Constraints Map from the Consolidated Development Consent produced as part of the approval of SSD-9874 MOD 2 (Figure 4-1).

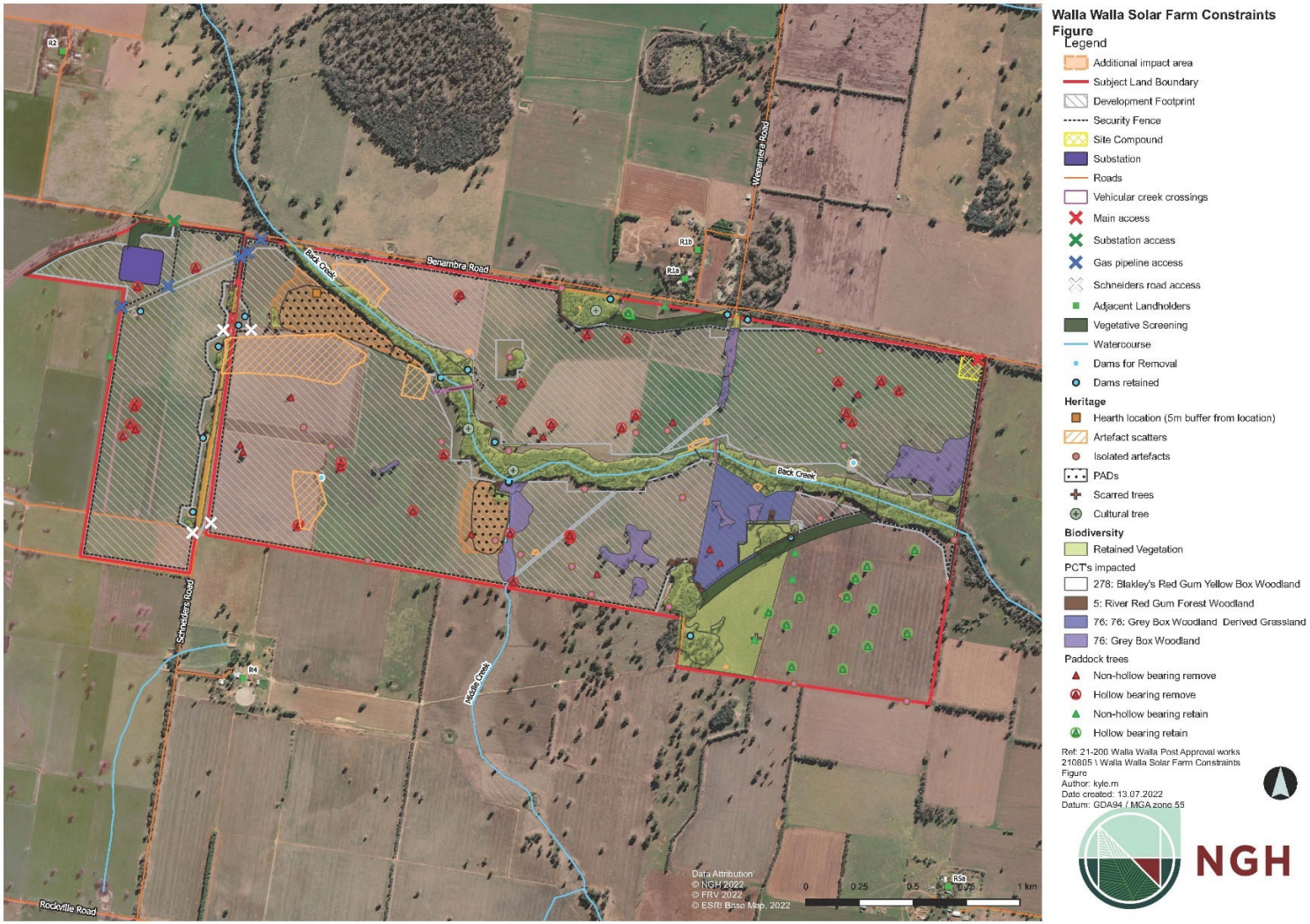


Figure 4-1 Walla Walla Solar Farm Constraints Map as included in the Project Consolidated Development Consent (SSD-9874 MOD 2)

4.1.1 Plant Community Types

The Project site is comprised of Plant Community Types (PCT) 5, 76, 277 and 278, as observed during field surveys. A summary of these PCTs and their characteristics and TEC status is provided in Table 4-1.

A map outlining the location of these observed PCTs is included in Figure 4-2.

Table 4-1 PCTs confirmed within the Project footprint by field surveys

Plant Community Type	Description
PCT 5 – River Red Gum herbaceous – grassy very tall open forest wetland	This PCT was identified with a dominance of River Red Gum (*Eucalyptus camaldulensis*). The shrub layer is absent, and the ground cover is highly disturbed through frequent grazing by sheep and cattle. Not listed as a TEC under either the BC Act or EPBC Act
PCT 76 –Grey Box tall grassy woodland on alluvial loam and clay soils	This PCT was identified by a dominance of Western Grey Box (*Eucalyptus microcarpa*) in the understory. A few scattered Bulloak (*Allocasuarina luehmannii*) were also present within the paddock trees. The understory has been heavily disturbed through agricultural activities of cropping and continuous grazing by livestock. The shrub layer is absent, and the groundcover is mostly comprised of exotic annuals. Some native groundcovers persist on the road reserves. Forms part of the TEC - Inland Grey Box Woodland TEC in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregion listed as Endangered under the NSW BC Act. Part of this PCT found within the Project site will be protected in the Back creek Riparian Exclusion Area.
PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland	This woodland is comprised of a small patch of 4 trees within a cropped paddock that is used for heavy grazing. There is no native understory. Forms part of the TEC: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and derived native grassland TEC listed as Critically Endangered under the BC Act
PCT 278 – Riparian Blakely's Red Gum-box-sedge-grass tall open forest	This PCT occurs along Back Creek on the Eastern end of the Development Site. Sections of the creek transition from a River Red Gum Woodland (PCT 9) into Blakely's Red Gum, with scattered White Box, Grey Box and Yellow Box. Forms part of the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and derived native grassland TEC listed as Critically Endangered under the BC Act and Critically endangered under the EPBC Act.

4.1.2 Threatened Ecological Communities

Characteristic tree species for two threatened ecological communities have been observed within the Project site. These are:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia listed as Endangered under the NSW *BC Act* and Endangered under the federal EPBC act.
- White Box-Yellow Box-Blakley's Red Gum Grassy Woodland and Derived Native Grassland (Box-gum Woodland) listed as Critically Endangered under the NSW BC Act and Critically endangered under the federal EPBC Act.

TECs occurring within the Project site are distributed within all major segments of the site, with a larger section of Inland Grey Box Woodland occurring near the main access point from Benambra Road, in the north-eastern corner of the site (Figure 4-2).

The derived grassland and wetland zones (Middle Creek) of PCT 76 – Grey Box Woodland do not form part of the NSW listed Grey Box Grassy Woodland TEC as the understory is exotic dominated and very few native species remain. Native species that remain are common disturbance tolerant understory species. The site has been cultivated in the past and there would be no remnant seed bank remaining in the soil.

These zones are similarly not considered to form part of the federally listed TEC due to the understory sufficiently degraded with too few native species. The woodland zones of PCT 277 forms part of the NSW listed Box-gum Woodland however does not meet to the condition threshold of the federally listed TEC due to the exotic dominated understory.

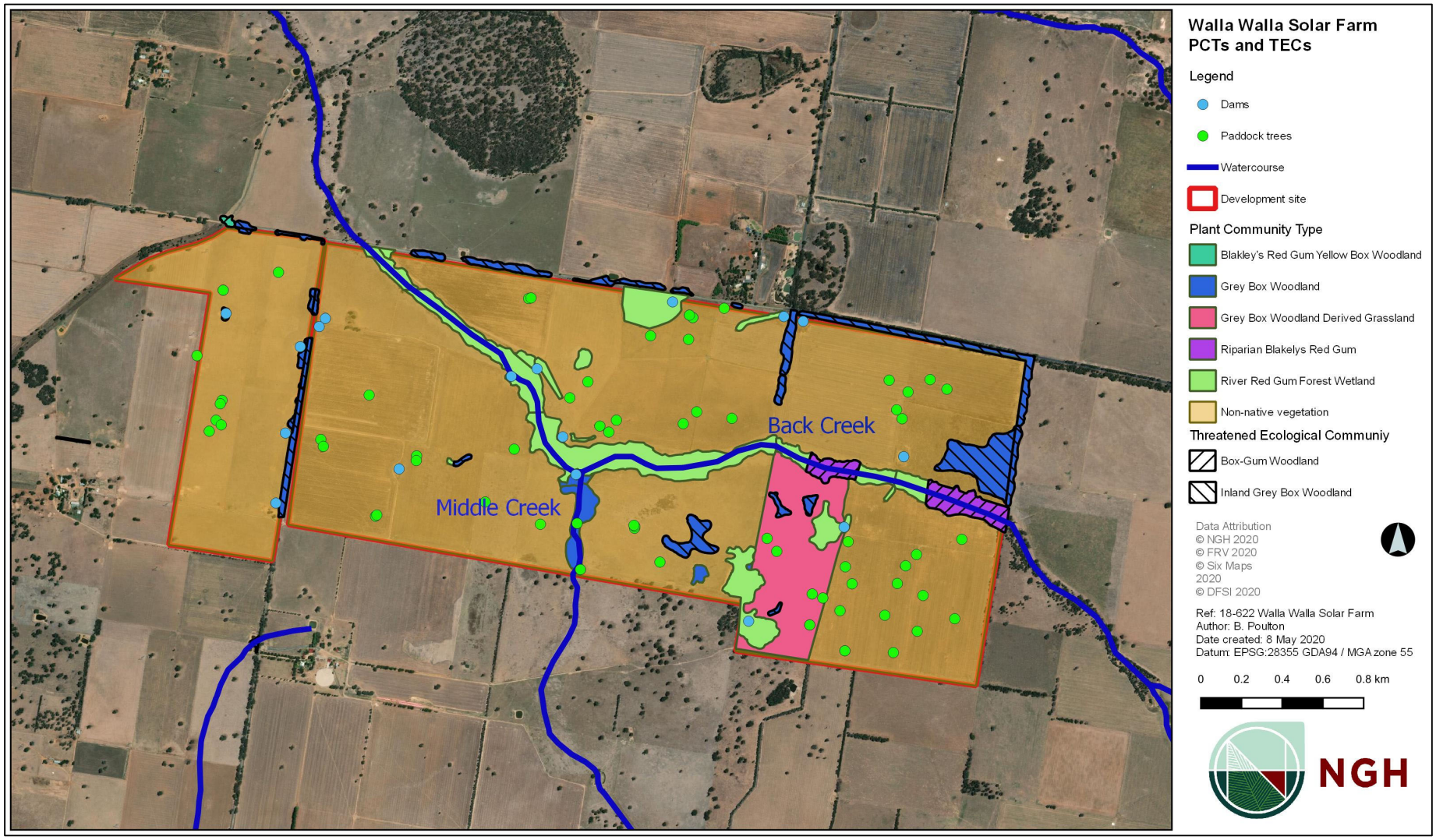


Figure 4-2 PCTs and TECs observed within the Project site (NGH 2019)

4.1.3 Threatened or otherwise significant flora species

Site surveys undertaken for the Project did not detect any threatened flora species. Based on the highly disturbed understory from intensive grazing and cropping, no federally listed flora species are considered to occur within the Project area. However, during field surveys, species for candidate credit species were not all able to be surveyed for during the appropriate survey period and have therefore been assumed to be present on site. The only flora species this applies to is the Pine Donkey Orchid (*Diuris tricolor*) which is listed as Vulnerable under the BC Act.

4.1.4 Priority weeds

From field surveys undertaken as part of the Project Biodiversity Assessment Report (BDAR), approximately 13 hectares (ha) of the Project site was assessed as exotic vegetation. This vegetation was found to be predominantly comprised of agricultural weeds, including:

- Barley Grass (*Hordeum leporinum*)
- Rye Grass (*Lolium*)
- Phalaris (*Phalaris aquatica*)
- Patterson's Curse (*Echium plantagineum*)

No weeds listed as priority weeds for the Greater Hume Council local government area (LGA) were observed during field surveys, however Paterson's Curse (*Echium plantagineum*) is listed as a weed under the General Biosecurity Duty for all of NSW. No weeds of national significance (WoNS) were observed during field surveys. Further, priority weeds for NSW should be managed in accordance with the *Biosecurity Act 2015* and guided by the Murray Regional Strategic Weed Management Plan 2017 – 2022. Six weeds are currently listed as priority weeds for the Murray Region under the NSW *Biosecurity Act,2015*. Management protocols and procedures are detailed in Table 6-4 and Table 6-5.

These are:

- Peppercorn (*Schinus spp.*)
- Fleabane (*Conyza spp.*)
- Saffron Thistle (*Carthamus lanatus*)
- Bathurst Burr (*Xanthium spinosum*)
- Spear Thistle (*Cirsium Vulgare)*
- Patterson's Curse (*Echium plantagineum*)

The *Biosecurity Act 2015* dictates that all priority weeds are regulated with a general biosecurity duty to prevent, eliminate, or minimise any biosecurity risk they may pose. The WWSF land manager who deal with any plant has a duty to ensure the risk is prevented, eliminated, or minimised, so far as is reasonably practicable.

The five high threat weeds listed under the BC act found onsite in the Bam Plots, included:

- Great Brome - *Bromus diandrus*
- Kikuyu - *Cenchrus clandestinus*
- Bathurst Burr - *Xanthium spinosum*
- Saffron Thistle - *Carthamus lanatus*
- Onion Grass - *Romulea rosea*

4.1.5 Observed and threatened fauna

A total of 28 fauna species have been observed during field surveys within the Project site. Three threatened species were observed on site. Table 4-2 summarises these threatened species observations.

Table 4-2 Threatened fauna species observed during field surveys

Species	Location observed on site
Flame Robin (*Petroica phoenicea*)	Foraging in grassland next to the River Gum Woodland in the South of the Site
Brown Tree Creeper (*Climacteris picumnus*)	River Red Gum Woodland along Back Creek
Squirrel Glider (*Petaurus norfolcensis*)	River Red Gum Woodland along Back Creek

A total of eighteen threatened fauna species listed under the BC Act or EPBC Act have been recorded or are predicted to occur within the Project footprint, in accordance with the Protected Matters report undertaken for the Project. Based on the fauna habitats found within the Project site, eight federally listed fauna species are considered to have the potential to utilise the observed fauna habitats. These species are listed in Table 4-3.

Table 4-3 Threatened fauna considered to have potential to utilise fauna habitats present on site

Species	Conservation status	Observed during field surveys?
Regent Honeyeater (*Anthochaera phrygia*)	Critically endangered	No
Swift Parrot (*Lathamus discolor*)	Critically endangered	No
Superb Parrot (*Polytelis swainsonii*)	Vulnerable	No
Painted honeyeater (*Grantiella picta*)	Vulnerable	No
White Throated Needletail (*Hirundapus caudacutus*)	Vulnerable	No
Koala (*Phascolarctos cinereus*)	Endangered	No
Corben's Long Eared Bat (*Nyctophilus corbeni*)	Vulnerable	Yes*
Sloane's Froglet (*Crinia sloanei*)	Endangered	No
Squirrel Glider (*Petaurus norfolcensis*)	Vulnerable	Yes
Little Eagle (*Hieraaetus morphnoides*)	Vulnerable	No**
Southern Myotis (*Myotis Macropus*)	Vulnerable	No**

* A *Nyctophilus sp.* was observed during field surveys however the species present was not distinguishable and *Nyctophilus corbeni* has therefore been assumed to be present on site.

** Species surveyed for candidate credit species however were not able to be surveyed for during the appropriate survey period and have been assumed to be present within suitable habitat.

In addition to the above species, two migratory species are also considered to have the potential to occur within the Project site however were not observed during field surveys. These species are:

- Fork-tailed Swift (*Apus pacificus*)
- White Throated Needletail (*Hirundapus caudacutus)*.

5. Environmental aspects and impacts

Environmental aspects and impacts relevant to the BMP are described below. Impacts to native vegetation (including ground cover) have been approved under MOD 2. Any impact to native vegetation (including ground cover) outside the approved MOD 2 footprint would require a project modification. No impacts outside the approved MOD 2 footprint are to occur.

5.1 Construction activities

A variety of construction activities that have the potential to impact upon biodiversity management will be undertaken as part of the Project. These activities include, but are not limited to:

- Clearing and grubbing of native and non-native vegetation
- Removal of hollow-bearing trees
- Topsoil stripping
- Works around Back Creek and within riparian vegetation including construction of Creek Crossings
- Access track construction, including 25 km of tracks of 5 m width
- General earthworks near vegetation and waterways/drainage lines, resulting in disturbance of soils, consequential erosion and the mobilisation of sediment
- Use of chemicals / fuels (potential for spills and subsequent contamination of waterways, habitats).

5.2 Ecological impacts

The potential for impacts on biodiversity will depend on a number of factors, including the nature, extent and magnitude of construction activities and their interaction with the natural environment. In total there is 28.9ha of veg to be cleared and 47 scattered tree to be removed as part of the mod 2 BDAR. With the exception of a single paddock tree, there would be no impact to native vegetation by development of the additional 15.4 ha of solar array as part of the MOD 2, which predominantly occurs on Category 1 cleared agricultural land. Stands of native vegetation contained within the Potential Archaeological Deposit (PAD) areas would be retained.

In light of the MOD 2 changes, the previously approved BDAR has been revised to:

- Incorporate seasonal surveys for threatened species.
- Assess impacts to proposed increases to the development footprint.
- Update credit calculations.

Potential impacts attributable to consolidated construction activities could include:

- Loss of vegetation/habitat including threatened flora and threatened ecological communities
- Disturbance to aquatic and riparian habitats potentially resulting in contamination and siltation of waterways
- Direct and indirect impacts to fauna
- Fragmentation of habitats and wildlife corridors
- Barrier effects on wildlife and riparian corridors (such as the erosion of genetic stock, impacts on home ranges, territorial disputes, increased competition etc)

- Spread of plant diseases
- Edge effects (such as weed invasion, pests and disease)
- Disturbance to groundwater dependent ecosystems
- Noise, vibration and light.
- Shading by solar infrastructure

6. Environmental management protocols and procedures

6.1 Ecological management strategies

Unless otherwise specified, the following environmental controls apply to the Project site and are to be carried out during the pre-construction, construction, post-construction, and decommissioning phases of the Project. The flora and fauna management strategies are designed to ameliorate impacts on flora and fauna and are based on the mitigation measures are described in Sections 6.14 & 6.15.

An overview of fauna and flora mitigation strategies include:

- Timing of works to avoid critical lifecycle events
- Definition of the site boundary
- Habitat and Vegetation Protection
- Clearing protocols, pre-clearing and post-clearing surveys
- Fauna Recovery Procedures
- Weed and pathogen management
- Feral animal management
- Relocate habitat features (course woody debris such as fallen timber, hollow logs) into retained vegetation patches within the development site
- Aquatic Habitat revegetation and Back Creek Riparian Zone Management
- Unexpected threatened species finds
- Noise barriers or daily/seasonal timing of construction and operation activities to reduce impacts of noise.
- Light shields or daily/seasonal timing of construction activities to reduce impacts of light spill.
- Adaptive dust monitoring programs to control air quality.

6.2 Definition of site boundary

Set up site boundary and exclusion zones with fencing and signage to restrict access to sensitive areas. These sensitive areas include: Dams, retained vegetation, vegetative screening, revegetation areas and the Back creek Riparian Exclusion Zone. Figure 6-1 identifies sensitive areas of the Project site.

Standard recommendations for defining boundaries are listed below:

- Allow enough lead time to establish exclusion zones before clearing
- Select the appropriate fence type. No barbed wire to be used on any fences (including the substation fence).
- Mark out exclusion zones with temporary markings and where possible use a qualified surveyor
- Permanent exclusion zones including Back Creek, boundary plantings (vegetative screening), dams, and revegetation areas – should be fenced appropriately to exclude stock. No barbed wire will be used on any fences.

- Permanent exclusion zone fencing will be easily identified by appropriate signage and checked by a suitably qualified ecologist prior to the commencement of any works.
- Ensure any trees to be felled to establish exclusion zones are felled so as to fall away from the exclusion zone
- Place exclusion zone fencing outside the tree protection zone (in accordance with Australian Standard AS 4970-2009 Protection of trees on development sites)
- Erect signs to inform personnel of the purpose of fencing. Signs should be clearly visible from a distance of at least 20 m and should be general in nature, for example 'Exclusion Zone'
- Store materials or equipment outside exclusion zones in accordance with Australian Standard AS 4970-2009 Protection of trees on development sites
- Avoid stockpiling materials and equipment and parking vehicles and machinery within the dripline of any tree
- Ensure fences are maintained (regularly inspected and repaired). Removal of exclusion fences should be undertaken in consultation with the Environmental Site Representative (ESR)
- Communicate the importance of exclusion zones in site inductions and toolbox talks
- Ensure exclusion zones are up to date and marked on a suitable plan
- Ensure breaches are reported to FRV.
- Plan fencing in advance to ensure that where practicable, the delineation of the permanent site perimeter boundary will be located to avoid habitat fragmentation within retained vegetation zones. This may include a break in the perimeter fence where it crosses Back creek at the northwest and east of the site.

Exclusion fencing and relevant signage will be installed around habitat to be retained prior to the commencement of construction. Perimeter fencing and exclusion fencing will be constructed with plain wire to reduce impacts from entanglement on birds and Squirrel Gliders.

Wherever practicable, the delineation of the site perimeter boundary will be located to avoid habitat fragmentation within retained vegetation.

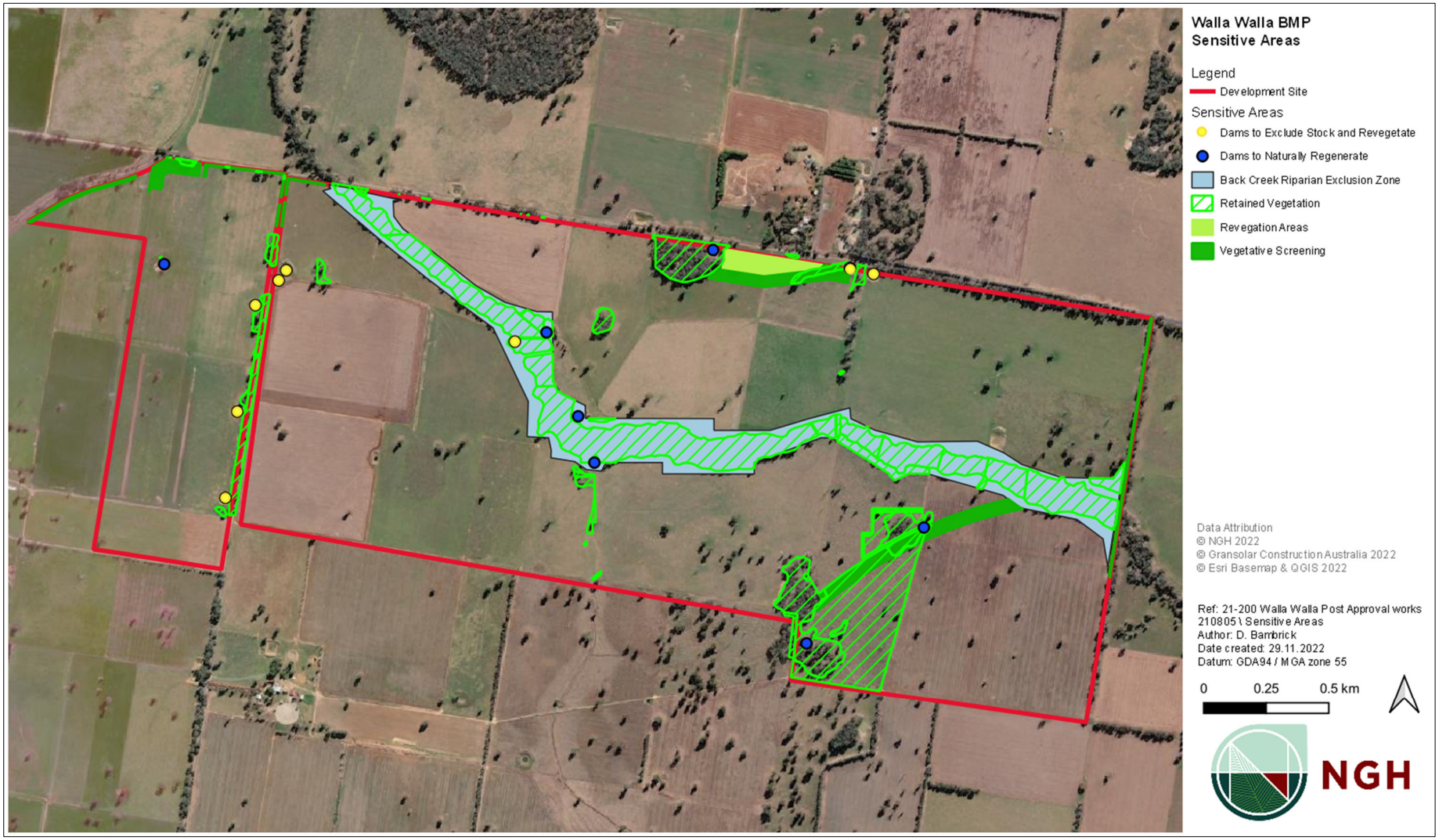


Figure 6-1 Sensitive areas

6.3 Biodiversity enhancement and material salvage

A Biodiversity Enhancement Plan (BEP) (Appendix F) is incorporated into the BDAR (Appendix J) undertaken in collaboration with the Holbrook Landcare Network. The BEP has been developed to make provision for the ecological restoration, rehabilitation, and ongoing maintenance of retained native vegetation habitat and dams on the Project site. The BEP will be implemented to improve the biodiversity values of the retained habitat such as strategic revegetation to restore or rehabilitate connectivity and food sources, installation of nest boxes, relocation of fallen timber and rehabilitation of farm dams for aquatic and related fauna habitat. Larger woodland patches including the Back Creek Riparian Exclusion Zone would also be retained, providing 'stepping-stone' refuges for mobile species in an existing highly cleared environment. This would enhance habitat for threatened species such as Squirrel Glider and Ecosystem Species (see section 4.1 of the BDAR).

The Serious and Irreversible Impact (SAII) of the BDAR relies on the implementation of the BEP to aid in minimisation of environmental degradation of the critically endangered vegetation community Box-Gum Woodland.

During construction, a variety of materials will be reused in habitat relocation and site rehabilitation works. Landscaping rehabilitation works are addressed in greater detail in the Project Landscape Plan, including the use of indigenous species in screening and landscape plantings. This is also covered in some degree in relation to revegetation in Section 6.4

Any salvageable habitat material, such as coarse woody debris, bush-rock or soil, will be salvaged from the Project site in accordance with the requirements of the pre-clearance survey and clearing procedures included in Appendix C and Appendix D. Habitat enhancement will be undertaken wherever practicable in accordance with the BEP (Appendix F) and approved by the Project Ecologist and FRV through the placement of habitat features within areas adjacent to the Project site.

The BEP highlights opportunities for conservation management and restoration and provides further technical input to managing the prescribed impacts of the Project.

Recommended actions detailed in the BEP will be utilised in the implementation of this BMP and incorporated into the relevant environmental aspects. Some recommendations identified in the BEP have been superseded and not carried forward to this BMP due to some Project design changes, refer to Table 6-1.

Reporting and monitoring would be completed as part of this BMP based on the outcomes and measures outlined in Table 6-4. Reporting and monitoring would detail the effectiveness of the measures to be implemented as part of the BEP.

Table 6-1 Recommendations provided by the Biodiversity Enhancement Plan

Map reference (Figure 6-2)	BEP Descriptions/Recommendations	BMP Implementation	Included in BMP
Back Creek	Most of this creek is fenced off already and if stock are going to be grazing the site it is recommended to fence it off to stock and undertaking some sort of understorey planting. The creek would be suitable for direct seeding where the ute could get around amongst the regrowth. If the existing fences were to remain, then direct seeding by machine is an option in some most of the creek. If the fencing was to be moved in closer to the creek then tubestock and/or hand direct seeding would be more appropriate	• Back creek riparian buffer mapped as sensitive area to be excluded from impacts (Figure 6-1). • Riparian area to be fenced off, refer to section 6.2. • Direct seeding or tubestock planting and/or hand direct seeding as per detail provided in Appendix F	Included, BMP16
Dam 1, 2, 3, 6, 8 ,9	Dam - exclude stock and revegetate These are already included within exclusion areas and within the boundary buffer zone - recommend planting with tubestock as part of the buffer planting Allow passive regeneration of fringing vegetation	• Included within sensitive areas to be excluded from impacts (Figure 6-1). • Planting with tubestock alongside passive regeneration of fringing vegetation.	Included, BMP25
Dam 4	not inspected Could be fenced and revegetated	• Included within sensitive areas to be excluded from impacts (Figure 6-1).	Included, BMP16
Dam5	Dam - stock access point and fence and revegetate Could either be left in the paddock or included in the boundary buffer with a stock access point	• Included within sensitive areas to be excluded from impacts (Figure 6-1).	Included, BMP16
Dam 7 , 11, 12, 13, 14	Dams included in exclusion areas This is included in marked exclusion areas	• Included within sensitive areas to be excluded from impacts (Figure 6-1).	Included, BMP16
Dam 10	Dam - exclude stock and revegetate This is adjacent to the creek and if the dam is to remain it is recommended to fence it in to the creek site	• Included within sensitive areas to be excluded from impacts (Figure 6-1).	Included, BMP16
Dam 15	Dam - maintain existing fencing Manage stock access	• Manage stock access through maintaining of existing fencelines	Included, BMP16
Excl1	Severely degraded gilgai formation. Exclude from grazing Recommend maintaining existing internal fencing so this becomes part of the riparian area to reduce further degradation by stock access. The site has been sown with exotic pasture species so has limited chance of natural recovery. Recommend addition of coarse woody debri and could attempt active regeneration by weed control and hand direct seeding - need to assess further.	• Manage stock access through maintaining of existing fencelines • Addition of coarse woody debris from clearing activities • Active regeneration through weed control • Revegetation through direct seeding	Included , BMP16, BMP25, BMP9
Excl2	Degraded gilgai formation but potential for recovery High priority for stock exclusion and recommend addition of some coarse woody debris.	• Included within sensitive areas to be excluded from impacts (Figure 6-1). • Addition of coarse woody debris from clearing activities	Included, BMP16, BMP9

Map reference (Figure 6-2)	BEP Descriptions/Recommendations	BMP Implementation	Included in BMP
Excl3&4	Intact ephemeral Redgum swamps High priority for stock exclusion	• Included within sensitive areas to be excluded from impacts (Figure 6-1).	Included, BMP16
Excl5	Intact ephemeral Redgum swamp - potential to fence and exclude grazing High priority for stock exclusion	• Included within sensitive areas to be excluded from impacts (Figure 6-1). • Forms part of the vegetation screening.	Included, BMP16
Excl7	Intact Redgum Wetland Maintain existing fencing and exclude regular stock grazing	• Included within sensitive areas to be excluded from impacts (Figure 6-1). • Forms part of the vegetation screening.	Included, BMP16
Reveg1	50m reveg corridor buffer This site is exotic pasture and/or crop. Recommend tubestock planting at 4X4m spacing 80% understorey, 20% trees	Not proposed to be implemented No works are proposed in this portion of the site. Vegetation screening is to occur further north west of this boundary, which would form a more effective screen than along the boundary.	NA
Reveg2	50 m corridor screen and biodiversity link This site is exotic pasture and/or crop. Recommend tubestock planting at 2X4m spacing 80% understorey, 20% trees	• Included within sensitive areas to be excluded from impacts and be vegetated (Figure 6-1). • Forms part of the vegetation screening.	Included, BMP16
Reveg3	50 m corridor screen and biodiversity link tubestock This site is exotic pasture and/or crop. Recommend tubestock planting at 2X4m spacing 80% understorey, 20% trees	• Included within sensitive areas to be excluded from impacts (Figure 6-1). • Forms part of the vegetation screening.	Included, BMP16
WLane	Remnant Grey Box and add understorey Recommend retaining this corridor for linkage to other remnant vegetation in the areas Undertake weed control in whole corridor - would expect some regeneration of Grey Box trees Fence, rip and plant the 300m to create a corridor to creek (10m corridor proposed, 3 rows)	Not proposed to be implemented This area forms part of the development footprint and would be impacted by the Project.	NA
5m buffer plantings	Grey Box/Redgum/Yellow Box Recommend to space 3 lines 1.5m apart and plant at 4m spacings alternating across the rows Where particular screening is required can make spacings 3m in those sections	Would be implemented for the revegetation and screening areas.	Included, BMP16
Roadside planting	Addition of understorey species along the section of Benambra Rd and Schneiders Rd 2.2km of roadside with some plants added.	Currently bot proposed to be implemented These plantings are proposed outside the project area and would need to be undertaken in consultation with Greater Hume Council.	NA

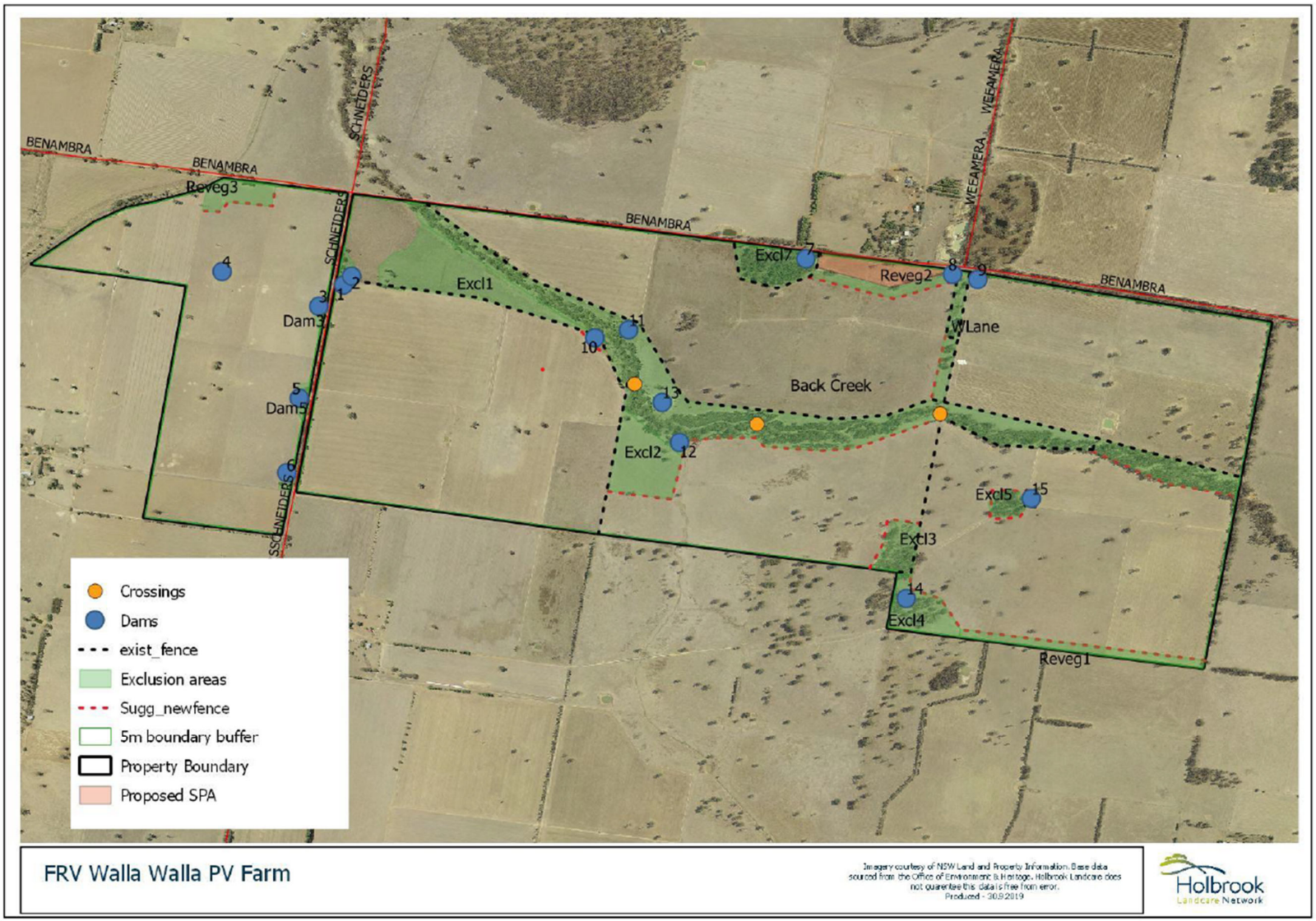


Figure 6-2 BEP areas (Holbrook Landcare Network Walla Walla SF BEP)

6.4 Habitat and vegetation protection

Several habitat and vegetation protection practices will be employed during the various Project phases to protect retained vegetation both adjacent to and within the Project site.

During construction areas to clear adjacent to areas to be retained, chainsaws will be used rather than heavy machinery to minimise risk of unauthorised disturbance. Additionally, no GRS vehicle access will be permitted into the Back Creek Riparian Exclusion Zone which encompasses the Box-Gum Woodland TEC in its south-eastern section (Figure 4-2) during construction. All staff will be briefed on this access requirement during the GRS site induction. Further to this:

- Design and construction planning would aim to maximise retention of significant vegetation in the Project area and minimise clearing where possible
- No stockpiling or storage will occur within the dripline of any native trees
- Individual trees and patches of vegetation such as Box Gum Woodland (Figure 4-2) to be retained close to busy construction, operational and decommissioning zones will be permanently fenced as part of the Back creek riparian exclusion zone (Figure 6-3). Signage indicating ‘SENSTIVE ENVIRONMENTAL AREA” will be affixed to the fencing to demarcate the Box Gum Woodland.
- Staff inductions will include a description of the activities allowed within vegetation protection zones. No other activities, stockpiling or material handling (apart from tree maintenance) will be allowed in these areas
- Fauna habitats adjacent to the project site are to be protected from construction impacts with the use of temporary fencing and control of potential sediment and erosion impacts as outlined in the Construction Soil and Water Management Plan, and Erosion and Sediment Control Plans (ESCP).
- All areas identified as a TEC in Figure 4-2 will be protected from all project phases including construction, operation, and decommissioning impacts with the use of fencing and control of potential sediment and erosion impacts as outlined in the Construction Soil and Water Management Plan, and Erosion and Sediment Control Plans (ESCP). It is important to note that TECs can and do occur where trees are not present.

6.5 Restoration of natural areas

Restoration of natural areas or retained vegetation, will primarily involve two strategies of restoration. This includes active revegetation including stock exclusion, and passive regeneration and stock exclusion. There is also an option on several dams to include partial stock access for watering animals.

The BEP identifies the following exclusion areas and dams to be retained for restoration (Figure 6-3):

- Removed (2 dams)
- Retained and managed with passive regeneration (7 dams)
- Retained and be actively revegetated (8).
- Vegetative screening
- Northern Revegetation area (between dams 7 and 8)

- Back Creek Riparian exclusion zone

The guideline *Enhancing farm dams: what to plan in and around your dam* (Sustainable Farms and Local Land Services, 2021) Should be used to guide the revegetation and regeneration of the dams to be retained.

The following table identifies specific restoration procedures for the restoration and management of the dams to be retained (Figure 6-3).

Table 6-2 Dam restoration management strategies

Dam ID	Dam Management Strategy
1, 2, 3, 6, 8, 9	These dams are included within Back creek riparian exclusion zone and within the boundary buffer zone along Schneiders Road. **Revegetate** with terrestrial and aquatic tubestock as part of the buffer planting. Passive **Regeneration** of fringing vegetation. **Exclude stock** Include snagging and the placement of **Woody Debris**
4	**Revegetate** and fence (Stock Exclusion**)**. A stock access point may be installed, Include snagging and the placement of **Woody Debris**
5	Include in boundary buffer with a stock access point. Stock Exclusion. Allow to passive **Regeneration** Include snagging and the placement of **Woody Debris**
7, 11, 12, 13, 14	Included in marked exclusion areas allow to passive **Regeneration** Include snagging and the placement of **Woody Debris**
10	Passive **Regeneration** Exclude stock Include snagging and the placement of **Woody Debris**
15	Passive **Regeneration** Exclude stock Include snagging and the placement of **Woody Debris**
16 and 17	These dams are not retained

The perimeter vegetative screening and the northern revegetation area will undergo active revegetation as described in the Landscape Management Plan and the BEP. The Back creek

Riparian Exclusion Zone restoration strategy will include passive regeneration with the exception of Nesting box installation.

For revegetation in accordance with the BEP, tubestock revegetation is suitable for former pasture and crop areas. Preparation requires spraying to control exotic cover and then ripping or cultivation when the site has a dry profile. The intention of ripping is to break the compaction of the soil, allow moisture penetration and retention in preparation for planting and create a weed-free “bed” for fast planting. Deep ripping refers to 30-40cm – some of these soil types may only require regular cultivation. Spraying with a knockdown chemical should occur the Spring before planting is to go ahead and then again after the Autumn break and just before planting. Planting in this district generally occurs from June to September (see attachment 1 of the BEP Site Preparation).

Direct Seeding is a suitable method where there is low fertility and usually some native groundcover left. The seeder is towed on the back of a ute so needs to be able to manoeuvre in the site. If there is exotic weed cover (annual species) a 1m wide strip is sprayed with a knockdown at the same time as seeding. All site recommendations would come from the Southwest Slopes Revegetation Guide – Walla Walla Site Profile. Specific site species recommendations are not included in this document.

Further to the areas identified in the following Figure 6-3, complementary roadside planting would benefit the Project site biodiversity. There is the opportunity for supplementing the roadside vegetation along Schneider’s Rd and the section of the Benambra Rd west of the creek in collaboration and agreement with Greater Hume Council. Additionally, understorey plants such as wattles and other shrubs at intervals along the road could be integrated. Tubestock would be the most appropriate method here.

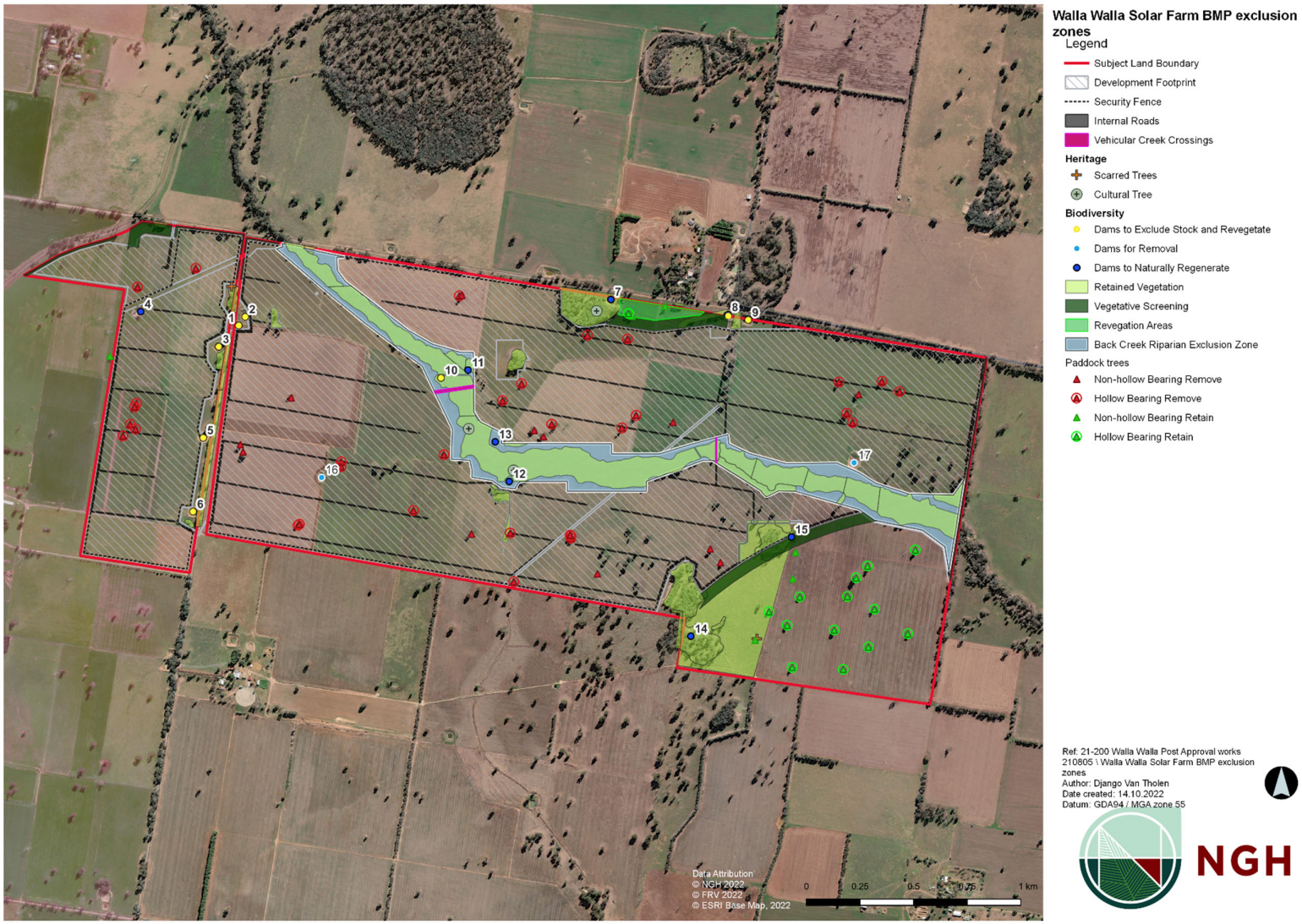


Figure 6-3 Walla Walla restoration areas

6.6 Hollow-bearing trees

Detailed guidelines for the removal of hollow-bearing trees (HBTs) are included in Appendix B. The removal of HBTs will be avoided during spring to avoid the main breeding period for hollow-dependent fauna, with any clearing necessary within this timeframe to be undertaken in consultation with FRV, the Project Ecologist and relevant local wildlife groups.

In order to offset the removal of HBTs as part of the WWSF development, approximately 120 nesting boxes for birds and mammals will be installed across the development site, in consultation with FRV and relevant local wildlife groups. Nesting boxes will be designed to meet the requirements of target species including Squirrel Gliders, bats, parrots and owls. The boxes will be monitored periodically for use and/or need for replacement during the operational phase of the Project. Through the implementation of the Biodiversity Enhancement Plan (BEP) (Appendix F) a Nest Box Strategy/Plan has been prepared in consultation with Holbrook Landcare. This outlines the requirement for specific requirements for the installation of boxes per species, along with monitoring and maintenance. The strategy will also contain details of the nesting box supplier and installation process and location of nesting boxes. The strategy will be approved/endorsed by BCD and the Holbrook Landcare network.

6.7 Clearing protocols and surveys

A summary of clearing protocols is provided below. No clearing will be undertaken outside of the approved Project boundary or within clearing exclusion zones at any time during construction.

6.7.1 Identify clearing thresholds

The purpose of identifying clearing thresholds aims to separate trees and native vegetation to be retained or cleared outlined in the BDAR and project approval.

- Prior to initiation of pre-clearing protocols, a suitably qualified ecologist would work with the proponent to ensure all areas to be cleared are within approved areas. This must be undertaken by a suitably qualified ecologist.

6.7.2 Pre-clearing surveys

The purpose of pre-clearing surveys from a fauna management perspective is to identify habitat trees containing fauna which might otherwise be killed or injured during the required tree-felling or clearing within areas of approved clearing. Standard environmental controls for the pre-clearing surveys are listed below.

- Pre-clearing surveys will be undertaken by a suitably qualified ecologist with experience in fauna handling
- No more than one week out from clearing:
    - The Project Ecologist will mark all habitat trees with the works area to be felled. They will identify the presence or evidence of fauna (including fresh scratches or remains of prey). Pre-clearing surveys will involve nocturnal surveys to detect fauna using habitat features.
    - Trees for protection will have exclusion fencing established around the tree to protect it during clearing. This consists of star pickets, plain (non-barbed) wire and para-webbing (or equivalent) with an “Environmental Protection Area” sign. A suitably qualified ecologist would fencing is clearly signed and adequate.

  - Trees for removal will be marked with fluorescent marking paint
  - The ecologist will map and record data of all habitat trees including number and types of hollows
  - Project ecologist to identify fauna release locations outside the Project area. Release locations will be identified by the Project Ecologist based on the specific habitat requirements of the species captured. Suitable onsite exclusion areas include TECs, nestbox locations, revegetated dam sites (Figure 6-3) and Back Creek Riparian Exclusion Zone (Figure 6-3). Nest Boxes will be installed at the time of pre-construction to create sites for the release of any fauna spotted through the construction or operational phase.
- No more than 24 hours before clearing, using the checklist attached as per Appendix D, the following will occur:
  - Boundaries for construction, clearing and exclusion zones will be confirmed
  - The Project Ecologist will check marked habitat trees within the works area are correctly marked as either for protection or felling
  - Contact will be made with the local vet and/or wildlife carer (contact details outlined in Appendix G) prior to the commencement of clearing works to ensure they are available in case fauna is found
  - Fauna relocation will take place, refer to Appendix G.
- Environmentally sensitive features will be identified and mapped for inclusion in clearing survey reports (refer to Figure 6-1).
- At the completion of the pre-clearing surveys a report will be compiled of all the data and activities completed during the survey.

6.7.3 Clearing

- Prior to clearing, machine operators are to be informed of the significance of marked habitat trees and given instructions for their removal. They are also to be informed of marked individual trees to be retained and exclusion zone boundaries
- A qualified ecologist must be present on site during the removal of hollow bearing trees to supervise the works
- Further instructions for fauna rescue and release during clearing are detailed in Appendix G and Unexpected threatened species finds in Appendix K
- Hollow bearing tree removal is to be undertaken in a two stage clearing process as outlined within Appendix B
- Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees.

6.7.4 Post-clearing surveys

Post-clearing, the Project Ecologist will survey the cleared area using the checklist attached as Appendix E.

A post-clearing survey report will be compiled and provided to GRS.

6.8 Fauna rescue and release procedure

A Fauna Rescue and Release Procedure has been developed and is included in Appendix G of this BMP. The Fauna Rescue and Release Procedure must be implemented whenever fauna is encountered on the site which require rescuing or relocation. Fauna rescue and/or relocation will be carried out by an experienced ecologist or licenced wildlife handler/carer.

All fauna interactions, including observed and unobserved fatalities, will be recorded in the Project Fauna Register, as included in Appendix H. Further, **Onsite** areas identified in Figure 6-3 for the release of fauna include the following areas:

- All areas with Retained Vegetation
- Back Creek Riparian Exclusion Zone
- Nesting Box Installation Areas.
- Revegetation Areas
- Vegetative Screening Areas

Other **Offsite** areas may be deemed suitable at the discretion of the Project Ecologist dependent on the fauna species encountered.

6.9 Weed and pathogen management procedure

A Weed and pathogen management procedure has been developed and is included at Appendix I of this plan. This procedure contains details for the following:

- Requirements for weed identification across the Project site
- Weed hygiene protocols to ensure no weeds are transported to or from the Project site
- Methods for undertaking weed control and treatment (including requirements for herbicide application)
- Requirements for monitoring of weeds
- Requirements for transportation and disposal of weeds.

Six weeds are listed as priority weeds for the Murray Region under the NSW Biosecurity Act. These are:

- Peppercorn (*Schinus spp.*)
- Fleabane (*Conyza spp.*)
- Saffron Thistle (*Carthamus lanatus*)
- Bathurst Burr (*Xanthium spinosum*)
- Spear Thistle (*Cirsium Vulgare)*
- Patterson's Curse (*Echium plantagineum*)

The *Biosecurity Act 2015* dictates that all priority weeds are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any land managers or authorities who deal with any plant has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

The five high threat weeds listed under the BC Act found onsite in the Bam Plots, included:

- Great Brome - *Bromus diandrus*
- Kikuyu - *Cenchrus clandestinus*

- Bathurst Burr - *Xanthium spinosum*
- Saffron Thistle - *Carthamus lanatus*
- Onion Grass - *Romulea rosea*

No weeds of national significance were observed during field surveys.

6.10 Vehicle Hygiene Procedure

Vehicle Hygiene Procedures will be implemented for any vehicle that enters the Project site during construction and operation which is likely to come into contact with the natural ground or weeds (Appendix J).

The procedures include:

- Inspection upon arrival in laydown area
- Removal of dirt and/or plant matter from newly arrived vehicles at a designated washdown area by trained site personnel
- Washing and inspection prior to vehicles being given the 'all clear' to enter indirect disturbance areas
- Inspection and washing after leaving indirect disturbance areas and prior to leaving the site
- Inspections and washdowns will be recorded on a Vehicle Hygiene Register. An example is shown in Section 6.10.

Any water from the washdown area will be managed in accordance with the Soil and Water Management Plan (SWMP) which will be prepared prior to the commencement of construction.

6.11 Feral Animal Management

Suppression and control measures for foxes, cats, rabbits and hares will be undertaken. There are several methods to control foxes, rabbits/hares and cats with the main methods involving poisonous baits, warren and den destruction (ripping warrens) and direct elimination (shooting).

Any program to control feral animals should be put in place early to reduce population numbers as far as possible and this is achieved through continuous monitoring. Feral animal populations can be reduced to minimise pressure on native plants and animals. Due to feral animal populations in surrounding areas, eradication will be largely unachievable. However, prevention and containment can be achieved by implementing an adaptive Pest Management Plan (PAP).

An adaptive Pest Management Plan (PAP) detailing early, and ongoing suppression methods will be implemented. The PAP will determine the most effective strategies and formalise ongoing management needs and methods to keep pest animals at low levels. Pest animal density levels will be defined by relative abundance categories (Table 6-3) as defined in the Monitoring, Evaluation, Reporting and Improvement (MERI) framework for pest animal management in NSW (DPI, 2020). Additionally, the PAP will be guided by and the Murray Regional Strategic Pest Animal Management Plan 2018 – 2023 – Local Land Services, NSW Government (2018).

Table 6-3. Relative abundance categories

Relative Abundance Rating	Definition
High (abundant)	Many animals seen at any time and much sign of activity. Animals always observed and reliable sightings or sign. Significant sign of animals on more than 80% of occasions.
Medium (common)	Some animals seen at almost any time / Much active sign / Frequent but unreliable sightings of animals. Significant sign of animals on 50-80% of occasions.
Low (occasional)	Few or no sightings, little active sign. Very little sign of animals on 1-50% of occasions
Absent	No animals - No sign of animals, or animals have been removed from this location.
Unknown	Unsure, no information to base your judgement.
Present, but abundance unknown	Species is present, but abundance is unknown

6.12 Unexpected threatened species finds

An Unexpected Threatened Species Finds Procedure has been developed and is included in of this BMP. The procedure is to be implemented following the discovery of any known or suspected threatened flora or fauna within the Project site.

6.13 Nest box installation program

6.13.1 Number and type

One hundred and twenty Nesting Boxes are to be installed as a result of tree hollows lost through the construction of the Project. Some hollow-bearing trees bear multiple hollows. A proforma is provided in Appendix L to document nest box installations.

Nesting boxes will be designed to meet the requirements of target species including Squirrel Gliders, bats, parrots, and owls. Section 4.1.5 covers observed species at the Project site.

With regard to nesting box composition, plywood and pine boxes appear to last longer than boxes constructed of hardwood. Composite boxes using cyplas and Cypress are becoming a popular option offering long term durability (See Hollow Log Homes). Other options include chainsaw carved nest boxes and injection moulded modular nest boxes.

Example of composite Cypress/ Cyplas nesting box design suitable for Gliders or Tree Creepers (Source: Hollow Log Homes)

Example of nesting box design suitable for microbats (Source: Hollow Log Homes)

The nest box supplier, Hollow Log Homes, require 1-2 weeks lead time to supply the required amount of nest boxes (120). They are informed of the time and supply needs. Hollow Log Homes give a lifespan of 30+ years on their cyplas products.

6.13.2 Timing, placement and method

1. Timing: Nest boxes should be mounted a short time before the construction or clearing phase begins to increase the likelihood of use by animals that lose their hollow.
2. Placement: Ideally, nest boxes will be placed in good quality retained habitat in relative proportions and in the vicinity of hollows lost (HBTs removed).
3. The attachment method should reflect the chosen nesting box and recommendations from the supplier. Generally, boxes are best hung on a large nail rather than nailed to the tree through a backing board (Goldingay, Thomas , & Shanty, 2018). Boxes also need to be stable or they will not be used by fauna (Lindenmayer, et al., 2017).
4. Tree age: Nest box use by birds is greater when placed on large old trees compared with small trees, most likely due to structural attributes of large trees (Le Roux, et al., 2016).

Suitable areas for installation generally include:

- Vegetative screening and boundary zones in existing larger trees close to HBTs being removed
- Northern Revegetation area (between dams 7 and 8) in retained vegetation in existing larger trees close to HBTs being removed
- Back Creek Riparian exclusion zone in retained vegetation in suitable trees.

6.13.3 Maintenance

Even without regular maintenance, nesting boxes can be functional for up to 25 years after installation. One check every five years should be adequate in low rainfall areas. Nesting boxes should be checked three months after installation and then every second year after. A proforma is provided in Appendix L document nest box inspections.

Checks involve:

- Ensue nest box is securely attached to tree (and re-attach if the box has come loose).
- Replacing any boxes that have fallen apart.
- Inspect nest boxes for occupancy.
- Note use of nest boxes by any non-target species such as European Honeybee (*Apis mellifera*) and Common Myna (*Acridotheres tristis*). Non-target species such as European Honeybee may not substantially reduce the use of nest boxes over the long term, and as such are not considered necessary to manage (i.e. remove) unless native species occupation target is not met.

Around 10% native species occupancy over the first four years is considered success (Goldingay, Thomas , & Shanty, 2018; Lindenmayer, et al., 2017).

6.13.4 Monitoring

Monitoring the use of installed nest boxes is required for target species as per BD16 (refer to Table 2-2). Target species are Squirrel Glider, microbats, parrots and owls as outlined in BD16.

Monitoring would be annually and should be completed in a consistent manner (e.g., the same time each year) to ensure consistency of data, however seasonal differences should be considered to ensure surveys are completed in optimal periods, e.g. breeding timeframes in spring.

The nest box surveys would be completed by a suitably qualified ecologist. Nest boxes would be checked physically with use of a ladder or through remote camera (e.g. pole camera). An annual inspection report would be completed by the ecologist. The report would determine if target species are using nest boxes as expected and comment on the effectiveness of the mitigation measure. If the mitigation measure is ineffective, recommendations are to be provided by the ecologist for increased effectiveness (e.g. increased number of nest boxes).

Nest box monitoring would collect the following data:

- Date of inspection
- Next box unique identification number and location of nest box
- Name of ecologist
- Presence/absence of fauna:
    - Identification of fauna present
    - Presence/absence of pest species (e.g. ants/bees)
- Signs of use:
    - Nesting material (including description of nesting material, shape, materials used)
    - Chew marks
    - Droppings
- Photograph:

  - Outside of nest box
  - Inside of nest box
- Conditions of nest box:
- Any management actions to be undertaken:
  - Replacement
  - Repair
  - Removal of pest species
  - Recommendations on mitigation measures

6.14 Performance criteria, triggers and responsibilities

Table 6-4 provides a summary of the key performance criteria and triggers for corrective actions. The actions to be implemented should the trigger arise are also described. This combined with the monitoring described in Section 10.3 forms the Trigger, Action Response Plan (TARP) for the Project. The monitoring triggers have been used to inform the triggers for protocols and procedures that require monitoring in 7.3. Table 6-4 outlines specific details for weeds and pest animals. The actions should follow monitoring, control measures and follow up monitoring with an annual reporting component. A suitably qualified contractor will be required for the pest animal control and best practice methods applied.

Table 6-4 Summary of performance criteria, triggers for actions and responses for environmental management protocols and procedures

Management protocol or procedure	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
Clearing protocol and surveys BD2	• No more than 29.97ha of native vegetation will be removed • Pre-clearance surveys conducted • No impact on exclusion zones.	• Clearing outside of approved clearing areas • Pre-clearance surveys not completed • Clearing of trees not identified for removal.	Environmental Manager or Project Manager to: • Implement relevant corrective actions • Consider undertaking further environmental awareness training and incorporate into toolbox talks • Check demarcation of approved clearing areas • Identify the cause of incident • Report to relevant government authorities • Undertake corrective rehabilitation	• A post-clearing survey report will be compiled by Project Ecologist or fauna spotter catcher and provided to WWSF Environmental Manager • Monthly monitoring of high disturbance areas, exclusion zones and boundary fencing during construction • Progressive monitoring of the cumulative amount of vegetation cleared • Inspection of exclusion zone disturbance.	GRS or WWSF Environmental Manger
Fauna rescue and release procedure BD2, BD3	• Fauna encountered on site is rescued by an experienced ecologist/fauna spotter catcher • Fauna is relocated injury free • Fauna interaction is recorded in the Project fauna register (Appendix H).	• Fauna is not relocated by an experienced ecologist/fauna spotter catcher or licenced wildlife handler/carer. • Fauna is injured • Fauna interaction is not recorded in the Project fauna register (Appendix H).	Environmental Manager to: • Undertake further environmental awareness training to personnel working on site about the fauna rescue and release procedure and measures to be implemented.	• All fauna interactions, including observed and unobserved fatalities, will be recorded in the Project fauna register (Appendix H). • The Project fauna register will be reviewed monthly during construction.	GRS or WWSF Environmental Manger
Weed and pathogen management procedure See the following Table 6-5 for more detailed information on weed species management. BD12	• Annual reduction of weed species by at least 5%, • Ongoing management to reduce infestation by 5% each year or until the infestation cover is below 5%. Annual monitoring and weed treatment follow up will be required in previously treated areas. • A general reduction in the abundance of weeds in exclusion zones during the operation period as evidenced by annual inspections • New invasive weeds detected in Project area are controlled during operation • Listed priority weeds eradicated from the Development Site within 3 years of detection.	• >5% non-native ground cover • Presence of priority weeds detected during quarterly or annual monitoring • New weed species on site detected during quarterly or annual monitoring • Moderate or High levels of observed pest animal activity. See Section 6.11 for a definition of relative abundance.	• Eliminate priority weed species as soon as practicable in accordance with recommended control methods and timing • Increase targeted weed or pest animal control measures (Section 6.11) • Seek additional advice from Local Land Services and adhere to recommendations. • Implement actions within Table 6-5 and Appendix I.	• Photo points will be established as reference points for monitoring and incorporated into weed maps • Quarterly during construction • Annually during operation: ○ October for weeds	GRS or WWSF Environmental Manger Contractor Trained Ecologist
Vehicle hygiene procedure BD23	Vehicle Hygiene Procedure implemented for all vehicles.	Vehicle Hygiene Procedure not being implemented.	Environmental Manager or Project Manager to: • Implement relevant corrective actions. • Consider undertaking further environmental awareness training and incorporate into toolbox talks	• All vehicle inspections and washdowns are recorded in the Vehicle Hygiene Register	GRS or WWSF Environmental Manger

Management protocol or procedure	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
			• Ensure the Vehicle Hygiene Procedure is included in site inductions, toolbox talks etc and that staff responsible are implementing the procedure.		
Rehabilitation and material salvage BD14	• Coarse Woody Debris, rocks and topsoil (as described in Section 6.3 removed during construction are retained • Retained resources are relocated appropriately under direction of an ecologist during pre-clearance.	• Resources are stockpiled and not relocated • Resources are taken to landfill.	• Stockpiled resources are to be relocated immediately under the guidance of an Ecologist to ensure minimal damage • Conduct a meeting to refresh all personnel working on site about rehabilitation and material salvage • Ensure the rehabilitation and material salvage procedure is included in site inductions, toolbox talks etc and that staff responsible are implementing the procedure.	• Relocation of materials recorded as it occurs	GRS or WWSF Environmental Manger
Unexpected threatened species finds BD14	• Threatened Species Finds Procedure followed if threatened species found (Appendix K) • No harm occurs to threatened species.	Threatened species found to be present (living or dead) that were not previously identified.	Environmental Manager or Project Manager to: • Prepare and implement an education program for personnel working on site to increase awareness of threatened species that may be encountered.	• As it occurs.	GRS or WWSF Environmental Manger
Vegetation management BD12, BD20 BEP	• Maintain or improve the condition of vegetation across the Project site and within exclusion zones throughout the life of the Project • A general reduction in weed abundance in exclusion zones throughout the operational period.	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing within exclusion zones; >50% non-native ground cover Moderate to high pest animal activity recorded in exclusion zones. See Section 6.11 for a definition of relative abundance.	Investigation into reason for decline by suitable qualified person(s). Recommendations following investigation to be followed which may include but not be limited to: • Exclude stock and human/vehicle access • Targeted weed or pest control • Groundcover rehabilitation and shrub/tree plantings for habitat enhancement • Ecological burns in consultation with appropriate authorities to reduce fuel loads or control over-dominant groundcover species, in accordance with relevant fire regime for the vegetation community.	• Quarterly surveys of priority weeds through the construction phase. Undertake season weed control for new individuals of high threat weeds • Annual weed surveys in each zone throughout construction and operation prior to undertaking weed control • Vegetation Integrity Plots (VI) Plots will be conducted in accordance with the BAM at the location of plot 1, 2, 5 and 7 immediately following the completion of construction (in spring) and every year throughout operation (in spring). • VI plot data will be assessed against the VI plot data outlined within the BDAR.	GRS or WWSF Environmental Manger Contractor/ Trained Ecologist
Nesting Box Management BD16, BEP	1. Installed Nesting Boxes are maintained and functional 2. No pests utilising Nesting Boxes	1. Nesting Boxes need maintenance 2. Pests are utilsing Nesting Boxes	1. Undertake Maintenance 2. Targeted pest control	1. Complete survey of Nesting Boxes at 3 months post installation and every 2 years during operation.	GRS or WWSF Environmental Manager Contractor/ Trained Ecologist Local wildlife Group
Pest Animal	• To reduce and maintain a low number of	Moderate to high pest animal	Environmental Manager or Project Manager to:	Quarterly during construction.	GRS or WWSF

Management protocol or procedure	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
See the following Table 6-5 for more detailed information on pest management. LU4	pest animal species across the Project site.	activity recorded in exclusion zones.	• Implement relevant corrective actions and update the PAP.	Annually during operation Yearly report to BCS.	Environmental Manager Suitably qualified Contractor
Biodiversity Enhancement Plan	• to make provision for the ecological restoration, rehabilitation, and ongoing maintenance of retained native vegetation habitat and dams on the Project site	• Impacts to habitat from construction and operation	• Implement recommendations (excluded superseded recommendations) outlined in Table 6-1	Complete annual report commencing within 1 year of construction to detail effectiveness, outcomes, follow up measures (eg re-plantings) .	Suitably qualified Contractor

Table 6-5 Performance criteria, triggers for actions and responses for environmental management protocols and procedures of weed and pest species

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
European Fox	• To reduce and maintain a low number of pest animal species across the Project site. • Undertake annual monitoring to determine presence/absence of foxes. • In the first few year determine a benchmark for fox numbers across the Project site.	• Pest animal species numbers are high.	Annual monitoring • Presence of scats, dens, sightings • Presence on cameras • Record these areas • Determine control methods • Engage a suitably qualified contractor Control methods will comply with the NSW Vertebrate Pest Control Manual (DPI, 2021) and the DEH. The Code of Practice for the Humane Control of Foxes (PestSmart, n.d.) includes an integrated approach. control measures include: • 1080 Baiting • Cage trapping • Shooting • Den collapse • Removal of harbour	• Stakeholders including Local Land Services (LLS) and local pest management groups will be engaged to assist with strategic pest management control • Engage a suitably qualified contractor to undertake pest animal monitoring and control • Spotlighting and camera trap monitoring will occur prior to control efforts to establish presence and baseline population numbers • Yearly reporting on numbers of European Foxes present on site through monitoring. Yearly report to BCS • Annual monitoring to be undertaken prior to any control works.	GRS or WWSF Environmental Manager Suitably qualified Contractor or Ecologist
Feral Cat	• To reduce and maintain a low number of pest animal species across the Project site. • Undertake annual monitoring to determine presence/absence of cats.	• Pest species numbers not decreasing	Annual monitoring • Presence of scats or sightings	• Stakeholders including Local Land Services (LLS) and local pest management groups will be engaged to assist with strategic pest management control	GRS or WWSF Environmental Manager Suitably qualified

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
	• In the first few year determine a benchmark for cat numbers across the Project site.		• Presence on cameras • Record these areas • Determine control methods • Engage a suitably qualified contractor Control methods will comply with the Model Code of Practice for the Humane Control of Feral Cats (Sharp, 2012). Management measures may include: • Shooting by a qualified contractor • Cage trapping	• Spotlighting and recording of warrens being used will occur prior to on ground eradication efforts to establish presence and baseline population numbers • Yearly monitoring. If an increase in pest species occurs from the previous year the proposed actions will be undertaken again. • Yearly reporting on numbers of cats present on site through monitoring	Contractor
European Rabbit	• To reduce and maintain a low number of pest animal species across the Project site. • Undertake annual monitoring to determine presence/absence of rabbits. • In the first few year determine a benchmark for rabbit numbers across the Project site.	• Pest species numbers not decreasing	Annual monitoring • Presence of scats, warrens or sightings • Presence on cameras • Record these areas • Determine control methods • Engage a suitably qualified contractor Control methods will comply with the NSW Vertebrate Pest Control Manual (DPI, 2021), the Code of Practice for the Humane Control of Rabbits (Sharp & Saunders, 2012) and related standard operating procedures and include: • Baiting (1080 or Pindone) • Warren fumigation (phosphine or CO2) and hand collapse • Opportunistic shooting • Removal of harbour	• Stakeholders including Local Land Services (LLS) and local pest management groups will be engaged to assist with strategic pest management control • Spotlighting and GPS recording of warrens being used will occur prior to on ground eradication efforts to establish presence and baseline population numbers • Yearly monitoring. If an increase in pest species occurs from the previous year the proposed actions will be undertaken again. • Yearly reporting on numbers of European Rabbits present on site through monitoring	GRS or WWSF Environmental Manager Suitably qualified Contractor
Hare	• To reduce and maintain a low number of pest animal species across the Project area. • Undertake surveying to determine benchmark numbers for low and high presence of pest animal species across the Project site.	• Pest species numbers not decreasing	Control methods will comply with the NSW Vertebrate Pest Control Manual (DPI, 2021),	• Stakeholders including Local Land Services (LLS) and local pest management groups will be engaged to assist with strategic pest management control • Spotlighting will occur prior to on ground eradication efforts to establish presence and baseline population numbers • Yearly monitoring. If an increase in pest species occurs from the previous year the proposed actions will be undertaken again.	GRS or WWSF Environmental Manager Suitably qualified Contractor

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
				• Yearly reporting on numbers of Hares present on site through monitoring.	
Noisy Miner	• To monitor and determine if control of noisy miner is required based on their behaviour and interaction with Nesting Boxes. • Undertake surveying to determine benchmark numbers for low and high presence of pest animal species across the Project site.	• Native fauna being driven out of Nesting Boxes.	Control methods will comply with the NSW Vertebrate Pest Control Manual (DPI, 2021), and related standard operating procedures.	• Noisy Miner bird surveys will occur at a minimum annually to establish presence and behaviour as a baseline population numbers • Engage an ecologist and contractor to monitor bird behaviours and determine if control is required. • Follow up bird surveys after any control works. Yearly monitoring. If an increase in pest species occurs from the previous year the proposed actions will be undertaken again. • Yearly reporting on numbers of Noisy Miners present on-site through monitoring	GRS or WWSF Environmental Manager Suitably qualified Contractor
Paterson's Curse (*Echium plantagineum)*	• Maintain or improve the condition of vegetation across the Project area • A general reduction in abundance target weed species across the Project site if found to be present.	• Decline in Project area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	• Mature plants should be controlled year round with extra effort in spring before flowering • Biological control aims to limit the dominance of Paterson's curse to make it economically insignificant to farmers. Biological control is not an eradication program. It can take many years for the insects to reach their full potential and spread. Biological control requires more than one agent.	• Map all weeds present in the first 12 months. • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report.	GRS or WWSF Environmental Manager Suitably qualified Contractor
Peppercorn (*Shinus* sp)	• Maintain or improve the condition of vegetation across the Project area • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period.	• Increase in weed abundance not decreasing across the Project site.	Long term control of Peppercorn is an ongoing process. A combination of control methods and follow up is needed The most effective and reliable control method is chemical control. Used in conjunction with other techniques such as physical removal.	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor
Fleabane (*Conyza spp.*)	• Maintain or improve the condition of vegetation across the Project area • A reduction in abundance target weed species	• Decline in Project area condition as evidenced by monitoring • Weed abundance not	The most effective control method for Fleabane is herbicide application with double-knocking being the most effective.	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to	GRS or WWSF Environmental Manager Suitably qualified

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
	across the Project site if found to be present throughout the operational period	decreasing; >50% non-native	The most consistent double-knock approach is a mix of glyphosate and 2, 4-D as the first application or knock followed by paraquat and diquat based option as the second-knock. Spraying should occur three times a year for the first three years then once a year after that. Fleabane is a major weed of dryland cropping in many parts of NSW. It has been confirmed as glyphosate resistant. An integrated weed management approach is required if found within the project area.	identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	Contractor
Saffron Thistle (*Carthamus lanatus*)	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	A management programme conducted over several years is required to control saffron thistle, because of seed dormancy Herbicide application is the effective form of control. Spraying should occur three times a year for the first three years then once a year after that	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on groundwork and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor
Bathurst Burr (*Xanthium spinosum*)	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	Integrated weed management – utilising pasture management grazing and herbicides.	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on groundwork and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
Spear Thistle (*Cirsium vulgare*)	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	Using a combination of control methods is usually more successful Physical removal in conjunction with herbicide is the most effective way to control Spear Thistle Control methods should occur three times a year for the first three years then once a year after that	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor
Great Brome - Bromus diandrus	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	Using a combination of control methods is usually more successful Physical removal in conjunction with herbicide is the most effective way to control Spear Thistle Control methods should occur three times a year for the first three years then once a year after that	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor
Kikuyu - Cenchrus clandestinus	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	Using a combination of control methods is usually more successful Physical removal and grazing down in conjunction with herbicide is the most effective control method Control methods should occur three times a year for the first three years then once a year after that	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on ground work and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation.	GRS or WWSF Environmental Manager Suitably qualified Contractor

Pest Species	Performance Criteria	Trigger for additional actions	Action Proposed	Monitoring and/reporting requirements	Responsibility
				• Complete annual report	
Onion Grass - Romulea rosea	• Maintain or improve the condition of vegetation in exclusion zones throughout the life of the Project • Quarterly (for first two years then twice a year thereafter) surveys of priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • A reduction in abundance target weed species across the Project site if found to be present throughout the operational period.	• Decline in exclusion area condition as evidenced by monitoring • Weed abundance not decreasing; >50% non-native	Using a combination of control methods is usually more successful Control methods should occur three times a year for the first three years then once a year after that	• Map all weeds present in the first 12 months • Utilise weed mapping data to provide baseline performance criteria and targets for weed control measures. Performance criteria to be specific to identified infestations. • Quarterly seasonal surveys for first two years prior to any on groundwork and again after weed control works to determine if follow up is required • Weed control to be conducted by suitably qualified contractor • Monitor weed twice a year (after two years) to record and track priority weed abundance in exclusion zones and use as basis for implementing targeted weed control measures in each zone throughout construction and operation • Complete annual report	GRS or WWSF Environmental Manager Suitably qualified Contractor

6.15 Management and mitigation measures

Table 6-6 Biodiversity management and mitigation measures

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
General					
BM1	Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with BCD, and to the satisfaction of the Secretary in writing. This plan will address biodiversity management specific to the Project site and mitigation measures to be implemented during construction.	This Plan	Prior to construction During construction	Environmental Consultant (NGH) HSE Manager	CoC 16 BD14
BM2	The Project site induction will include environmental features to be protected and site-specific mitigation measures for biodiversity management.	Induction records	During construction	Site Environmental Representative (SER)	BD13
BM3	Training and toolboxes will address a range of biodiversity management issues, including: • The enforcement of site speed limits and the prevention of fauna strike • Retained vegetation communities and trees • Retained dams • Vehicle hygiene and biosecurity issues	Toolbox records	During construction	SER	BD19 BD23
Vegetation clearing, protection and management					
BM4	No vegetation will be cleared outside of the approved footprint as part of Project works.	As-con clearing drawings Environmental	During construction	SER	CoC 14

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
		inspection records			
BM5	Exclusion fencing and signage will be installed around vegetation to be retained prior to the commencement of construction. Exclusion fencing will be checked by a suitably qualified ecologist to ensure no impact to areas not approved for clearing.	Environmental inspection records	Prior to construction	Superintendent SER	BD11
BM6	Hollow-bearing trees will not be removed during core breeding and hibernation season (Spring to Summer).	Clearing reports Environmental inspection records	During construction	SER Project Ecologist	BD1
BM7	Clearing outside of breeding and hibernation season cannot be achieved, which means pre-clearing surveys will be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna will occur. Southern Myotis hibernates till April and Squirrel Glider breeds autumn to spring which means all time would be within breeding and hibernation timing of one species.	Pre-clearing surveys	During construction	SER Project Ecologist	BD1
BM8	A trained ecologist or licensed wildlife handler would be present during clearing events and complete: • Pre-clearing checklist • Tree clearing procedure.	Pre-clearing checklist	During construction	SER Project Ecologist	BD2
BM9	Habitat features (fallen timber, hollow logs) will be relocated from the development site to adjacent area for habitat enhancement. Areas identified within the BEP would be prioritised for relocation of habitat features, refer to Table 6-1.	Environmental inspection records	During construction	SER Project Ecologist Superintendent	BD3
BM10	Clearing limits will be clearly delineated with temporary fencing or similar prior	Environmental inspection	Prior to	Superintendent	BD4

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
	to construction commencing.	records	construction	SER	
BM11	No stockpiling or storage will occur within dripline of any mature trees.	Environmental inspection records	During construction	Superintendent SER	BD5
BM12	Chainsaws will be used for clearing in areas that are adjacent to areas to be retained, to minimise risk of unauthorised disturbance.	Environmental inspection records	During construction	Superintendent SER	BD6
BM13	Vehicle access to Box-Gum Woodland EEC is not permitted during construction.	Signage Environmental inspection records	During construction	Superintendent SER	BD7
BM14	Screening and landscaping plantings (up to 50 m where practicable) will be comprised of local indigenous species representative of the vegetation in the development site.	Landscaping Plan	During construction	SER Landscaping Contractor	BD15
BM15	Removal of vegetation will be staged to reduce erosion risk.	ESCP	During construction	Superintendent SER	Best practice ESCP
BM16	All mitigation measures (excluding superseded measures, refer to Table 6-1 of this BMP) outlined in the BEP would be implemented. Refer to Appendix F.	BEP	Prior to construction, during construction, post construction	SER Suitable Contractor	BEP
Wildlife protection					

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
BM17	Night works will be avoided as far as practicable to reduce the impacts of noise and light on nocturnal adjacent habitats.	Environmental inspection records	During construction	SER Project Engineer (PE)	BD8 BD9
BM18	Light mitigation measures will be implemented as required, particularly during night works, including the use of light shields and the placement of lights pointing away from vegetation	Environmental inspection records	As required	SER PE Superintendent	BD9
BM19	Nest boxes will be installed prior to clearing across the Project site in accordance with requirements of target species.	Ecologist Report Environmental inspection records	Pre-construction	SER Project Ecologist	BD16
BM20	Site speed limits will be enforced to reduce fauna strike.	Induction records Signage Environmental inspection records	During construction	Superintendent	BD19 Best practice
BM21	A local Landcare group (or similar) will be involved in ongoing biodiversity monitoring and enhancement, in consultation with FRV.	Consultation records	Prior to construction During construction	SER Project Ecologist	BD20
BMP22	Plain wire instead of barbed will be used for the perimeter fence and stock fencing to reduce impacts from entanglement on birds and Squirrel Gliders.	Environmental inspection records	During construction	Superintendent SER	BD21

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
Fauna habitat and connectivity					
BM23	Project boundary fence will be located to avoid habitat fragmentation wherever practicable.	Environmental inspection records	Prior to construction	PE Superintendent	BD22
BM24	In the event that encountered fauna does not relocate of its own accord, capture and relocation will only be undertaken by a fauna spotter/catcher or ecologist.	Fauna rescue and release records	As required	Project Ecologist SER	Best practice
BM25	If any wildlife is injured during construction, FRV is to be notified and, if required, the injured animal will be taken to the nearest veterinary surgery. Alternatively, WIRES are to be contacted on 1300 094 737 for further advice. BCD should also be notified if a threatened species is injured. **Jindera Veterinary Clinic – 02 6026 3277** **Holbrook Vet Centre – 02 6036 2374** **South West Branch** **Biodiversity and Conservation Division** 02 6983 4923. rog.southwest@environment.nsw.gov.au	Fauna rescue and release records	As required	SER	Best practice
Aquatic habitats					
BM26	10 of the dams to be retained will be planted with native riparian vegetation to create wetlands for wildlife. Planting will be in line with the BEP, refer to Table 6-1 and Appendix F.	Landscaping Plan Environmental inspection records	During construction	SER PE	BD17

ID	Mitigation measure	Resources required	Timing	Responsibility	Reference
BMP27	Avoidance of activities in aquatic habitats and riparian zones as much as practicable.	Toolbox records Environmental inspection records	During construction	Superintendent SER	Best practice
BM28	Keep vehicles and machinery away from the banks of a waterway where possible. Where machinery must enter the waterway, ensure that they are cleaned, degreased and serviced prior to entering.	Environmental inspection records	During construction	Superintendent SER	Best practice
Weeds, pests and pathogens					
BM29	A Pest and Weed Management Plan (PWMP) would be prepared to manage the occurrence of noxious weeds and pest species across the site during construction and operation. The PWMP must be prepared in accordance with Greater Hume Shire Council requirements and the Murray Regional Strategic Weed Management Plan 2017 – 2022.	Weed and pathogen management procedure	Prior to construction During construction	Environmental Consultant (NGH) HSE Manager	LU4 BD12
BM30	All plant and equipment will be washed down prior to both arriving at and leaving site and a Vehicle Hygiene Checklist () will be completed for all plant prior to arrival on site.	Weed hygiene records	During construction	Superintendent SER	Best practice
BMP31	Areas of exposure will be progressively revegetated to limit weed invasion during construction works.	Environmental inspection records ESCP	During construction	Superintendent SER PE	Best practice ESCP

7. Compliance management

7.1 Roles and responsibilities

Section 4.8 of the EMS describes the roles and responsibilities of the GRS Project team in relation to environmental management. Specific responsibilities for the implementation of environmental controls are detailed in Table 9-1 of this plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to biodiversity management issues. The induction training will address elements related to biodiversity management, including:

- Existence and requirements of this sub-plan
- Relevant legislation
- Specific species likely to be affected by the construction works and how these species can be recognised
- Vegetation communities and trees to be retained
- Dams to be retained
- Site speed limits and their enforcement in minimising fauna strike
- No GRS vehicle access within Box-Gum Woodland EEC located in the Back Creek Riparian Exclusion Area (Figure 6-3, Figure 4-1, Figure 4-2) during construction
- Vehicle hygiene and biosecurity risks and procedures
- Fauna rescue requirements
- Weed control measures
- General flora and fauna management measures
- Specific responsibilities for the protection of flora and fauna

Further details regarding staff induction and training are outlined in Section 6 of the EMS.

7.3 Monitoring and inspections

Inspections of sensitive areas and activities with the potential to impact biodiversity will occur for the duration of the project.

Requirements and responsibilities in relation to monitoring and inspections are outlined in Table 6-4

Further requirements and responsibilities in relation to monitoring and inspections are documented in Section 9 of the EMS

7.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, infrastructure approval and other relevant approvals, licences, and guidelines. Audit requirements are detailed in Section 9.3 of the EMS.

7.5 Reporting

Reporting requirements and responsibilities are documented in Section 9.4 of the EMS and Table 6-4 of this BMP.

Details on incident reporting are included in Section 8.3 of the EMS. Environmental incidents relating to biodiversity management may include, but are not limited to:

- Clearing outside of the approved Project boundary
- Clearing within exclusion zones
- Fauna injury or death
- Discovery of threatened species
- Spread of weed or pathogens
- Vehicle access within prohibited vegetation zones.

Specific information required from this BMP includes a pre-clearing survey and post-clearing report. These reports are to be provided FRV and generally include:

- The name and qualifications of the Ecologist or wildlife carer present during clearing
- An assessment of the habitat and handling of fauna
- Information on clearing operations, dates, procedures, areas
- Including the number of trees and hollows cleared
- Live animal sightings, captures, any releases or injured/shocked wildlife
- Any dead animals located
- Photographs of rescued fauna.

8. Review and improvement

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

The processes described in Section 10 of the EMS may result in the need to update or revise this Plan. This will occur as needed.

Only the HSE Manager, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 11.2 of the EMS.

9. References

SERA, 2022. National Standards for the Practice of Ecological Restoration in Australia.

Goldingay, R. L., Thomas , K. J., & Shanty, D. (2018). Outcomes of decades long installation of nest boxes for arboreal mammals in southern Australia. *Ecological Management & Restoration*, 19: 3: 204-211.

Hollow log Homes https://www.hollowloghomes.com.au/product-category/cyplas/

Le Roux, D., Ikin, K., Lindenmayer, D., Bistricer, G., Manning, A., & Gibbons, P. (2016). Enriching small trees with artifical nest boxes cannot mimic the value of large trees for hollow-nesting birds. *Restoration Ecology*, 24:2:252-258.

Lindenmayer, D., Crane, M., Evans, M., Maron, M., Gibbons, P., Bekessy, S., & Blanchard, W. (2017). The anatomy of a failed offset. *Biological Conservation*, 210: 286-292.

SF & LLS, 2021.Enhancing farm dams: what to plan in and around your dam (Sustainable Farms and Local Land Services, 2021)

Appendix A Consultation

Department of Planning and Environment

Kurtis Wathen
Environmental Assessment Officer
Energy Assessments

Our ref: DOC22/951915
Your ref: SSD-9874-PA-7

Via Major Projects Portal: PAE-49690206

10 November 2022

Dear Kurtis

Subject: Walla Walla Solar (SSD-9874-PA-7) – revised Biodiversity Management Plan

I refer to your referral dated 25 October 2022 seeking input from the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment on the revised Biodiversity Management Plan (BMP) for the Walla Walla Solar Farm.

BCD has undertaken a review of the revised BMP dated October 2022, particularly with regards to:

- requirements set out in Schedule 3 Condition 16 of the Consolidated Consent SSD-9874-Mod-2 determined on 5 August 2022
- measures to avoid, minimise and mitigate impacts in the Biodiversity Development Assessment Report (BDAR) dated June 2022
- BCD advice about the draft BMP submitted to the Major Projects Portal on 29 September 2022.

Recommendations 1-3, 9 and 12-13 have been resolved. BCD considers that further work is required on the BMP for the proponent to meet requirements of the development consent. Twelve further actions are recommended in **Attachment A** to address these remaining issues.

To be confident that the BMP will be effective in managing biodiversity impacts of the development, we would appreciate the opportunity to review a final version before acceptance by NSW Planning.

If you have any questions regarding this review, please contact Simon Maffei, Senior Project Officer, via rog.southwest@environment.nsw.gov.au or 02 6983 4923.

Yours sincerely

ANDREW FISHER
Senior Team Leader Planning
South West Branch
Biodiversity and Conservation Division
Department of Planning and Environment

ATTACHMENT A – BCD recommendations for the Walla Walla Solar revised Biodiversity Management Plan (SSD-9874-PA-7)

ATTACHMENT A BCD recommendations for the Walla Walla Solar revised Biodiversity Management Plan (SSD-9874-PA-7)

Detailed feedback about the revised BMP is provided in the table below.

- Item numbers correspond to Attachments A and B in the BCD advice about the draft BMP, submitted to the Major Projects Portal on 29 September 2022.
- Issues that are not listed below are considered by BCD to be resolved.
- New issues have been identified that require resolution due to provision of new information from FRV (Environmental Management Strategy v1.0 September 2022, provided by email on 7 September 2022).

List of acronyms and terms used in this response:

BAM	Biodiversity Assessment Method
BC Act	NSW *Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BMP	Biodiversity Management Plan
CoA	Condition of Approval, as per Schedule 3 of the Development Consent
Development footprint	Area within the site on which the components of the project will be constructed (Appendix 1 of development consent)
Development site	Lots listed in Appendix 2 of the development consent
EMS	Environmental Management Strategy
SAII	(Threatened entities at risk of a) serious and irreversible impact

BCD Issue 4	Update the Tables and Figures in Section 4, and include reference to High Threat Weeds
	Partially resolved Figure 4-1 has been sourced from the MOD 2 consent, however text on page 11 still refers to MOD 1. <u>Table 6-3 'vegetation management'</u> Table 6-3 was not provided in the previous draft BMP, so these issues have not previously been raised. • Unclear which BDAR measures are being addressed, and therefore the outcomes to be achieved for vegetation management. • Targets for 'weed abundance' are unjustified. These need to include cover and should relate to either BAM PCT benchmarks or survey results presented in the BDAR. • 'Biometric' assessments are out of date and inadequate. Any re-survey of vegetation plots should be according to BAM to be comparable with data collected for the BDAR. • 'Exclusion zones' are not mentioned or defined in the EMS. • The BEP must be specifically addressed (see Issue 10)

Recommend	4.1 Ensure all tables, figures and text refer to MOD 2. 4.2 Define exclusion areas in the EMS to ensure management of these areas is addressed. 4.3 Revise Table 6-3 'vegetation management' to link to BDAR survey data.

BCD Issue 5	Section 5.2 should include a statement regarding additional impacts
	Partially resolved. The BMP must be clear that any impact to native vegetation (including ground cover) outside the approved MOD 2 footprint must be subject to a project modification. Section 5.2 includes reference to 'PAD area', which has not been defined.

BCD Issue 6	Update Section 6.2 to ensure the use of barbed wire is consistent with the BDAR
	Partially resolved - it is unclear if the substation will be fenced with barbed wire.
Recommend	6.1 Clarify fencing material for the substation

BCD Issue 7	Update Section 6.3 to specify the protection measures for retained vegetation as mapped in the BDAR and provide greater detail for the TECs.
	<u>Section 6.2 – site and clearing boundaries</u> 'Sensitive' areas are mentioned in the BMP but not clearly defined or mapped. • 'Sensitive area' was not defined in the BDAR. Section 6.2 'Definition of site boundary' lists features considered to be 'sensitive areas' and refers to three separate maps. • All biodiversity to be protected during construction and operation must be unambiguously mapped, marked by a qualified ecologist and clearly fenced with appropriate signage. <u>Section 6.7 – clearing protocol</u> The clearing protocol confuses protection of biodiversity that has not been approved for clearing with pre-clearing surveys. • S6.7.1 describes the process for pre-clearing survey as identifying habitat trees, of which some will be protected. • The identification of trees and native vegetation to be retained as per the BDAR and project approval must be undertaken by the project ecologist. This is a separate process to the pre-clearing surveys for fauna protection. The pre-clearing surveys then identify likely habitat trees supporting fauna that may be harmed during clearing.

Recommend	7.1 Specify sensitive areas and exclusion zones and map these areas on a single map in the BMP and EMS. 7.2 All areas to be protected during construction and operation must be marked out on the ground by a qualified ecologist, and appropriately fenced and signed. 7.3 Remove the marking of exclusion zones and trees to be retained (according to the project approval) from s6.7.1 7.4 Limit s6.7.1 to identification of fauna habitat trees to be searched during pre-clearing surveys within the approved clearing footprint.

BCD Issue 8	Provide greater detail in Section 6.4 regarding nest boxes and the local wildlife groups
	Partially resolved. Section 6.13 does not provide details about whether the specified supplier (Hollow Log Homes) can supply the required nest boxes in the required timeframe. There is no reference for statement about longevity of nest box material in s6.13.1. Measure BD16 in the BDAR states that nest boxes will be monitored for use. The BMP must include monitoring for use by target threatened fauna identified in the BDAR. Nest boxes require regular maintenance.
Recommend	8.1 Provide a commitment to regular nest box maintenance according to best practice guidance 8.2 Provide a commitment to implement regular monitoring to determine whether target species are using the nest boxes as expected and whether the mitigation measure is effective.

BCD Issue 10	The biodiversity enhancement plan (BEP) prepared for the BDAR needs to be included in the BMP
	The BEP has been included but there are no commitments to implement the measures or monitor and report on the outcomes in Table 6-3. The EMS and BMP must implement all measures, including the Biodiversity Enhancement Plan. The only reference to vegetation management in draft EMS Table 2-1 is grazing of the panel array. <u>Section 6.3</u> • Statement about implementing the BEP in Section 6.3 is non-specific and unclear: "*recommended actions detailed in the BEP will be utilised in the implementation of this BMP and incorporated into the relevant environmental aspects. Some recommendations identified* in *the BEP have been superseded and not carried forward to this BMP due to some Project design changes*" • Table 6-2 does not include reference to the BEP or provide details for monitoring the effectiveness of actions specified within it. • The BMP must detail how each measure in the BEP will be implemented and provide an adequate justification for actions that are no longer applicable to the development site.

	• THE SAII assessment (BDAR s9.2.1) relies on the proponent implementing the BEP to minimise further environmental degradation to the critically endangered Box Gum Woodland.
Recommend	10.1 Ensure all biodiversity management actions are implemented through the BMP and EMS, including detail about how each measure in the BEP will be implemented. 10.2 Give adequate justification for actions that are no longer applicable to the development site.

BCD Issue 11	Update Table 6-1 to include all commitments made in Section 8 of the BDAR and include additional detail
	Partially resolved BM22 – fence construction to reduce impacts on fragmentation remains uncertain BM28 – Actions expected in a Pest and Weed Management Plan as required by COA 16(a) may have partially been provided in Appendix I and table 6-4. Performance criteria for individual species need to be specific to the identified infestations, rather than general statements about vegetation condition.
Recommend	11.1 Provide measurable performance criteria and targets for weed control measures.

Department of Planning and Environment

David Tullis
Project Manager
Walla Walla Solar Farm
GRS

Via email: dtullis@gransolar.com

Our ref: DOC22/780504
Sender's ref: SSD 9874 MOD 2

29 September 2022

Dear David

Subject: Walla Walla Solar Farm (SSD 9784 MOD 2) – Biodiversity Management Plan

I refer to your email dated 2 September 2022 seeking input from the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment on the above Biodiversity Management Plan (BMP).

BCD has undertaken a review of the BMP, particularly with regards to the requirements set out in Schedule 3 Condition 16 of the Consolidated Consent SSD-9874-Mod-2 determined on 5 August 2022, and the measures to avoid, minimise and mitigate impacts in the Biodiversity Development Assessment Report (BDAR) dated June 2022.

The BMP does not reference or rely on the June 2022 BDAR, instead it refers to a previous version. Thus, it does not include all commitments made by the proponent to avoid, minimise and mitigate impacts to biodiversity.

A summary of recommendations for the BMP is included in **Attachment A.** Detailed comments are provided in **Attachment B.**

To be confident that the BMP will be effective in managing biodiversity impacts of the development, we would appreciate the opportunity to review a final version before acceptance by Planning and Assessment.

If you have any questions regarding this review, please contact Simon Maffei, Senior Project Officer, via rog.southwest@environment.nsw.gov.au or 02 6983 4923.

Yours sincerely

ANDREW FISHER
Senior Team Leader Planning
South West Branch
Biodiversity and Conservation Division
Department of Planning and Environment

Copy to NSW Planning via email: andy.nixey@planning.nsw.gov.au, kurtis.wathen@planning.nsw.gov.au

Copy to frv via email: rob.beckett@frv.com

ATTACHMENT A – Summary of BCD recommendations for the Walla Walla Solar Farm Biodiversity Management Plan (SSD 9874 MOD 2)
ATTACHMENT B – Detailed comments for the Walla Walla Solar Farm Biodiversity Management Plan (SSD 9874 MOD 2)

ATTACHMENT A Summary of BCD recommendations for the Walla Walla Solar Farm Biodiversity Management Plan (SSD 9874 MOD 2)

List of acronyms and terms used in this response:

BAM	Biodiversity Assessment Method
BC Act	NSW *Biodiversity Conservation Act 2016*
BCD	Biodiversity and Conservation Division of the Department of Planning and Environment
BDAR	Biodiversity Development Assessment Report dated June 2022 (File name: Walla Walla_BDAR_FinalV1.6)
BMP	Biodiversity Management Plan
CoA	Condition of Approval, as per Schedule 3 of the Development Consent
Development footprint	Area within the site on which the components of the project will be constructed (Appendix 1 of development consent)
Development site	Lots listed in Appendix 2 of the development consent.
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
PCT	Plant Community Type
TARP	Trigger Action Response Plan
TEC	Threatened Ecological Community

Summary of recommendations:

1. Reference the final BDAR and latest Modification
2. Implement the measures listed in Section 8.1 of the final BDAR
3. Update the Acronyms and Abbreviations
4. Update the Tables and Figures in Section 4 and include reference to High Threat Weeds
5. Section 5.2 should include a statement regarding additional impacts
6. Update Section 6.2 to ensure the use of barbed wire is consistent with the BDAR
7. Update Section 6.3 to specify the protection measures for retained vegetation as mapped in the BDAR and provide greater detail for the TECs
8. Provide greater detail in Section 6.4 regarding nest boxes and the local wildlife groups
9. Provide greater detail and consideration of fauna release locations at Section 6.5
10. The biodiversity enhancement plan prepared for the BDAR needs to be included in the BMP
11. Update Table 6-1 to include all commitments made in Section 8 of the BDAR and include additional detail
12. Section 7.3 needs to include the specific monitoring and inspection requirements
13. Update, clarify and expand the Appendices

ATTACHMENT B Detailed comments for the Walla Walla Solar Farm Biodiversity Management Plan (SSD 9874 MOD 2)

1. Reference the final BDAR and latest Modification

   The draft BMP references a previous version of the BDAR and Modification. The most recent BDAR (Walla Walla_BDAR_FinalV1.6) dated June 2022 must be referred to within the BMP, as does Modification 2 determined on 5 August 2022.

2. Implement the measures listed in Section 8.1 of the final BDAR

   The BMP must be revised to address commitments made in the BDAR, specifically all the mitigation measures listed in BDAR Section 8.1. Table 2-2 in the BMP must be updated to reflect those commitments.

3. Update the Acronyms and Abbreviations

   The Acronyms and Abbreviations need to be reviewed and updated to include BCD and the version of the BDAR. Additionally, the BMP still incorrectly refers to DPE as DPIE.

4. Update the Tables and Figures in Section 4 and include reference to High Threat Weeds

   Section 4.1 includes information and figures from MOD1 that need to be updated to reflect the MOD2 approval and BDAR.
   Table 4-1 needs to be amended to include the name of PCT 76.
   Section 4.1.2 and Figure 4-2 do not distinguish between BC Act and EPBC Act TECs. Figure 4-2 implies that PCT and TEC have no relation and includes areas of Grey Box Gum Woodland that is not mapped as a TEC but does not clarify why.

5. Section 5.2 should include a statement regarding additional impacts

   It needs to be documented in the BMP that any impact to native vegetation or a threatened entity that is additional to the approved development footprint and has not been offset, must be submitted to DPE as a project modification and assessed using the BAM.

6. Update Section 6.2 to ensure the use of barbed wire is consistent with the BDAR

   Section 6.2 outlines that plain wire will be used on the top row for perimeter and exclusion fencing only. However, to mitigate the effects of prescribed impacts to connectivity, Section 8.1.3 (point 7) of the BDAR states “no barbed wire to be on any fencing within the development site”.

   This commitment needs to be carried across to the BMP.

7. Update Section 6.3 to specify the protection measures for retained vegetation as mapped in the BDAR and provide greater detail for the TECs

   Section 6.3 needs to specify protection (such as temporary fencing) for retained vegetation as mapped in the BDAR. Currently it only makes mention of protecting fauna habitat adjacent to the project site.

   The BMP must clarify that native vegetation on the site includes TECs and needs to describe the TECs in detail, including that they can occur in areas without trees.

8. Provide greater detail in Section 6.4 regarding nest boxes and the local wildlife groups

   The BMP needs to provide greater detail regarding the nest boxes. This includes who is building them, how many will be installed for each species, where they will be installed, and how frequently they will be monitored.

   The BMP also needs to specify who the local wildlife groups are that will be working on the project.

9. Provide greater detail and consideration of fauna release locations at Section 6.5

   The BMP should provide greater detail regarding where animals will be released (e.g. onsite within exclusion areas or offsite). It is unclear whether the release areas will coincide with where nest boxes will be installed and whether the nest boxes will be installed prior to clearing, at time of release, or post release.

10. The biodiversity enhancement plan prepared for the BDAR needs to be included in the BMP

    The BMP makes no reference to the biodiversity enhancement plan prepared for the BDAR (Appendix J of the BDAR) that addresses prescribed impacts of the development. Section 6.9 of the BMP must include details to implement the recommended actions in Appendix J of the BDAR, including adaptive monitoring to ensure success.

11. Update Table 6-1 to include all commitments made in Section 8 of the BDAR and include additional detail

    Table 6-1 must include all commitments made in Section 8 of the BDAR. This includes adaptive dust monitoring programs to mitigate the risk to waterways and dams through sedimentation and sediment barriers and spill management procedures to control the quality of water runoff released from the site into the receiving environment.

    Along with details from the BDAR, the following comments are to be addressed in the measures in Table 6-1:

    - BM18. Nest boxes must be installed prior to clearing so that alternative habitat is available for displaced/rescued animals.
    - BM22. Has the location of the project boundary fence already been determined to reduce its impact on fragmentation?
    - BM24. BCD should also be notified if a threatened species is injured.
    - BM28. The Pest and Weed Management Plan needs to form part of the BMP as per CoA 16(a). BCD expect to see specific actions for:
        - controlling existing known pest plant infestations to ensure they are not spread during construction
        - locations and timing for vehicle washdown including containment of washdown runoff
        - regular monitoring across the site during construction and operation for existing and new infestations, including retained vegetation. The actions must include monitoring frequency, reporting and a TARP for initiating and completing weed control measures.

12. Section 7.3 needs to include the specific monitoring and inspection requirements

    Details necessary for ensuring that the BMP is addressing requirements of the project approval and BDAR are to be specified in the BMP. It is inadequate to refer to other draft documents for details. The BMP must be a comprehensive self-contained document that includes all monitoring and inspection requirements.

13. Update, clarify and expand the Appendices

    - Appendix B. Clearing is not to occur during spring. Document that nocturnal animals (if captured) are not to be released until nightfall as they are vulnerable to predation if released during day.
    - Appendix D. Include in the checklist whether nest boxes have been built and installed

- Appendix F. Point 7. Suitable fauna release locations are to be identified by the project ecologist before clearing is conducted. This will ensure fauna can be released into a suitable location as soon as possible after capture.

- Appendix H should include a reference to High Threat Weeds, even if none have been identified on site.

- Appendix I is referred to throughout the document as 0 which needs to be updated.
    - All TECs should have been identified during the BDAR so it is unnecessary to include TECs in the unexpected finds.
    - BCD should also be notified if there is a risk of significant impact to a threatened species.
    - Expectantly has mistakenly been used instead of unexpectedly.

- Appendix J could be improved to help non experts identify threatened species by adding additional information such as how to distinguish species from other similar species, their behavioural traits, and preferred habitat. For example:
    - how to distinguish *Diuris tricolor* from other more common Diurus species.
    - that the Flame Robin is migratory and is most likely to be found on site during autumn and winter. How to distinguish it from other red robins such as the Scarlet Robin.
    - that the Brown Treecreeper forages for insects on the trunks of eucalypts, always moving upwards, has a loud call and nests in tree hollows.
    - that Squirrel Glider can be distinguished from Sugar Gliders by their longer, bushier tails.
    - how to distinguish the different long-eared bats that are likely to occur.
    - that the Little Eagle nests in large stick nests of large trees.
    - that the Southern Myotis generally occurs along watercourses and often roosts and nests in hollows and man-made structures adjacent to watercourses.

- Appendix K has not been completed.

Appendix B Hollow-bearing tree removal guidelines

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-dependant fauna.
- Detailed information about felling hollow bearing trees (2 staged felling protocol).

Clearing timing

1. Removal of hollow-bearing trees is not to occur in Spring to avoid the main breeding period for hollow dependent fauna. All clearing requires a pre-clearing survey and ecologist/suitably qualified person to ensure no impacts to fauna will occur.
2. 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.
3. Nocturnal animals (if captured) are not to be released until nightfall as they are vulnerable to predation if released during day.

Pre-clearing survey

1. Prior to works commencing, the fauna spotter[1] /ecologist is to undertake a brief site inspection to ensure that each HBT to be removed is (still) clearly marked so that machinery operators and site construction workers are aware of their presence. This is to avoid any indirect impacts occurring beyond, or in a manner not consistent with the methodology specified in this or other regulatory documents. Marking of the HBTs that will be removed and/or retained is to be clear and must differentiate between removed/retained trees such as through the use of different coloured flagging tape or spray paint.
2. All known hollows must be individually inspected for occupancy and current use. This will 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 will be prepared (by the fauna spotter/ecologist) specific to the species and its lifecycle and implemented prior to tree removal commencement.
3. 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.
4. 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.
5. The fauna spotter/ecologist must assess the surrounding area for alternative hollows suitable for fauna relocation. If these are not present then nest boxes will be made available, and if fauna detected, installed so that mobile hollow dependent fauna have alternative locations to relocate. Nest boxes will be installed within 100m of the tree

[1] The ‘fauna spotter’/ ecologist must be trained and experienced in handling fauna, , and recognise fauna species and required habitats. If handling microbats the spotter/ ecologist must be appropriately vaccinated.

removal site and must be suitably sized and designed to accommodate the species of concern[2].

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.
2. **Stage 1: Clear Non-HBTS first and mechanically disturb HBTS.**
   Non HBT trees will be removed 24-48 hours prior to removal of HBTs (if applicable). HBTs will be disturbed using an excavator (preferable) or loader to hit the trunk as high up the tree as possible several times. This will encourage any fauna to vacate from adjacent HBTs overnight. These disturbance actions will be performed at the end of the day to encourage nocturnal species to relocate overnight. Ensure that entire area within drop radius of the HBT has been cleared of debris.
3. **Stage 2: Clear HBTs**
   Prior to clearing the HBTs, employ the mechanical disturbance protocol again. An excavator (preferable) or loader will be used to shake the trunk as high up the tree as possible. Repeat this process several times. Waiting 30 seconds between each shake.
4. 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.
5. When removing hollow-bearing trees, a fauna spotter/ecologist will be present at each tree to be removed to look for signs of animal movement in the tree to be cleared. The fauna spotter must 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.
6. 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.
7. If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs
8. 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.

[2] Common Brushtail Possum are the most common species encountered in tree removal, therefore this sized nest box will be made available as a minimum if no suitable hollows exist within 100m. If other species are encountered, then alternative nest boxes must be sourced.

9. Where practical, relocate fauna in their hollow by relocating entire hollow sections to areas of retained vegetation.
10. If dependent young or injured fauna are discovered following or during tree felling, WIRES or similarly qualified and licensed Wildlife care organisation will be contacted to treat any injured or orphaned individuals. If no wildlife handler is available, the fauna must be delivered to a licensed wildlife carer or veterinarian (previously notified of the works).
11. Records of any animals removed or injured must be retained.
12. Once felling, if uninjured nocturnal 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 if safe to do so. The following day fallen trees will be left in place or moved to a nearby area to retain fauna habitat once the fauna has relocated.

Handling wildlife

1. Direct contact with any wildlife will be avoided wherever possible. Wildlife will 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 will be contacted to treat any injured or orphaned individuals. This organisation will 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 will be undertaken with local wildlife carers and/or specialist carers for those faunal groups (e.g., microbats, parrots). Confirmation will be sought from these groups that they will accept rescued fauna.
2. Should inspections identify threatened parrots attending hollows, a detailed assessment will be undertaken of their activity within the hollow. If investigating only, clearing may proceed with the above measures employed. Where parrots are actively building nests (i.e., bringing material to hollows), it is recommended that clearing be postponed until fledging. Where parrots are attending eggs, it is recommended that clearing be postponed until fledging. Where parrots are attending young, it is recommended that clearing be postponed until fledging.
3. 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 will 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.

Appendix C Procedure for vegetation clearing

Purpose

The purpose of this procedure is to describe the clearing and grubbing processes to be implemented throughout the construction phase to minimise threat to remnant vegetation and waterways within the local area.

This should be read in conjunction with Appendix I – Weed and pathogen management procedure.

Scope

The works to be executed under this procedure comprise the following:

- Clearing of all types of vegetation, both living and dead
- Clearing of minor built structures (such as fences)
- Clearing of all rubbish and other materials which are unsuitable for use in the works
- Grubbing of trees and stumps within the approved area.

The work includes the removal of native trees, mulching or relocation of vegetation and the removal of waste material including built structures, rubbish, weeds and exotic plants.

Procedure

1. Liaise with the SER and confirm that the clearing extent and site feature surveys have been completed and that hollows, bush rocks and woody debris have been identified for relocation and removed.
2. Assess the work area to determine if traffic management is required and implement if necessary.
3. Notify the Services Manager of the area to be cleared to check for underground and overhead services. If services are located in the line of clearing, take action to avoid damaging them.
4. Ensure the pre-clearing checklist (Appendix D) has been completed.
5. Notify personnel of priority weeds on site and any relevant requirements associated with their removal.
6. Remove target weed species as per requirements.
7. Ensure protective measures are in place to protect sensitive areas, as marked during the site feature survey. This includes delineation, site inductions and sediment control measures. Ensure access routes are clearly marked.
8. Commence clearing in conjunction with pre-clearing surveys and fauna rescue operations. Clearing is to be conducted in two stages. Only areas within the required clearing footprint should be cleared. No clearing should be undertaken outside the marked approved clearing boundary.
9. Chip vegetation at the time of clearing and stockpile on site for later use. Inspect for fauna presence immediately before starting chipping process.
10. Clear area to within marked area.
11. Manually fell trees within 15m of rivers, creeks, watercourses and drainage lines. Prevent trees from falling into exclusion zones.

12. Identify overhanging tree branches and trim (as per instruction of the Project Ecologist).
13. Compact and backfill holes within the area caused by grubbing to at least that of surrounding adjacent land.
14. Habitat trees will be felled one at a time at the direction of the fauna specialist, 24 hours after the clearing non-habitat trees.
15. Felled habitat trees will be inspected by an ecologist to allow all opportunities to capture any potentially undetected fauna.
16. Hollow bearing limbs, woody debris and bush rock marked for relocation should be inspected for presence of fauna before being moved to fauna translocation sites or other recipient sites previously marked during the site features survey. If any animal emerges, ecologist or wildlife carer should capture, inspect for injuries and relocate to pre-determine fauna release area. If injured, fauna should be referred to vet or wildlife carer Remove all remaining materials cleared, primed and grubbed for recycling or disposal.
17. A post clearing survey will be done and a Post Clearance Checklist completed (Appendix E).
18. Post-completion clearing reports will be provided to FRV and provide a summary of the results of results of surveys, fauna rescues, fauna injury and mortality. These reports will include:
    - The name and qualifications of the Ecologist or wildlife carer present during clearing
    - An assessment of the habitat and handling of fauna
    - Information on clearing operations, dates, procedures, areas
    - Live animal sightings, captures, any releases or injured/shocked wildlife
    - Any dead animals located
    - Photographs of rescued fauna
    - Records of the number of trees cleared. For the purposes of this requirement, a tree has a trunk diameter 100 mm or more at a point 1.5 m above the adjacent ground level.
19. Provide to the Principal a Post-Completion Clearing Report within 21 days from the completion of substantial clearing (as determined by FRV) providing a final summary of the Progressive Clearing Report.

Appendix D Pre-clearing checklist

Inspection Date:		**Time:**	
Project Ecologist:		**Location:**	
#	**Control Measure**	**Status (Yes/ No/ NA)**	**Comments/ Corrective Action**
1	Boundary of clearing zone fenced?		
2	Has the Project Ecologist completed Pre-clearing surveys for Threatened Species?		
3	Has the pre-clearance survey been completed within two hours of clearing?		
4	Has all fauna been relocated outside the proposed impact footprint?		
5	Have all workers been shown the limit of clearing, advised of fauna handling procedures and any other controls?		
6	Has the Project Ecologist marked habitats to be disturbed using the recognised colour coding protocol?		
7	Has protective fencing and appropriate signage installed around threatened ecological communities, vegetation to be retained and exclusion zones?		
8	Have hollow bearing trees been identified?		
9	Have hollow bearing trees been checked for inhabiting species?		
10	Has vegetation to be salvaged for re-use been identified?		
11	Mulching and chipping plant established?		
12	Have all residents adjoining the project site been advised at least 5 days prior to vegetation clearing?		
13	Has all equipment been inspected and cleaned to remove materials and debris prior to entering site?		
14	Are environmental control measures including erosion and sediment controls in place to prevent down-stream biodiversity impacts?		
15	Is a suitably qualified person present when necessary to supervise clearing works and relocate or rescue fauna as required.		
16	Hollows are to be felled 24 hours after the non-habitat vegetation has been cleared, then felled in a controlled manner and inspected by a qualified ecologist or licensed wildlife carer for presence of fauna that needs to be relocated		

#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action
	and potential injuries. All hollows have the potential to support fauna and should be placed in adjacent habitat until the following day for further inspection by a licensed wildlife carer and/or ecologist to verify no fauna is present. If possible, the hollows could be permanently relocated in adjacent areas. Has this been done?		
17	Retained logs outside of construction area to be checked for native fauna; any animals impacted by clearing works are to be relocated in accordance with the project Fauna Rescue and Release Procedure.		
18	Have all Nest Boxes been installed and are ready		
19	Any other comments or issues?		

Appendix E Post-clearing checklist

Inspection Date:		**Time:**	
Project Ecologist:		**Location:**	
#	**Control Measure**	**Status (Yes/ No/ NA)**	**Comments/ Corrective Action**
1	Was clearing of vegetation within the boundaries?		
2	Were any hollow-bearing trees, hollow logs and/or bush rocks impacted?		
3	Were any fauna, nests or other fauna features impacted?		
4	Were any animals shocked, injured or killed as a result of the clearing works?		
5	Were the fauna recovery procedures followed? If yes, what actions were taken?		
6	Has woody debris been inspected for fauna immediately before chipping to avoid injury or death to fauna that may be present?		
7	Any other comments or issues?		

Environmental Representative Signature: _____

Appendix F Biodiversity Enhancement Plan

NOTES REGARDING WALLA WALLA PV PLANT

TO : FRV SOLAR

Report prepared by Kylie Durant

20/09/2019
Final Updated 30/09/19

DISCLAIMER: The following comments are made in context of the information and discussion points supplied by Mark Love of FRV during a joint site visit on 12/09/2019 in the context of preparing a voluntary biodiversity plan that is separate from the consent and EIS process

Costings are a guide only

This document relates to the proposed Walla Walla Solar Farm a large 300MW ac Utility scale Solar project being developed by FRV. The site area covers approx. 605 Hectares of existing mixed-use agricultural land and is located off Benambra Road, Walla Walla NSW

PURPOSE:
To highlight opportunities for conservation management and restoration and provide technical input to a biodiversity plan

Landscape values

The FRV Walla Walla Solar Farm site is intersected by a well vegetated section of Back Creek with several ephemeral wetland areas on the property in various conditions, both to the north and south of the creek.

In terms of landscape connectivity, the creek forms the most important continuous link in this local landscape. There are significant ephemeral swamps and wetlands to the north and a significant "patch" of degraded open woodland to the south, as well as some planted tree lines.

The eastern end of the Benambra Rd roadside is significant vegetation (*Hume Shire Roadside Plan 1998)*. A significant tree line also runs along the eastern boundary in an old Crown Road Reserve, and along the end of Weeamara Rd south of Benambra Rd to the creek.

In the broader landscape the Gum Swamp Reserve to the west and the Benambra National Park/Tabletop range in the east are the most significant features.

The creek, existing wetland remnants Excl 2, 3, 4, 5, 7 and the Weeamara Rd corridor are the most valuable biodiversity assets on the property that would benefit from fencing and the control of stock access.

In terms of locally significant species, the site is within 5km of sites that have been used by Brolgas and Bush Stone Curlews in the past. The creek is very likely to have Squirrel Gliders. The suite of NSW threatened woodland birds are also commonly found in this area.

Dam rehabilitation for biodiversity

The decision to retain and rehabilitate dam sites on the property should be considered in the context of the management of the site in general and although there would be localised benefits for various frog and birds species of retaining permanent water, the

natural ephemeral wetland sites would be a “natural” setting in which to concentrate rehabilitation efforts.

Another consideration is the requirement for stock water points and other on-farm requirements (dust control on tracks, washing panels?). Although there is a trough system, I would recommend an analysis of the final paddock layout and grazing regime to be employed before decommissioning any dams, and this use would need to be considered if looking at any active rehabilitation.

Retaining multiple water sources can also encourage high kangaroo numbers and overgrazing by Kangaroos can impact the recovery of restoration areas.

The dams on the property east of Schneider’s Rd are mostly within existing exclusion areas already so will benefit from the passive rehabilitation through exclusion of stock, and revegetation surrounding them. Most dams were observed to be very low at the time of inspection, and it would be typical of dams in this landscape to have rapidly fluctuating water levels, and it is difficult to maintain fringing and aquatic vegetation under those circumstances.

The dam areas if retained would benefit from placement of coarse woody debri both in and around the dams and this could be achieved by relocating any material from and clearing being undertaken.

More active rehabilitation could be considered if FRV wanted to. For example, using earthworks to create a range of deep and shallow area in a dam can enhance the habitat values for various species. Creation of vegetated islands, or standing dead timber in the water can benefit water birds, although most of the dams here are small and would make that logistically difficult.

Connectivity

As a general concept, landscape connectivity can be enhanced for a wide range of species by reducing the gaps in vegetation to less than 100m, in a landscape that has larger remnants in it.

The creek is by far the most important connectivity asset. There is opportunity to enhance a link along the Weeamara Laneway to the creek by revegetating a small section to the creek.

Excl 3, 4 ,5 and 7 are all retained patches that are within 1km of the creek and could potentially benefit from connecting vegetation if that was within the scope of the farm design.

Revegetation methodology - Background

Tubestock revegetation is suitable for former pasture and crop areas. Preparation requires spraying to control exotic cover and then ripping or cultivation when the site has a dry profile. The intention of ripping is to break the compaction of the soil, allow moisture penetration and retention in preparation for planting and create a weed-free "bed" for fast planting. Deep ripping refers to 30-40cm – some of these soil types may only require regular cultivation. Spraying with a knockdown chemical should occur the Spring before planting is to go ahead and then again after the Autumn break and just before planting. Planting in this district generally occurs from June to September (see attachment 1 Site Preparation).

Direct Seeding is a suitable method where there is low fertility and usually some native groundcover left. The seeder is towed on the back of a ute so needs to be able to manoeuvre in the site. If there is exotic weed cover (annual species) a 1m wide strip is sprayed with a knockdown at the same time as seeding.

All site recommendations would come from the Southwest Slopes Revegetation Guide – Walla Walla Site Profile. Specific site species recommendations are not included in this document.

Revegetation of the 5 m buffer zones on the boundary

This area is suitable for tubestock planting only. I would recommend a configuration that has at least 3 rows of plants. Due to the narrowness of this buffer, you may consider cultivation of the area rather than putting in multiple riplines with a single tyne. There is scope to adapt to the machinery that is on site –a multi-tyned cultivation instrument, a multi-tyned ripper, a rotary hoe attachment or disc equipment could be used.

Revegetation design should match the objective - screening, connectivity or biodiversity and ecosystem benefit. Method also has to be suited to the history of the site – is it developed perennial pasture/crop or unfertilised area will remnant native cover.

For a Grassy Woodland ecosystem restoration site the recommended spacings are 600 per ha (4mX 4m) with 80% understorey species and 20% trees.

In some parts of the buffer where screening is required, you may choose very close spacings (eg. 2-3m) and increase the % of understorey species.

Where there are existing trees you can expect that tree regeneration will occur after site preparation.

Tree guards are recommended if there are rabbits and hares and no control is undertaken, but they are not a standard practice for on-farm revegetation in the area.

Revegetation areas

For the 50m buffers, a more standard approach to revegetation is appropriate. The sites should be ripped parallel to the fencing at 4m spacings and planted 600 per ha (a 4x4m grid) with 80% shrubs, 20% trees.

Complementary roadside planting

There would be opportunity for supplementing the roadside vegetation along Schneider's Rd and the section of the Benambra Rd west of the creek with the agreement of Greater Hume Council. Addition of understorey plants such as wattles and other shrubs at intervals along the road could be done. Tubestock would be the most appropriate method here.

Nest boxes

The purpose of nest boxes needs to be articulated so recommendations can be made.

If there is a hollow-dependent species identified as using the site and hollows are limited, then there is ecological benefit in investing in specifically designed nest boxes.

If it just for community engagement, then a range of boxes suited to locally-occurring hollow-dependent species may be installed.

A long term management plan is required for maintenance of the boxes.

Stock Management

Our recommendation is that all areas with revegetation should have stock excluded for at least 5 years. If stock grazing is necessary for weed or fire management then short crash grazing can be undertaken. In our management agreement, that is not to exceed 10 days per calendar year.

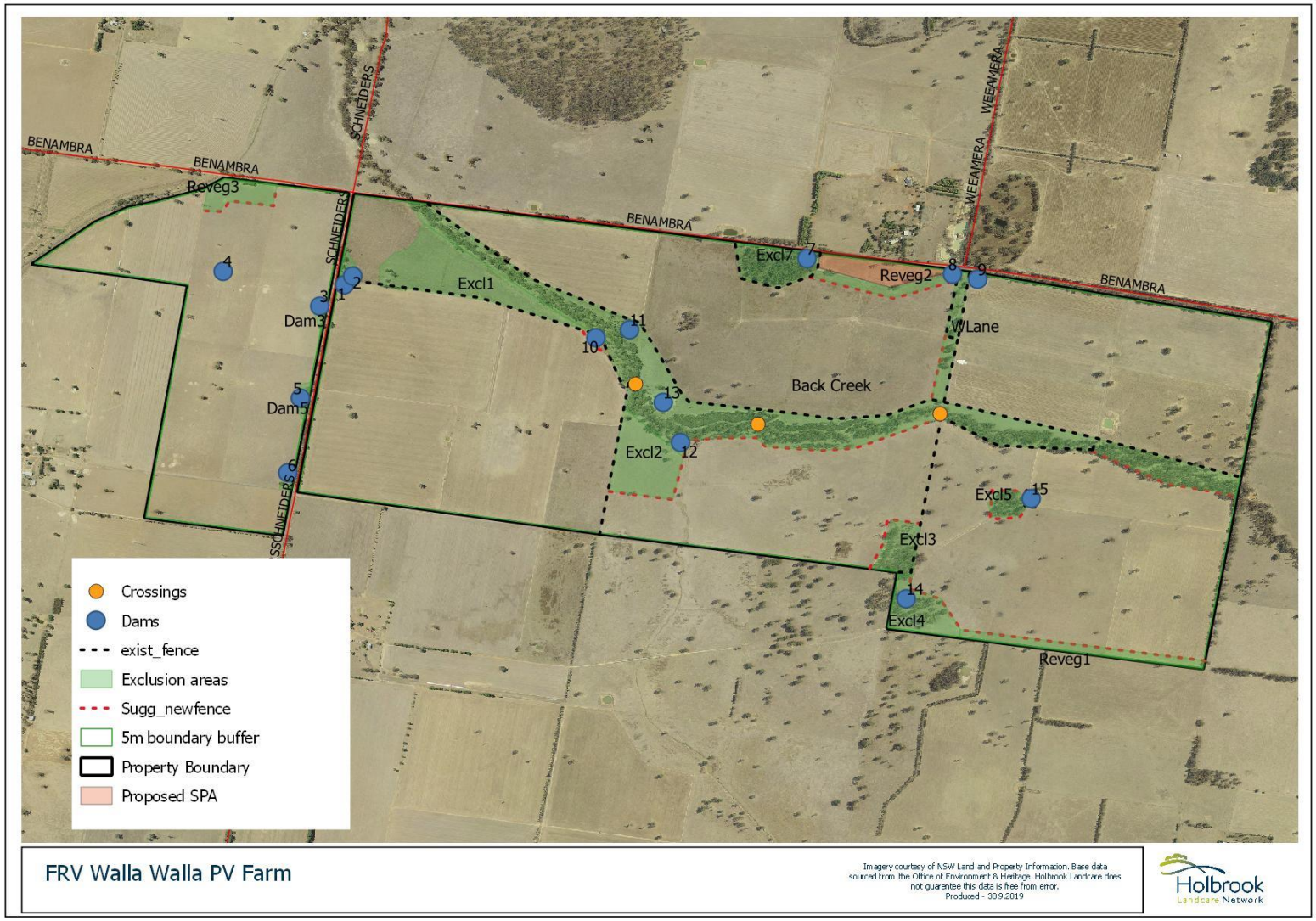
In the exclusion areas, crash grazing should NOT occur between November and February to allow native species to reproduce and set seed. In the wetland sites, grazing is not recommended in the Winter months either.

Fencing

We recommend only wildlife friendly fencing with no barb wire to ensure there is lower risk of entanglement to gliding possums and owls.

Potential to link to Gum Swamp

The most significant natural feature in proximity to the site is the Gum Swamp. This is largely public land under the governance of a community committee, and they are often in need of funds for fencing, maintenance and wish to develop interpretive signage and visitor facilities.



FRV Walla Walla PV Farm

Imagery courtesy of NSW Land and Property Information. Base data sourced from the Office of Environment & Heritage. Holbrook Landcare does not guarantee this data is free from error.
Produced - 30.9.2019

Holbrook Landcare Network

FRV Walla Walla PV Plant Site recommendations				
Map ref	Description	Notes	approx costs	approx num/km
Back Creek	Potential to fence and manage stock access and direct seed selected understorey species	Most of this creek is fenced off already and if stock are going to be grazing the site I would recommend fencing it off to stock and undertaking some sort of understorey planting. The creek would be suitable for direct seeding where the ute could get around amongst the regrowth. If the existing fences were to remain, then direct seeding by machine is an option in some most of the creek. If the fencing was to be moved in closer to the creek then tubestock and/or hand direct seeding would be more appropriate	fence - $8-10K per km erected Seed and Machine direct seeding $500/km	2.66km 5km
Dam 1, 2, 3, 6, 8, 9	Dam - exclude stock and revegetate	These are already included within exclusion areas and within the boundary buffer zone - recommend planting with tubestock as part of the buffer planting Allow passive regeneration of fringing vegetation	General revegetation costs	
Dam 4	not inspected	Could be fenced and revegetated		
Dam5	Dam - stock access point and fence and revegetate	Could either be left in the paddock or included in the boundary buffer with a stock access point.		

Dam 7 , 11, 12, 13, 14	Dams included in Exclusion areas	This is included in marked exclusion areas		
Dam 10	Dam - exclude stock and revegetate	This is adjacent to the creek and if the dam is to remain I would recommend fencing it in to the creek site		
Dam 15	Dam - maintain existing fencing	Manage stock access		
Excl1	Severely degraded gilgai formation. Exclude from grazing	Recommend maintaining existing internal fencing so this becomes part of the creekscape area to reduce further degradation by stock access. The site has been sown with exotic pasture species so has limited chance of natural recovery. Recommend addition of coarse woody debri and could attempt active regeneration by weed control and hand direct seeding - need to assess further.	Needs to be explored further	
Excl2	Degraded gilgai formation but potential for recovery	High priority for stock exclusion and recommend addition of some coarse woody debri.	Included in creek fencing above	
Excl3&4	Intact ephemeral Redgum swamps	High priority for stock exclusion	fence - $8-10K per km erected	800m

Excl5	Intact ephemeral Redgum swamp - potential to fence and exclude grazing	High priority for stock exclusion	fence - $8-10K per km erected	500m
Excl7	Intact Redgum Wetland	Maintain existing fencing and exclude regular stock grazing		
Reveg1	50m reveg corridor buffer	This site is exotic pasture and/or crop. Recommend tubestock planting at 4X4m spacing 80% understorey, 20% trees	fence - $8-10K per km erected Tubestock planted $2.50 each	1.2km 3600 plants
Reveg2	50 m corridor screen and biodiversity link	This site is exotic pasture and/or crop. Recommend tubestock planting at 2X4m spacing 80% understorey, 20% trees	fence - $8-10K per km erected Tubestock planted $2.50 each	700m 4200 plants

Reveg3	50 m corridor screen and biodiversity link tubestock	This site is exotic pasture and/or crop. Recommend tubestock planting at 2X4m spacing 80% understorey, 20% trees	fence - $8-10K per km erected Tubestock planted $2.50 each	350m 2200 plants
WLane	Remnant Grey Box and add understorey	Recommend retaining this corridor for linkage to other remnant vegetation in the areas Undertake weed control in whole corridor - would expect some regeneration of Grey Box trees Fence, rip and plant the 300m to create a corridor to creek (10m corridor proposed, 3 rows)	fence - $8-10K per km erected Tubestock planted $2.50 each	300m 240 plants
5m buffer plantings	Grey Box/Redgum/Yellow Box	Recommend to space 3 lines 1.5m apart and plant at 4m spacings alternating across the rows Where particular screening is required can make spacings 3m in those sections	Tubestock planted $2.50 each	12000 plants (for whole boundary)
Roadside planting	Addition of understorey species along the section of Benambra Rd and Schneiders Rd	2.2km of roadside with some plants added.	Tubestock planted $2.50 - $3 each	550 plants

Proposed Seed Production area (SPA)	Potential to establish a SPA in partnership with Murray Local Land Services (MLLS)	Would have to be negotiated with MLLS		

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REVEGETATION

Site preparation for tube stock

SPRING

SUMMER

AUTUMN

WINTER

SPRING

Spray out exotic perennial pasture

- If you are planting in perennial pasture dominated site, spraying the site the Spring prior to planting is the ideal preparation , and you may then only require one spray in Autumn

Order plants

- Order plants early to guarantee supply of desired species
- Consult with your local nursery and the "Southwest Slopes Revegetation Guide" (online at www.holbrooklandcare.org.au)for appropriate plants for your area

Control rabbits and hares at site and surrounds

- Coordinate with neighbours if necessary, deal with burrows and surface dwelling rabbits
- Avoid the need for labour intensive and expensive tree guards

Ripping—where appropriate

- Rip before the Autumn break, while the ground is hard and dry to get deep shattering of the soil
- Rip lines should be spaced a minimum of 4 metres apart and at least 40cm deep
- Do not rip under the drip-line of existing trees., through wet areas or where there is erosion hazard

Crash graze/slash grass and spray rip lines before frosts, but about 10 days after rain

- Seek appropriate agronomic advice on sprays and rates of chemical
- Spray rip lines only —broad scale spraying of site not recommended
- If no rip lines, spot herbicide application 1 square metre per plant

Re-spray one month prior to planting if required

- Only non-residual herbicides are recommended for use
- If no chemicals to be used, consider slashing/grazing again

Plant seedlings mid July to September

- For 400 plants per ha, plant every 6 m for rip lines that are 4m apart
- For 600 plants per ha, plant every 4 metres for rip lines 4m apart

Check for vermin or stock damage first week after planting

- Inspect for vermin such as rabbits, hares and **act** on any specific problems
- Check that there is no stock entry to plantation

Check plants regularly post-planting

- Watch and act on weed regrowth through Spring and early summer.
- Monitor insects such as grasshoppers, Rutherglen bugs etc. Spot spraying may be undertaken if necessary
- Damage can be caused by frost, birds , kangaroos and wombats
- Remember to shut the gate on the way out!!

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REVEGETATION

Ripping

Before ripping, landowners should contact Dial-Before-You-Dig to check the location of utilities.

- Ripping should be done when the profile is dry to ***shatter*** the soil (not slice) and reduce the risk of air pockets forming, especially in clay soils.
- Rip lines should be spaced 4 metres apart, and at least 40cm deep.
- If the rip has resulted in air spaces, running a tractor wheel or cultivating over the rip line may be appropriate.

- On undulating or hilly land, rip lines should be along the contour to minimise soil erosion.
- Mounding may be recommended in specific soil types, especially sites prone to waterlogging, but it is the exception rather than the rule.

When is ripping NOT appropriate?

Native grass sites—IF planting is appropriate at all, then native grass areas should be direct seeded to prevent disturbance and the invasion of weeds.

Steep Land– slopes must be safe to work on and the appropriate equipment used. If accessible, rip on the contour. Choose appropriate equipment (eg. bulldozer rather than tractor).

Erodible lands— sites with existing active erosion, erodible soil types (including subsoil) or at risk of sheet erosion. Rip lines can catch and redirect water if not designed properly. Seek advice before ripping in erosion prone areas.

Spraying

- The area covered by herbicide spraying should be no wider than 50cm along either side of the rip line.
- If weed regrowth is excessive, over spraying with some chemicals is possible at certain times of the year when the plants are dormant. Consult with your nursery or professional for advice.

What if I don't want to use chemicals?

Site preparation is about reducing the competition for moisture, light and nutrients for the seedling, and this can be achieved in other ways.

- **Reduce the biomass**—slashing or using grazing to knock down the grass load.
- **Scalping** (taking the top 1-2cm of soil off) the planting site may be appropriate in sites with low erosion risk. As you are scraping off the nutrients present in the top layer, there is usually some residual effect before regrowth occurs. Scalping over large areas is not recommended, except under VERY specific circumstances (eg sheep camp restoration).

Tree Guards?

Advantages

- Can provide protection from rabbits and hares where control difficult
- Can provide protection from frost

Disadvantages

- Significant cost per unit
- Significant labour cost to install
- Require maintenance and eventual removal

Watering?

Good site preparation and the timing of planting in late Winter/early Spring is recommended to eliminate the need for watering over the first Summer.

Assessing losses— Vegetation growth in the first Spring can often make it difficult to see the plants. Assess the site properly before making a decision. We recommend to wait until the end of the second or third Spring to assess for replanting UNLESS there has been a specific grazing incursion or insect attack.

For more information please contact Holbrook Landcare Network

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http://www.holbrooklandcare.org.au/bushlinks

Appendix G Fauna rescue and release procedure

Purpose

This procedure explains the actions to be taken in the event fauna (included injured, shocked, juvenile or other animal) are discovered on the project site that require handling or rescue during vegetation and soil clearance and ongoing construction activities.

Scope

This procedure is applicable to all native and introduced fauna species that are found on the project site.

If there is an unexpected threatened species finding, the unexpected threatened species finds procedure outlined in Appendix K will be followed.

Induction and training

All site personnel and subcontractors will be made aware of the actions to be taken in the event that fauna is discovered on the project. This training will occur on site during the Project induction and as required in toolbox talks.

Procedure

If wildlife is discovered on the project site during site construction activities that may harm the animal or pose risk to site personnel, the following steps will be taken.

1. Stop all work in the vicinity of the fauna and immediately notify the Superintendent who is then to notify the SER. The SER is then to notify the Project Ecologist.
2. Preferably allow fauna to leave the area without intervention if it is not injured or in shock and if safe to do so (i.e. no machinery in the immediate vicinity)
3. Call the appropriate rescue agency immediately and follow any advice provided by the agency. Once the rescue agency arrives at site they are responsible for the animal. Any decisions regarding the care of the animal will be made by the rescue agency. The licenced fauna ecologist, rescue services and local veterinary surgery's contact details are below:

Organisation	Contact
Project Ecologist	
WIRES	1300 094 737
Jindera Veterinary Clinic	02 6026 3277
Holbrook Vet Centre	02 6036 2374

In the event the rescue service and/or local veterinary service cannot be contacted, the injured animal will be delivered to the relevant agency as soon as practically possible.

4. Where necessary, to minimise stress to native fauna and/or remove the risk of further injury before the appropriate rescue agency arrives onsite, the SER shall:

a. Cover the animal with a towel or blanket and place in a cardboard box and/or hessian bag. Appropriate temporary housing for fauna is species dependent. Gliders, possums, bats, snakes, lizards and frogs can be held individually in a calico bag until release in adjacent habitat. Nestling birds and eggs are best placed in a covered cardboard box equipped with soft cloth.

b. Place small animals in a cotton bag, tied at the top.

c. Rescued fauna must be protected from exposure to heat and removed from the areas undergoing clearing activities to minimise exposure to noise. Keep the animal in a quiet, warm, ventilated and dark place. A designated site will be decided upon in advance of any construction work.

d. Aquatic fauna to be placed in a plastic aquaria or plastic bag with sufficient amount of water. Frogs will be transported without water or debris in recognition of the risk of transporting disease and the minimal transport time. Any frog handling will be undertaken in accordance with the Hygiene Protocol for the Control of Disease in Frogs (DECC 2008).

e. Some animals require particular handling (e.g. venomous reptiles, raptors) and should only be handled by appropriately qualified personnel.

f. If handling bats, the handler must be vaccinated against the Australian Bat Lyssavirus (ABL), which is a form of rabies.

g. Equipment for fauna rescue (hessian sack, calico bags, gloves and transport boxes) will be kept in designated locations for emergency use by site staff if required. The fauna specialist will carry a fauna rescue kit in a site vehicle, and an additional kit will be located in the site office.

5. If the animal cannot be handled, excluder personnel from the vicinity, record the exact location of the animal and contact the rescue agency.
6. If the fauna species is identified as a threatened species that is not a species identified in the BMP, the SER must:
   a. Immediately cease all work likely to affect the threatened species
   b. If the fauna is injured, call the rescue agency
   c. Implement the Unexpected Threatened Species Find procedure – 0.
7. If the fauna is to be released, the Project Ecologist must identify suitable fauna release locations within or near the Project site.

All fauna handling and rescue events will be recorded via the Fauna interaction register (Appendix H).

The following **onsite** areas have been identified in Figure (Figure 6-3) for the release of fauna and include:

- All areas with Retained Vegetation
- Back Creek Riparian Exclusion Zone
- Nesting Box Installation Areas.
- Revegetation Areas
- Vegetative Screening Areas

Other **offsite** areas may be deemed suitable at the discretion of the Project Ecologist dependent on the fauna species encountered.

Appendix H Fauna interaction register

Date	Time	Location	Fauna species	Healthy, injured or deceased?	Released? (Y/N)	Required rescue or veterinary attention?	Release or rescue location	Comments

Appendix I Weed and pathogen management procedure

Purpose

This procedure details weed and pathogen management and control practices to be implemented throughout the pre-construction and construction phases, and for the maintenance phase of the Project to minimise the threat the remnant vegetation, native flora and fauna habitats and waterways within the local area.

Scope

The term 'weed' applies broadly to either unwanted or invasive non-natives, declared priority weeds specific to the area, environmental weeds and alien native plants (i.e. those growing aggressively outside their normal range).

The scope of weed management and control on site will target those weeds declared as weeds within greater NSW under the *Biosecurity Act 2015*, as well as additional agricultural weeds found during field surveys.

Weed management within the Project site will consist of the initial removal of weeds in the approved area. Ongoing monitoring and maintenance to ensure effective control of any new weed infestation that occurs. This procedure applies to the control of weeds within the Project site in areas managed by GRS.

The plan also outlines pathogen identification onsite and reporting requirements.

Induction and Training

All site personnel and subcontractors will be inducted in the existence of priority weeds on the Project, including the identification and disposal of priority weeds. This training will occur on site during the Project Induction and as required in Toolbox talks, which may include the provision identification guide for priority weeds in induction or crib rooms.

All site personnel will be made aware of the limits of clearing and the importance of threatened species and populations and any vegetation of significant value.

Identified weed species

Six weeds are listed as priority weeds for the Murray Region under the NSW Biosecurity Act. These are:

- Peppercorn (*Schinus spp.*)
- Fleabane (*Conyza spp.*)
- Saffron Thistle (*Carthamus lanatus*)
- Bathurst Burr (*Xanthium spinosum*)
- Spear Thistle (*Cirsium Vulgare)*
- Patterson's Curse (*Echium plantagineum*)

The *Biosecurity Act 2015* dictates that all priority weeds are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any land managers or

authorities who deal with any plant has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

No species of priority weed under the *Biosecurity Act 2015* for the Greater Hume LGA were identified as occurring across the Project area during field surveys, however Paterson's Curse (*Echium plantagineum*) is listed as a priority weed within Greater Hume LGA.

The five high threat weeds listed under the BC act found onsite in the Bam Plots, included:

- Great Brome - *Bromus diandrus*
- Kikuyu - *Cenchrus clandestinus*
- Bathurst Burr - *Xanthium spinosum*
- Saffron Thistle - *Carthamus lanatus*
- Onion Grass - *Romulea rosea*

Table 9-1 Priority weed species present in the Project area

Common name	Scientific name	Duty under *Biosecurity Act 2015*	Photo
Paterson's Curse	*Echium plantagineum*	General Biosecurity Duty	 

Weed control procedure

To control weed infestations prior to and during construction, the SER will ensure the following procedure is implemented:

Weed inspection
Prior to any clearing and grubbing the SER or Project ecologist will survey the project site and record the locations and extent of weed infestations, to be used as a baseline for ongoing monitoring. Information recorded will include species, distribution, and density. Photo points will be established as reference points for future monitoring and marked on weed maps. Any priority weed species or significant environmental weeds will also be identified during any pre clearing inspections and recommendations for control and limiting spread will be made in associated reports.
Weed treatment methodology
The SER or Project ecologist will identify areas of weed infestation; advise the appropriate weed control methods and timing for each area of works. As a guide, removal techniques involve the following approaches, with further guidance provided in Table 9-2: • Paterson's Curse: Small infestations can be physically removed. Application of herbicides. Further specific weed control measures will be recommended as relevant in any weed monitoring reports provided by a suitability qualified individual. Additional weed management strategies include: • Minimal impact techniques are to be used, ensuring no native species within the project corridor are damaged during weed control activities. • Soil disturbance is to be kept at a minimum and stabilisation of any soil damage is to be undertaken immediately. • All persons undertaking weed control are to consult with the nominated suitably qualified individual to ensure accurate identification of species. • Weed control or Bush Regeneration contractors will be made aware of the potential threatened species identification guide in order to reduce the risk of accidental impact to threatened plant species that may be unexpectedly encountered. • Hand removal and other manual techniques are to be used where possible and economically feasible and use of herbicides avoided/minimised. • Herbicide application is to be administered by authorised personnel only. • Herbicide application should not be used when in close proximity to waterways or sensitive areas such as mangroves, or where there is the potential for herbicide runoff into these ecological features. Only locally indigenous plant species and mulch uncontaminated by weeds are to be used in revegetation of the site
Follow up inspection
GRS will ensure that a follow-up inspection is undertaken of identified weed infestation sites to

ensure treatment was successful.

Where weeds cannot be effectively destroyed prior to topsoil stripping, weed contaminated topsoil will be isolated and either encapsulated by deep burying or disposed of at an approved offsite licensed facility.

Annual weed monitoring during construction to assist with the ongoing identification and management of weeds is detailed in the following section.

Vehicle, plant and equipment movement plan

Construction personnel should be made aware of this plan, including the identification guide for priority weeds in Table 9-1.

To prevent the spread of weeds throughout the construction site and surrounding areas, the movement of weed-contaminated plant and equipment will be monitored by GRS. GRS will ensure that all plant and machinery entering the site is inspected and free of weeds by applying standard weed hygiene protocols.

Plant and equipment will be checked and cleaned before leaving a worksite that contains priority weeds.

GRS will also check vehicles and footwear are free of soil before entering or exiting the site to prevent the introduction of soil borne pathogens. Suitable vehicle and boot wash down facilities will be provided.

Records of all construction plant screening checks will be recorded on mobile plant inspection checklists and monitored by GRS.

Weed disposal

Where priority weed areas are disturbed by construction activities, weeds and topsoil potentially containing weed propagules will be removed and disposed in with consultation with Greater Hume Council.

All weeds physically removed (particularly those bearing seeds) are to be disposed of appropriately at a licensed landfill which is able to receive green waste. Securely cover loads of weed-contaminated material to prevent weed plant material falling or blowing off vehicles. They are not to be mulched for re-used. Remove weeds immediately onto suitable trucks/containers and dispose of without stockpiling.

Ongoing management and monitoring

Monitoring of weed infestations will occur as part of the routine weekly inspections to determine the effectiveness of management controls. The presence of any weeds and the necessary management actions will be recorded.

Instances of priority weeds identified during construction are to be verified by a suitably qualified individual. Where presence is confirmed, weed species should be disposed of in accordance with DPE Guidelines.

Priority weeds in areas disturbed by the construction activities will be managed for a minimum of two years post-construction.

Management of priority weeds

As a general guide, Priority Weeds should be controlled in accordance with the methods and guides outlined in the *New South Wales Weed Control Handbook* (DPI 2018) and profiles available from the NSW WeedWise website (DPI 2020).

Table 9-2 Priority weed species' recommended control measures

Common name	Scientific name	Biosecurity obligation	Recommended management measures
Paterson's Curse	*Echium plantagineum*	Prevent, eliminate or minimise any biosecurity risk they may pose	Dig out plants via shovel or hoe Spot spray 2,4-D 300 g/L + Picloram 75 g/L (Tordon® 75-D) at a rate of 150mL to 100 L of water. Spray prior to flowering.

The use of herbicides must be completed according to the *NSW Pesticides Act 1999*, Material Safety Data Sheets and labelling instructions for specific trade name herbicides and off label use permits registered with the Australian Pesticides and Veterinary Medicines Authority (APVMA). The use of herbicide as part of this plan will be limited to direct application to cut stumps and spot spraying. Any contractors using herbicides on the site must be trained and appropriately qualified to do so.

Weed monitoring

A weed monitoring program will be implemented to qualitatively track weed management activities required for the project.

As per step 2 of the weed control procedure, prior to any clearing and grubbing, the SER or Project ecologist will undertake a site inspection to map weed species and gather baseline data prior to construction commencing. This inspection will serve as a basis for future monitoring and should ideally be completed before spring (around August). The Project ecologist will prepare a weed inspection report following the weed inspection to inform bush regeneration work. This report will include detailed mapping of weed occurrences and a clear weed management methodology for all located weed species. The report will take into account factors such as proximity to aquatic environments, proximity to ecologically sensitive areas, weed density and timing of year to assess appropriate treatment.

It is recommended that the occurrence and extent and density of priority weeds within the study area are mapped once annually and continue throughout the duration of construction works. Each monitoring event will be undertaken by the Project Ecologist, covering the entire study area mapping priority weeds, with environment weeds also noted. A report will be prepared following each monitoring event including mapping of priority weeds, photographs to aid identification and

comparison over time, and recommending specific control measures. Each report will also include an assessment against the following performance criteria:

- Evidence of implementation of appropriate control measures for priority weeds
- No incidences of new weed infestations within the project footprint and in the area immediately surrounding the project footprint.

Pathogen management

Myrtle Rust and Phytophthora have not been identified within the project footprint. The hygiene and inspection requirements detailed in the weed control procedure will mitigate the risk of introduction to the project footprint via soiled vehicles or machinery.

Any suspected incidences of Myrtle Rust on host plants identified during construction are to be verified by an ecologist or the Environment Manager. If the potential presence of Phytophthora is identified, access to the area and ground disturbance to the area should be restricted until presence/absence is confirmed. Testing of soils is to be undertaken to confirm the presence or absence of Phytophthora. The NSW Plant Disease Diagnostic Service at the Royal Botanic Garden provides a range of services to assist in the identification and management of Phytophthora.

If confirmed, access should be restricted to host plants or infected areas and cleaning of equipment or plant potentially in contact with these be undertaken. Advice from DPE regarding the most practical hygiene and or disposal management measures may be required if pathogens are identified during the project. An ongoing management strategy should then be developed

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Appendix J Vehicle Hygiene Register

Sample vehicle hygiene register

Date	Time in	Vehicle type	Destination	Driver name	Driver contact no.	Driver registration	Entrance wash (Y/N)	Exit wash (Y/N)	Time out	Inspection staff initials

Appendix K Unexpected threatened species finds procedure

Purpose

This procedure details the actions to be taken when a threatened flora and fauna species is unexpectedly encountered during construction activities.

Scope

This procedure is applicable to all activities conducted by personnel that have the potential to come into contact with threatened species.

Where threatened fauna is unexpectedly encountered that requires handling or rescue refer to the Fauna Rescue and Release Procedure (Appendix F).

Induction/Training

Where required, personnel will be inducted on the identification of potential threatened species occurring on site and the relevant actions for them with regards to this procedure during Project Induction, Site Inductions and regular Toolbox Talks.

Procedure

The SER is responsible for implementing this procedure.

Threatened species / EEC is unexpectedly encountered during clearing/construction activities
• **STOP ALL WORK** in the vicinity of the find. • Immediately notify the SER who will notify the Project Ecologist, Project Manager and FRV Representative. The FRV Representative will then contact the relevant agencies including BCD as required.
Assessment of impact
An assessment is to be undertaken by the SER and the Project Ecologist or appropriate specialist to identify the plant or animal to species level and the likely impact to the threatened species and appropriate management options, such as relocation measures, developed in consultation with FRV.
Approvals
Obtain any relevant license, permits or approvals required if the threatened species is likely to be significantly impacted.

Recommencement of works
Construction works may recommence once the SER has • Obtained approvals as required, and • Confirmed that all corrective actions and additional mitigation measures have been implemented. • Ensured that the threatened species is included in subsequent Sensitive Area Plans, Project Inductions and Toolbox Talks Provided information to FRV to enable update of ecological monitoring and/or biodiversity offset requirements.

Appendix L Inspection and maintenance proformas

L.1 Revegetation inspections

The following proforma may be used to document revegetation planting, inspections and follow-up actions.

Date	Zone	No. plants	Inspection date and details	Inspection date and details	Inspection date and details	Inspection date and details
e.g., 27.7.22	Saltwater main	120	25.10.22 Weeding, watering, 10 plants died	20.12.22 15 plants died. Planted 25 replacement.	30.3.22 Plants growing well. Guards removed	

L.2 Nest box installation and inspections

The following proforma may be used to document nest box installations.

Date	Box ID	Location description	Easting	Northing	Target species	Attachment method	Inspection due
Example (e.g.) 27.7.22	B01	Lot 140, Grey Box dbh 120cm, half way down slope	564892	2548963	Yellow-bellied Glider	Nail	27.10.22

The following proforma may be used to document nest box inspections.

Date	Box ID	Attachment	Replace?	Occupied?	Comments	Next inspection due
20.10.22	B01	Secure	No	No	Nesting material (bark, dried grass) present	20.10.24

Appendix M Threatened species identification

Species	BC Act	EPBC Act	Identification	Photo
Flora				
Pine Donkey Orchid (*Diuris tricolor*)	Vulnerable		It has between one and three leaves, to 30 centimetres long and 4 mm wide. The flower stalk is between 20-40 cm high and has 2-6 flowers, which are bright yellow to orange, speckled with red to purple and white markings. The sepals (the down-pointing slender green segments) are very long and often crossed. Grows from the ground rather than between rocks or vegetation.	

Species	BC Act	EPBC Act	Identification	Photo
Fauna				
Flame Robin (*Petroica phoenicea)*	Vulnerable		The Flame Robin is a small Australian robin that reaches 14 cm in length. The male has a dark grey head and upperparts, a small white forehead patch, and white wing stripes and white tail-edges. The male has a bright orange-red throat, breast and upper-belly. The lower belly is white. The female is brown, darker above, and has a whitish throat and lower belly. The whitish mark on the female's forehead is inconspicuous. Female Flame Robins also have white and buffish marked wings and tail. Immature males resemble females. The main call of the Flame Robin is a thin, pretty, piping descending song. The male Flame Robin may be confused with the male Scarlet Robin,(*Petroica multicolor*). This species is black above and on the head, extending to the throat, with a scarlet breast and upper belly. Female and young Flame Robins can easily be confused with those of	

Species	BC Act	EPBC Act	Identification	Photo
			several other robin species. The main difference is that the outermost tail feather is white, and the next one has only a white edging.	
Brown Tree Creeper	Vulnerable		The head, throat and upper breast are pale greyish-brown, while the lower breast and belly are strongly streaked with black and buff. In flight, a buff stripe can be seen in the wing. The sexes are similar, except females have rufous edges to the feathers of the upper breast, while in the male these edges are black. Young Brown Treecreepers resemble the adults, but are duller, have less obvious stripes on the underparts and the lower belly is a pale rufous colour. The Brown Treecreeper forages for insects on the trunks of eucalypts, always moving upwards, has a loud call and nests in tree hollows.	

Species	BC Act	EPBC Act	Identification	Photo
Squirrel Glider	Endangered		Adult Squirrel Gliders have a head and body length of about 20 cm. They have blue-grey to brown-grey fur above, white on the belly and the end third of the tail is black. There is a dark stripe from between the eyes to the mid-back and the tail is soft and bushy averaging about 27 cm in length. Squirrel Gliders are up to twice the size of Sugar Gliders, their facial markings are more distinct and they nest in bowl-shaped, leaf lined nests in tree hollows. Squirrel Gliders can be distinguished from Sugar Gliders by their longer, bushier tails.	
Corben's Long Eared Bat (*Nyctophilus corbeni*)	Vulnerable	Vulnerable	A uniformly dark grey-brown bat. The ears are about 3 cm long and larger than the head. It has a low ridge of skin running between the eyes and across the nose. It has a head and body length of 5 - 7 cm and weighs about 14 grams. Similar in appearance to the sympatric Gould's Long-eared Bat; forearm 41–50 mm; identified following key in Churchill (1998, 2008). Identification should include analysis of the outer canine	

Species	BC Act	EPBC Act	Identification	Photo
			width (see Parnaby 2009).	
Little Eagle (*Hieraaetus morphnoides*)	Vulnerable		A medium-sized bird of prey that occurs in two colour forms: either pale brown with an obscure underwing pattern, or dark brown on the upper parts and pale underneath, with a rusty head and a distinctive underwing pattern of rufous leading edge, pale 'M' marking and black-barred wingtips. Both forms have a black-streaked head with a slight crest, a pale shoulder band on the upperwings, a rather short and square-tipped barred tail, and feathered legs. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	

Species	BC Act	EPBC Act	Identification	Photo
Southern Myotis (*Myotis Macropus*)	Vulnerable		It has disproportionately large feet; more than 8 mm long, with widely-spaced toes which are distinctly hairy and with long, curved claws. It has dark-grey to reddish brown fur above and is paler below. It weighs up to 15 grams and has a wingspan of about 28 cm. The Southern Myotis generally occurs along watercourses and often roosts and nests in hollows and man-made structures adjacent to watercourses.