



View east across the south of the Project Area.

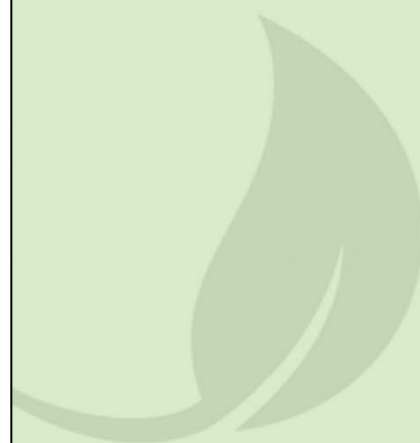
BIODIVERSITY MANAGEMENT PLAN

WYALONG SOLAR FARM

1409 NEWELL HIGHWAY, WYALONG NSW

MARCH 2022

Report prepared by
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for Metka EGN Australia



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Acknowledgement

OzArk acknowledge Traditional Owners of the area to which this plan applies and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

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1 INTRODUCTION

This Biodiversity Management Plan (BMP) for the Wyalong Solar Farm (herein referred to as the Project) has been prepared by OzArk Environment & Heritage (OzArk) on behalf of Metka EGN Australia Pty Ltd (Metka EGN) (the Proponent).

The Project, approved as a State Significant Development (SSD) 9564 on 7 May 2019, comprises a solar farm which will be situated on 260 hectares (ha) of land located at 1409 Newell Highway, Wyalong, NSW, 2671, within land parcel Lot 160 DP750615. The Project is approximately seven kilometres (km) northeast of West Wyalong (**Figure 1-1**). Current access to the Project is via the south-western corner of Lot 160 DP750615.



Figure 1-1. Location Map of the Project Area.

1.1 GLOSSARY AND ABBREVIATIONS

| | |
|--------------|--|
| BAM | Biodiversity Assessment Method (BAM) |
| BC Act | <i>Biodiversity Conservation Act, 2016</i> (NSW) |
| BCD | Biodiversity and Conservation Division |
| BDAR | Biodiversity Development Assessment Report |
| BMP | Biodiversity Management Plan |
| DPIE | Department of Planning, Industry and Environment |
| DPE | Department of Planning and Environment |
| DoEE | Department of the Environment and Energy |
| EIS | Environmental Impact Statement |
| EMS | Environmental Management Strategy |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979</i> (NSW) |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth) |
| EPC | Engineering, Procurement and Construction |
| Habitat tree | A tree containing hollows or nests |
| HSE | Health, Safety and Environment |
| NPW Act | <i>National Parks and Wildlife Act 1974</i> |
| O&M | Operation and Maintenance |
| OEH | Office of Environment and Heritage |
| POEO Act | <i>Protection of the Environment Operations Act 1997</i> |
| SSD | State Significant Development |

1.2 SCOPE

This BMP has been prepared as a tool to give consideration to and manage biodiversity related issues during the construction and operation of the Project. This BMP does not cover the decommission phase of the Project, however the BMP will be revised prior to the commencement of decommission to incorporate this phase. This BMP will be used by all Project employees, contractors, sub-contractors and visitors as the first point of reference for biodiversity related issues. This BMP also serves to inform the public on how matters relating to biodiversity will be dealt with on the Project site in compliance with the conditions of Development Consent.

1.3 PURPOSE

The purpose of this BMP is to document the strategies to be employed for the management of remnant vegetation, fauna and their habitat on the Project site.

The BMP has been prepared to meet the requirements of Condition 11 in Schedule 3 of the Development Consent SSD 9564 (**Appendix 1**). **Table 2-3** identifies where each requirement is addressed in this BMP.

Additionally, Conditions 7 and 8 (Landscaping), Condition 9 (Land Management), and Condition 10 (Biodiversity Offsets) are also referenced within the document (**Appendix 1**).

1.4 PROJECT OVERVIEW

The Project, approved as SSD-9564, comprises a utility scale renewable energy project which aims to generate up to 130 MW of electricity (enough to power approximately 32,000 homes) through a new solar farm. The project is expected to operate for 40 years and will provide increased energy security and reliability of the National Electricity Market by reducing pressure on electricity prices during sunlight hours. The solar farm is expected to displace approximately 190,000 tonnes of CO₂-e per year. The solar farm will consist of up to 350,000 solar photovoltaic (PV) modules, known more commonly as PV modules or solar panels. The panels will be mounted in rows on horizontal tracking or fixed tilt systems. Development of associated infrastructure, including a grid connection, battery storage facilities and temporary construction facilities (such as material storage yards and a site compound) are also proposed within the site. Wyalong has been chosen as the Project site due to the relatively high solar irradiance in the region and the capacity of the TransGrid electricity network to transmit the power generated.

1.5 THE PROPONENT

The proponent for Wyalong Solar Farm is Metka EGN. Metka will engage an Engineering, Procurement and Construction (EPC) contractor to construct the Project and an Operation and Maintenance (O&M) contractor to manage the operation.

1.6 METKA EGN'S ENVIRONMENTAL MANAGEMENT DOCUMENTATION

Metka EGN has developed an Environmental Management Strategy (EMS) for the Project, which is the overarching document in Metka EGN's environmental management system. The purpose of the EMS is to provide a framework for compliance with the Conditions of Consent and the management of environmental issues associated with the Project. The EMS includes a number of plans and strategies that have been put in place to manage environmental impacts that may arise from the construction and/or operation of the project – including this BMP. A flowchart of the documents in the EMS is shown in **Figure 1-2** below.

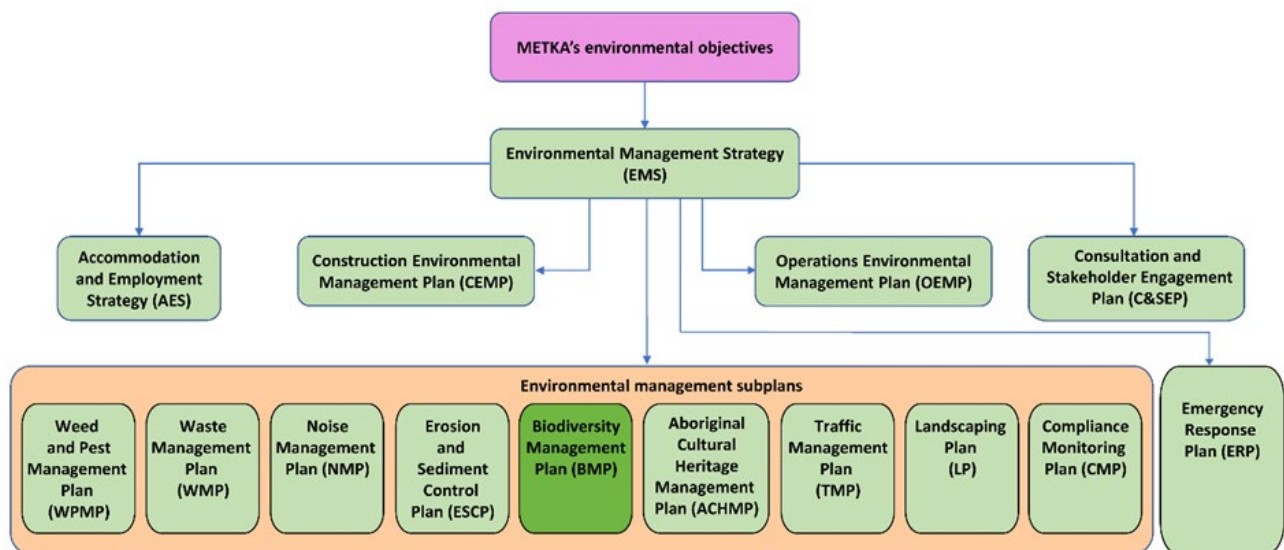


Figure 1-2. Flowchart of the environmental management system.

1.7 OTHER REFERENCE DOCUMENTS

The Biodiversity Development Assessment Report (BDAR) (EcoLink Consulting Pty Ltd, and EnviroKey Pty Ltd, 2018) was used substantially in the development of this BMP. The Landscaping Plan (LP) (Terras Landscape Architects, 2021) was also referred to.

1.8 ROLES AND RESPONSIBILITIES

1.8.1 Construction Phase

Whilst the construction of the Project is occurring, the following roles and responsibilities will apply:

Table 1-1: Construction roles and responsibilities.

| Role | Responsibility | Contact details of staff (should be updated regularly) |
|--|--|--|
| Metka EGN Project Manager | <ul style="list-style-type: none"> Overall accountability for the implementation of the BMP Ensure that all works on site are undertaken in compliance with the BMP Implementing the procedures and protocols contained in the BMP Post induction education and contact with all employees and contractors on issues. Analysis of monitoring results and inclusion in reporting. Timely reporting of environmental monitoring data. Organise revisions of the plan as necessary. Ensure that all training, auditing, reporting and incident management requirements are met. | <ul style="list-style-type: none"> Arthur Baoustanos P: 0400 949 378 E: arthur.baoustanos@mytilineos.gr |
| Metka EGN Site Manager | <ul style="list-style-type: none"> Ensure all site personnel (including contractors and sub-contractors) have received the appropriate inductions and training for their responsibilities. Ensure controls provided in the Management Protocols of the BMP are implemented. Report any incidences or complaints immediately to the Metka EGN Project Manager. Provide feedback on the adequacy and effectiveness of the BMP. | <ul style="list-style-type: none"> Kane Williams P: 0499 888 521 E: kane.williams@mytilineos.gr |
| Metka EGN Health, Safety and Environment (HSE) Advisor | <ul style="list-style-type: none"> Organise pre-clearance surveys by the Project Ecologist to identify habitat trees and evidence of fauna use. Organise Project Ecologist to supervise habitat tree clearing. Organise Project Ecologist to manage fauna impacted by habitat tree clearing Organise Project Ecologist to supervise fence monitoring and handle any trapped fauna. Identify if the BMP needs to be reviewed and updated. Conduct regular inspections of the work area to monitor compliance with the BMP. | <ul style="list-style-type: none"> Nick Adams P: 0473 673 945 E: nick.adams@mytilineos.gr |
| Project Ecologist | <ul style="list-style-type: none"> Conduct pre-clearance surveys to identify habitat trees actively being used by fauna Attend habitat tree clearing events to detect and capture any disturbed wildlife. Relocate displaced fauna as appropriate Provide advice on vertebrate pest management | <ul style="list-style-type: none"> To be determined and engaged prior to construction |

| | | |
|---|--|--|
| | <ul style="list-style-type: none"> • Provide advice on constructing a wildlife friendly fence. • Conduct fence monitoring during construction and post-construction • Weeds monitoring | |
| All Metka EGN contractors and sub-contractors | <ul style="list-style-type: none"> • Ensure the implementation of the BMP with respect to their specific work practices. • Act in accordance with the management procedures or protocols outlined in the BMP. • Ensure any potential or actual issues, including environmental incidents and non-compliances, are reported to the immediate supervisor. | <ul style="list-style-type: none"> • Compliance at all time |

1.8.2 Operational Phase

When the Project is operational, the following roles and responsibilities as shown in **Table 1-2** will apply.

Table 1-2. Operation roles and responsibilities.

| Role | Responsibility | Contact details of staff (should be updated regularly) |
|----------------------------------|---|---|
| Metka EGN O&M Project Manager | <ul style="list-style-type: none"> • Overall accountability for the implementation of the BMP • Ensure that all works on site are undertaken in compliance with the BMP. • Ensure monitoring responsibilities in accordance with the BMP. • Undertake consultation with relevant organisations or the Project Ecologist regarding operational activities which may impact biodiversity values (e.g. weed control, tree trimming). • Ensure that all training, auditing, reporting and incident management requirements are met. • Organise fence monitoring | <ul style="list-style-type: none"> • Mohammed (Mo) Abdallah • P: 0481 281 121 • E: mohammed.abdallah@mytilineos.gr |
| O&M Contractors | <ul style="list-style-type: none"> • Ensure the implementation of the BMP with respect to their specific work practices. • Act in accordance with the management procedures or protocols outlined in the BMP. • Ensure any potential or actual issues, including environmental incidents, are reported to the immediate supervisor. | <ul style="list-style-type: none"> • To be managed by O&M Project Manager |
| Project Ecologist | <ul style="list-style-type: none"> • Partake in fence monitoring • Monitor fauna mortality • Monitor remnant vegetation • Conduct BAM Plots | <ul style="list-style-type: none"> • To be engaged by O&M Project Manager when required |

1.8.3 Document Control

The BMP will be reviewed periodically as required under Condition 2 of Schedule 4 of the development consent SSD 9564.

The BMP would be:

- (a) updated to the satisfaction of the Secretary prior to carrying out any upgrading or decommissioning activities on site; and
- (b) reviewed and, if necessary, revised to the satisfaction of the Secretary within 1 month of the:
 - submission of an incident report under Condition 4 of Schedule 4 of the development consent SSD 9564;
 - submission of an audit report under Condition 7 of Schedule 4 of the development consent SSD 9564; or
 - any modification to the conditions of this consent.

1.9 DPE CONSULTATION

In accordance with Condition 11 of Schedule 3 of Development Consent SSD 9564, the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment (DPE) was consulted in April 2021 by the subcontractor OzArk Environment and Heritage on behalf of Metka EGN in regards to the required contents for this BMP. Please note that the Office of Environment and Heritage (OEH) referred to in the Conditions of Consent has since been replaced by DPE. DPE received a draft of the BMP to review on 19th December 2021. OzArk Environment and Heritage received review comments on the BMP from BCD on 2nd February 2022 and revised the contents of this BMP accordingly on 4th February 2022 (**Appendix 4**).

.

2 LEGAL AND OTHER REGULATORY REQUIREMENTS

2.1 PROJECT CONSENT CONDITIONS

As stated in Section 1, this BMP is a condition of the Development Consent SSD 9564 granted on 7 May 2019. Conditions of Development Consent relevant to the BMP are provided in **Appendix 1**.

Condition 10 in Schedule 3 of the Development consent requires the following:

*Within two years of commencing construction under this consent, unless the Secretary agrees otherwise, the Applicant must retire biodiversity credits of a number and class specified in **Table 2-1** and **Table 2-2** below to the satisfaction of OEH (now DPE).*

The retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Scheme and can be achieved by:

- (a) acquiring or retiring 'biodiversity credits' within the meaning of the Biodiversity Conservation Act 2016;*
- (b) making payments into an offset fund that has been developed by the NSW Government; or*
- (c) funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the biodiversity offset scheme.*

Table 2-1. Ecosystem Credit Requirements

| Vegetation Community | PCT ID | Credits Required |
|---|---------------|-------------------------|
| Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | 76 | 38 |

Table 2-2. Species Credit Requirements

| Vegetation Community | Credits Required | Total |
|--|-------------------------|--------------|
| Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>) | 2 | 9 |
| Swift Parrot (<i>Lathamus discolor</i>) | 3 | |
| Masked Owl (<i>Tyto novaehollandiae</i>) | 2 | |
| Sloane's Froglet (<i>Crinia sloanei</i>) | 2 | |

Condition 11 in Schedule 3 of the Development consent requires the following:

Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with OEH (now DPE), and to the satisfaction of the Secretary.

This plan must:

(a) include a description of the measures that would be implemented for:

- *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;*
- *protecting vegetation and fauna habitat outside the approved disturbance areas;*
- *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 and feral pests;*

(b) include details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions.

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

2.2 PROJECT COMMITMENTS

In addition to the consent conditions, a number of commitments were made in the EIS, and as the EIS was the basis for Development Consent, these commitments must be adhered to. The commitments that pertain to biodiversity management are presented in **Table 2-3**. The table identifies all the commitments relating to biodiversity impact and identifies where in the BMP individual requirements have been addressed.

Table 2-3. Commitments made for a BMP.

| Commitment No. as per EIS | Commitment | Section in this BMP |
|----------------------------------|---|---|
| B.1 | Site access for construction and operation will be selected to minimise vegetation removal and impacts to threatened fauna species | Section 7. Protocol 1 – Vegetation Clearing Procedure. |
| B.2 | Use of ecosystem credit offsets to minimise impacts to flora and fauna | Section 5. Biodiversity Offsetting. |
| B.3 | EMPs will be developed to mitigate potential impacts to biodiversity, including: | |
| B.3.1 | <ul style="list-style-type: none"> unless otherwise agreed by the Responsible Authority, the removal of hollow-bearing trees will be undertaken outside of the spring to early summer period to avoid the main breeding period for hollow-dependent fauna | Section 7. Protocol 1 – Vegetation Clearing Procedure. Protocol 2 – Habitat Tree Removal. Protocol 3 – Management of Displaced Fauna |
| B.3.2 | <ul style="list-style-type: none"> pre-clearance surveys will be undertaken to ensure that nests and hollows identified in paddock trees are inactive | Section 7. Protocol 1 – Vegetation Clearing Procedure. Protocol 2 – Habitat Tree Removal. Protocol 3 – Management of Displaced Fauna |
| B.3.3 | <ul style="list-style-type: none"> where an active hollow is identified, a licenced wildlife salvage team will be on-site during vegetation removal to catch and relocate (if appropriate) any wildlife encountered in vegetation or hollow-bearing trees | Section 7. Protocol 1 – Vegetation Clearing Procedure. Protocol 2 – Habitat Tree Removal. Protocol 3 – Management of Displaced Fauna |
| B.3.4 | <ul style="list-style-type: none"> demarcation and exclusion fencing will be installed around trees and vegetation to be retained in, or directly adjacent to (within the radius of an applicable tree protection zone [TPZ]), the development site, as follows: | Section 7. Protocol 14 – No Go Zones. See also Figure 3-4. |
| B.3.4.1 | <ul style="list-style-type: none"> TPZs will be clearly defined | Section 7. Protocol 14 – No Go Zones |
| B.3.4.2 | <ul style="list-style-type: none"> the radius of the TPZ will be calculated for each tree by multiplying its diameter at breast height (DBH) by 12 (i.e. TPZ = DBH x 12) in accordance with the Australian Standard – Protection of trees on development sites | Section 7. Protocol 14 – No Go Zones |
| B.3.4.3 | <ul style="list-style-type: none"> a TPZ will not be less than 2 m or greater than 15 m, except where crown protection is required | Section 7. Protocol 14 – No Go Zones |
| B.3.4.4 | <ul style="list-style-type: none"> appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' will be installed around retained trees and vegetation | Section 7. Protocol 14 – No Go Zones |
| B.3.4.5 | <ul style="list-style-type: none"> the location of any 'No Go Zones' will be identified in site inductions | Section 7. Protocol 14 – No Go Zones |
| B.3.5 | <ul style="list-style-type: none"> all material stockpiles, vehicle parking and machinery storage will be located within cleared areas or areas proposed for clearing, and not in areas of retained native vegetation | Section 7. Protocol 1 – Vegetation Clearing Procedure. |
| B.3.6 | <ul style="list-style-type: none"> where practical, all paddock and hollow-bearing trees to be removed will be placed in areas of retained vegetation to provide additional fauna habitat | Section 7. Protocol 5 – Stockpiles and Re-using Resources as Woody Debris. |

| Commitment No. as per EIS | Commitment | Section in this BMP |
|----------------------------------|--|--|
| B.3.7 | <ul style="list-style-type: none"> where appropriate, native vegetation cleared from the development site will be mulched for re-use on the site, to stabilise bare ground | Section 7. Protocol 5 – Stockpiles and Re-using Resources as Woody Debris. |
| B.3.8 | <ul style="list-style-type: none"> sediment and erosion control measures will be implemented prior to construction works commencing, to protect drainage channels and any downgradient habitat. These will be in accordance with the measures outlined in the Soil, landuse and agriculture section | Section 7. Protocol 9 – Erosion and Sediment Control. See also: ESCP attached to the CEMP |
| B.3.9 | <ul style="list-style-type: none"> standard noise controls should be implemented during construction as outlined in the Noise section to minimise disturbance to fauna | See NMP attached to the CEMP |
| B.3.10 | <ul style="list-style-type: none"> barbed wire for site fencing will be avoided, where possible | Section 7. Protocol 8 – Fence Construction and Management. |
| B.3.11 | <ul style="list-style-type: none"> boundary fences and laydown areas will be located in cleared areas | Section 7. Protocol 1 – Vegetation Clearing Procedure. |
| B.3.12 | <ul style="list-style-type: none"> the site rehabilitation plan will be implemented to progressively rehabilitate disturbed areas | Section 6. Landscaping Plan. Section 7. Protocol 1 – Vegetation Clearing Procedure. See also: Appendix 3 and LP |
| B.3.13 | <ul style="list-style-type: none"> following construction, revegetation of areas of the development site with groundcover plant species compatible with the existing native species composition will be undertaken | Section 6. Landscaping Plan. See also: Appendix 3 and LP |
| B.3.14 | <ul style="list-style-type: none"> a Weed and Pest Management Plan will be prepared prior to construction as outlined in the Soil, landuse and agriculture section. This should include: | See WPMP attached to the CEMP |
| B.3.14.1 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> identification of areas on the development site which have environmental weeds | See WPMP |
| B.3.14.2 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> methods for controlling weeds e.g. herbicides, physical removal, grazing, etc. | See WPMP |
| B.3.14.3 | <ul style="list-style-type: none"> <ul style="list-style-type: none"> ongoing monitoring of weeds | See WPMP |
| B.3.15 | <ul style="list-style-type: none"> in areas where cropping is not to occur, revegetation with groundcover plant species compatible with the existing native species composition will occur | Section 6. Landscaping Plan. See also: Appendix 3 and LP |

2.3 LEGISLATION

Metka EGN will conduct the Project consistent with the requirements of the Development Consent and any other legislation that is applicable to an approved State Significant Development under the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

In addition to the statutory obligations described in Section 2.1, the following NSW Acts (and their Regulations) may be applicable to the conduct of the Project:

- *Biodiversity Conservation Act, 2016* (BC Act)
- *Biosecurity Act, 2015*
- *Crown Lands Management Act, 2016*
- *Contaminated Land Management Act, 1997*
- *Dangerous Goods (Road and Rail Transport) Act, 2008*
- *Electricity Supply Act, 1995*
- *Electricity Supply (Safety and Network Management) Regulation, 2014*
- *Energy and Utilities Administration Act, 1987*
- *Environmental Planning and Assessment Act, 1979* (EP&A Act)
- *Fisheries Management Act, 1994*
- *Protection of the Environment Operations Act, 1997* (POEO Act)
- *Roads Act, 1993*
- *Soil Conservation Act, 1938*
- *Water Management Act, 2000*
- *Work Health and Safety Act, 2011*

Commonwealth Acts which may also be applicable to the conduct of the Project include:

- *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act); and
- *Native Title Act, 1993*.

On 7 May 2019 the then Department of the Environment and Energy (DoEE) determined that the Project is not a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This means that the Project does not require further assessment and approval under the EPBC Act.

3 EXISTING ENVIRONMENT

3.1 LAND USE HISTORY

The Project site has a long history of agricultural land use, including both cropping (recent crops include Barley and Canola) and grazing. As such, a large percentage of the area proposed to be developed has previously been cleared and is significantly modified.

3.2 LANDFORM, GEOLOGY AND SOILS

The Project site falls within the South Western Slopes Bioregion and the Lower Slopes Subregion (**Table 3-1**). The elevation within the Project site ranges from 227m (south-east) to 237m (north-east).

Table 3-1. Lower Slopes Subregion Description.

| Geology | Characteristic landforms | Typical soils | Vegetation |
|--|---|--|---|
| Ordovician to Devonian folded and faulted sedimentary sequences with inter-bedded volcanic rocks and large areas of intrusive granites. Areas of Tertiary and Quaternary alluvium. | Undulating and hilly ranges and isolated peaks set in wide valleys at the apices of the Riverina alluvial fans. | Shallow stony soils on steep slopes, texture contrast soils grading from red subsoils on upper slopes to yellow subsoils on lower slopes. Alluvial sands, loams and clays, including red-brown earths on undulating plains and extensive grey clays on alluvium. | Dwyer's gum on granite, red ironbark on sedimentary rocks Hill red gum, white cypress pine and red stringybark in the ranges. Grey box woodlands with yellow box, white cypress pine and belah on lower areas. Poplar box, kurrajong, wilga and red box in the north, limited areas of bull mallee, blue mallee, green mallee and congoo mallee in the central west. Myall, rosewood and yarran on grey clays, yellow box, polar box, and belah on alluvial loams. River red gum on all streams with black box in the west with some lignum and river cooba.. |

Two Mitchell Landscapes occur within the Project Site: the Bimbi Plains and the Manitoba Hills and Foothills (**Figure 3-1, Table 3-2**).

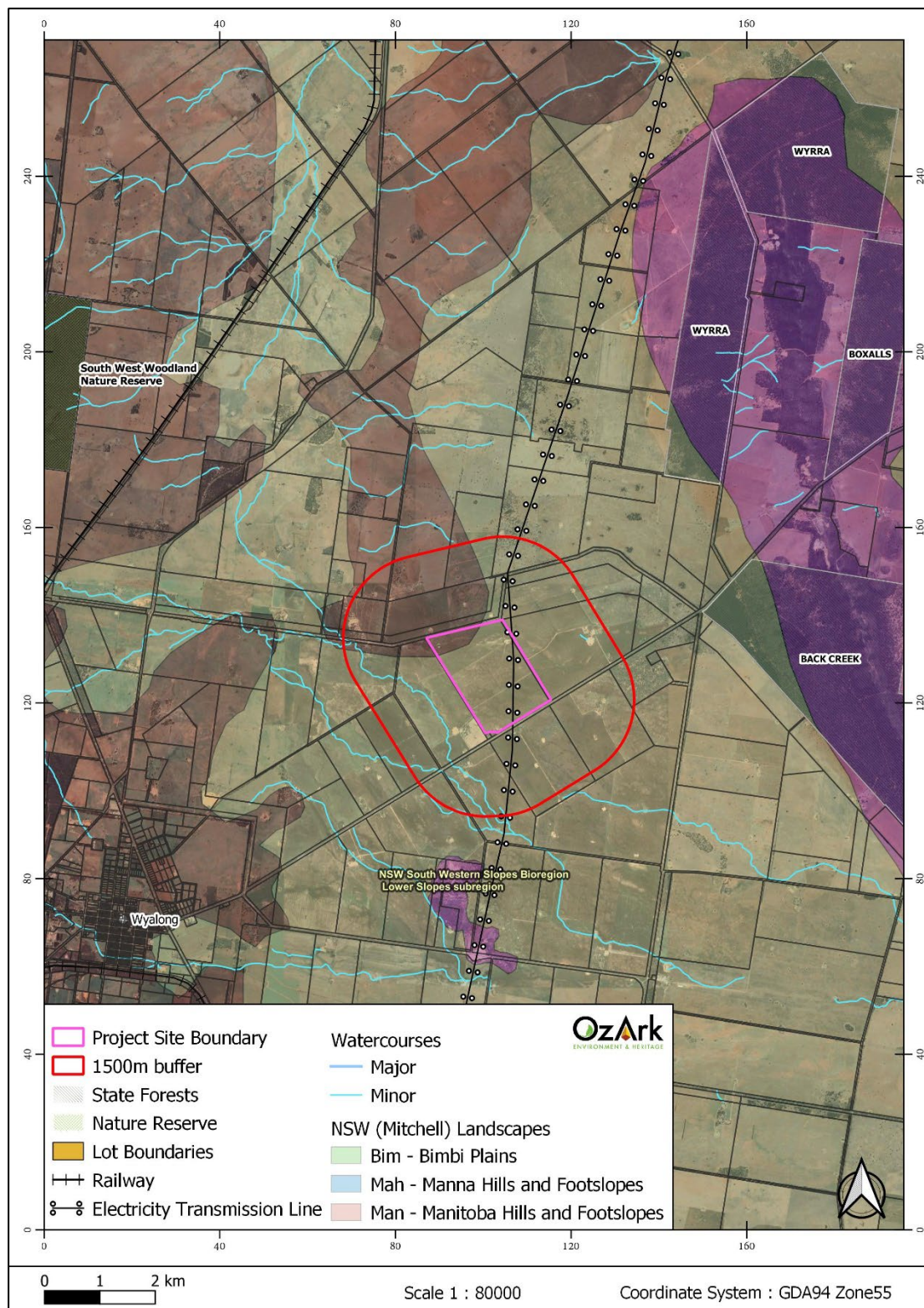


Figure 3-1. NSW (Mitchell) Landscapes, Watercourses, Lot Boundaries, and other key geographic features within the Project Site.

Table 3-2. NSW (Mitchell) Landscapes within the Project Site.

| Mitchell (NSW) Landscape | Description |
|-------------------------------------|--|
| Bimbi Plains (BIM) | Quaternary alluvial plains from bedrock hills and ridges of the Gobondery/Gillenbine and the Belmont/Brooklyn land systems. General elevation 200 to 250 m, local relief 30 m. Gravelly clay loams and red brown clays, red-brown texture contrast soils on higher slopes grading to red-brown gradational and uniform profiles of clay loams and clays along creeks. Grey Box and White Cypress Pine originally dominant, sparse Bimble Box (<i>Eucalyptus populnea</i>) along creek lines. Mostly cleared and cultivated. |
| Manitoba Hills and Footslopes (Man) | Low ridges with outcrops and tors of granite with narrow, incised drainage contributing to major creeks. General elevation 200 to 310 m, local relief to 30 m. Calcareous and neutral red earths with hills of shallow loamy and sandy lithosols with abundant surface grit grading into red earths down slope. Moderate to open Dwyer's Gum, Tumbledown Gum (<i>Eucalyptus dealbata</i>), White Cypress Pine, Red Box, Kurrajongs, Bimble Box, scattered Western Golden Wattle (<i>Acacia decora</i>), Variable Spear-grass (<i>Austrostipa</i> spp.), and Wire Grass (<i>Aristida</i> spp). River Red-gum and Bimble Box along major creeks. Also Mallee (<i>Eucalyptus</i> spp.), Sugarwood (<i>Myoporum platycarpum</i>), Grey Box, Yarran (<i>Acacia homalophylla</i>), Dean's Wattle (<i>Acacia deanei</i>), grasses and forbs. |

3.3 BIODIVERSITY

A BDAR prepared by Ecolink Consulting and EnviroKey to support the Environmental Impact Statement (EIS) for the Project found the following:

- No mapped waterways occur within the Project Site and no aquatic habitat or obvious drainage channels are present.
- Three constructed dams are present; however, all lack aquatic and emergent vegetation. One dam is within the development area.
- Extensive vegetation clearing has (evidently) occurred for agricultural development. At the time of the BDAR the Project Site was planted to Barley and Canola. The remaining native vegetation prior to development consists principally of isolated paddock trees: Grey Box (*Eucalyptus macrocarpa*), Yellow Gum (*Eucalyptus leucoxylon*), *Acacia salicina*, Black Cypress-Pine (*Callitris endlicheri*), White Cypress-Pine (*Callitris glaucophylla*), and Buloke (*Allocasuarina leuhmannii*). There is some additional vegetation retained in the south of the development area in the vicinity of a historic school site. Native vegetation (PCT 76) also remains in the roadside reserves adjacent to the development site.
- A total of 37 plant species were identified. These comprise 28 native and 9 exotic species.
 - No threatened plants listed under the NSW BC Act or Commonwealth EPBC Act were detected.
- Native vegetation comprises one plant community type (PCT), namely PCT 76: *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions* (**Figure 3-2**).
- PCT 76 is associated with a Threatened Ecological Community (TEC) listed as 'endangered' under the EPBC and BC Acts as Inland Grey Box Woodland in the Riverina,

NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions. The vegetation within the Project site was considered to qualify as the BC Act-listed community but did not meet the threshold to be considered the EPBC Act-listed community. This community occurred principally as standing paddock trees (45 in total, with 13 bearing hollows); however, an additional 0.156 ha of this community in the adjacent road reserve will be impacted.

- The only fauna species recorded in the BDAR are birds, two of which are threatened:
 - The Grey-crowned Babbler (*Pomatostomus temporalis temporalis*) is listed as Vulnerable under the BC Act. This species was regularly observed in and around the development site and a number of roosting nests were observed in the road reserve close to the development site (**Figure 3-2; Figure 3-3**).
 - The White-fronted Chat (*Epthianura albifrons*) is listed as Vulnerable under the BC Act; two were observed feeding in Canola crops within the site.
- Important habitat features for fauna species within the Project Site included:
 - Habitat trees containing hollows (**Figure 3-2**)
 - Habitat trees containing nests (**Figure 3-2; Figure 3-3**)
 - Dams providing potential habitat for waterfowl passing through the site

Figure 3-2 and **Figure 3-3** show existing vegetation and habitat trees prior to development.

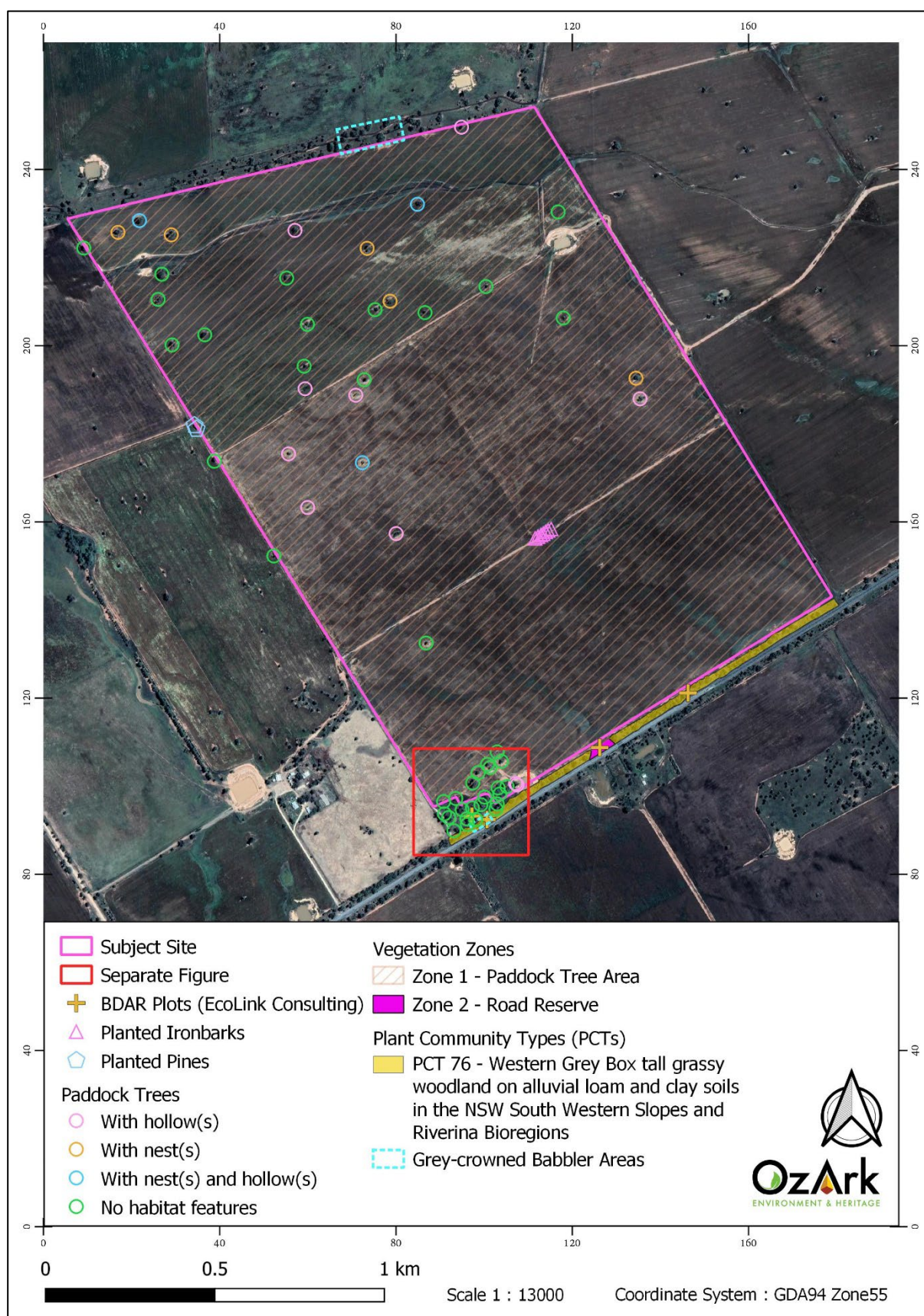


Figure 3-2. Plant Community Types, Trees, Habitat Features and Vegetation Zones within the Project Site Prior to Development.

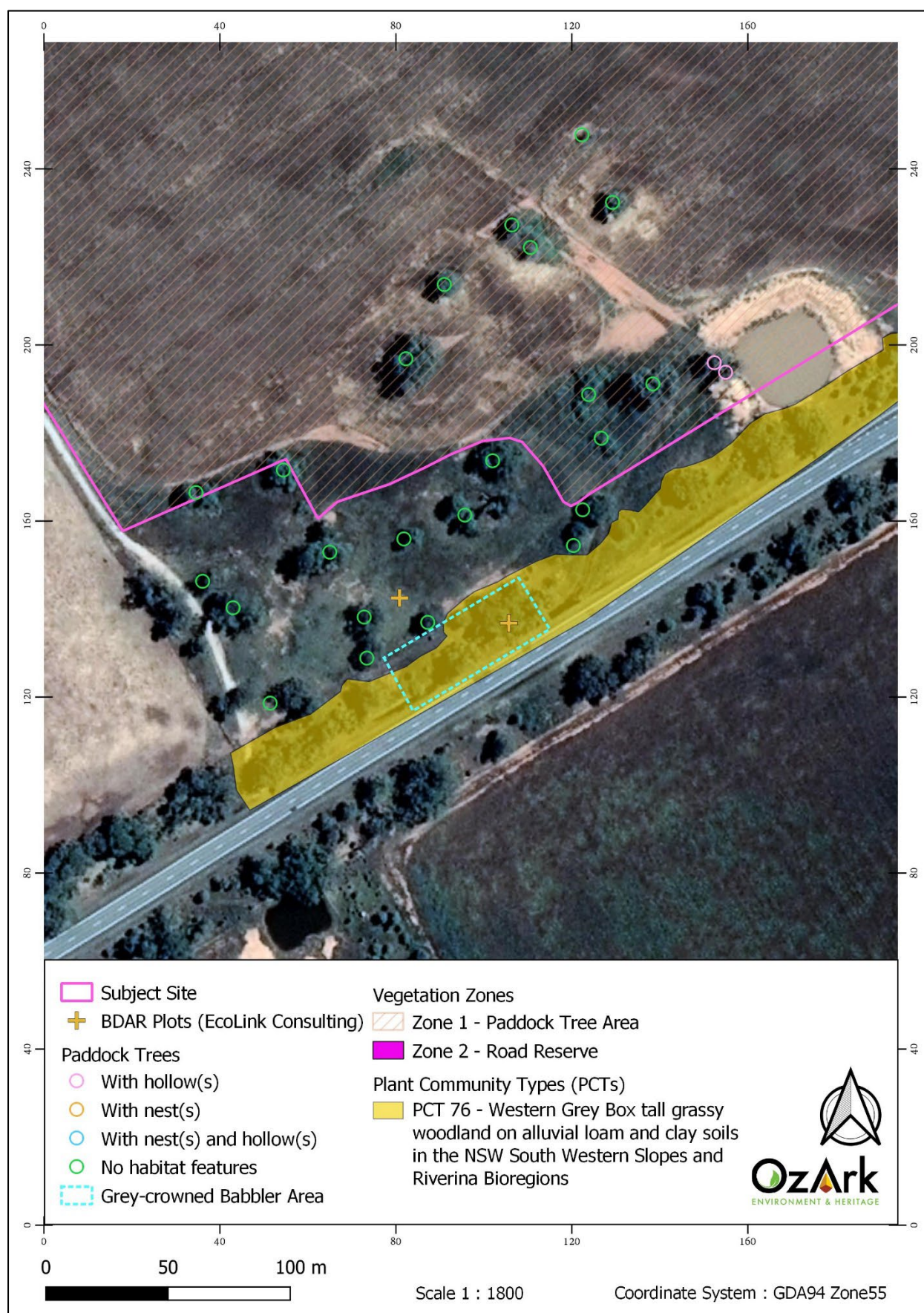


Figure 3-3. Southwestern Corner of the Project Site Showing Area Containing Grey-Crowned Babbler Nests.

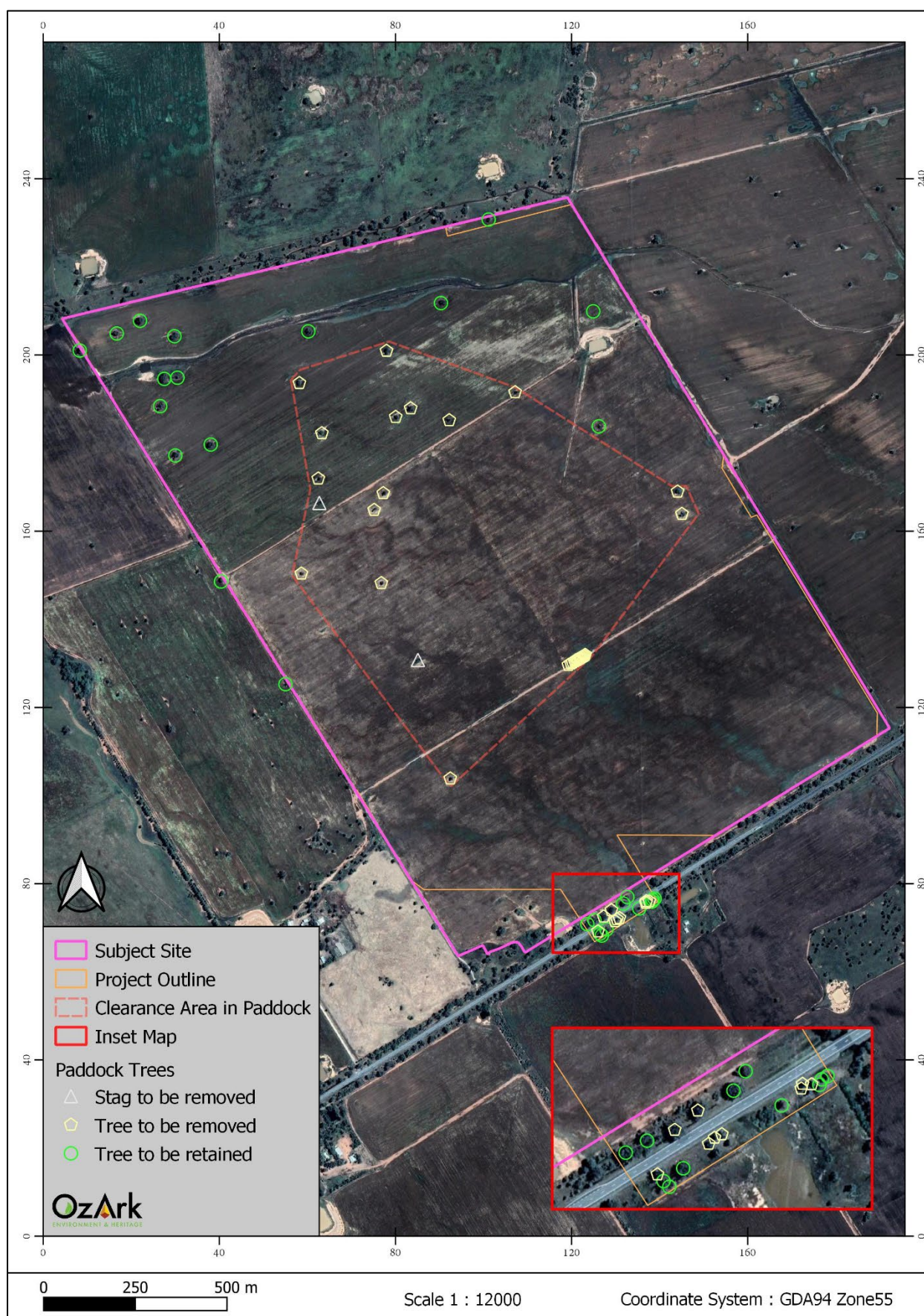


Figure 3-4. Project Site showing living and dead (stag) trees to be removed vs retained.

4 BIODIVERSITY MANAGEMENT PLAN AND COMPLETION CRITERIA

The BMP covers the construction and operation phase of the project. This BMP does not cover the decommission phase of the Project, however the BMP will be revised prior to the commencement of decommission to incorporate this phase. Information relating to the direct and indirect impacts, strategies/mitigation measures from the BDAR and development consent conditions form the basis of the plan (**Table 4-1**). Monitoring and Reporting, along with Triggers and Responses are included as **Table 4-2**. Management Protocols referred to in these tables are listed in **Section 7** and are based on the **mitigation measures** from the BDAR.

The requirements of the BMP should form a component of the site inductions that all contracted personnel are expected to undertake.

4.1 PROJECT DESIGN IMPACT

The Project is situated on largely disturbed and cropped land that has low vegetation integrity. As a result, impacts of the Project are limited to the following:

- the removal of 0.156 ha of native vegetation within the Newell Highway road reserve to facilitate site access
 - the BDAR notes Grey-crowned Babbler roosting nests in trees in the road reserve (**Figure 3-3**), clearing of these trees should be avoided
- the removal of 45 paddock trees scattered over 256 ha (the Project's development footprint; **Figure 3-2**), including:
 - 13 identified hollow-bearing trees (shown in **Figure 3-2**)
 - eight trees with nests
 - six were unidentified Corvid/Magpie nests
 - one was an active Australasian Raven (*Corvus coronoides*) nest
 - one was an active Australian Magpie (*Gymnorhina tibicen*) nest

4.2 IMPACT AND MITIGATION MEASURES

Table 4-1 describes the risks and potential direct and indirect impacts of the Project on biodiversity; it also outlines mitigation measures to be implemented to reduce these risks and potential impacts. Finally, it describes the monitoring responses and responsibility for implementing these measures.

Table 4-1. Site environmental risks, mitigation measures, monitoring responses and responsibilities.

| Risk/Impact to be managed | Consequences | Mitigation Measures | Summary of Monitoring | Responsibility |
|--|---|---|--|---|
| DIRECT IMPACTS | | | | |
| 1. Removal of native vegetation | <p>General loss of flora</p> <p>General loss of habitat for fauna</p> <p>Two threatened bird species (Grey-crowned Babbler and White-fronted Chat) may be impacted due to clearing.</p> <p>Hollow-dependent fauna species will be impacted due to loss of 13 habitat trees.</p> <p>Nesting Corvids/Magpies will be impacted due to the loss of 8 trees containing their nests.</p> <p>One Threatened Ecological Community is present and will be directly impacted (Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions [Endangered])</p> <p>Clearing in the Newell Highway road reserve.</p> | <p>Where possible, clearing should be avoided and minimised. Ensure that only those areas identified and offset in the conditions of approval are cleared. Avoid clearing those trees with Grey-crowned Babbler nests identified in the BDAR.</p> <p>Protocol 1 – Vegetation Clearing Procedure</p> <p>Protocol 2 – Habitat Tree Removal</p> <p>Protocol 3 – Management of Displaced Fauna</p> <p>Protocol 4 – Habitat Box Procedure</p> <p>Protocol 5 – Stockpiles and Re-using Resources as Woody Debris</p> <p>Procedure 14 – No-Go Zones</p> <p>Rehabilitation planting to consider measures such as species and rate in accordance with the LP and the suggested species in Appendix 3.</p> | <p>Inspection and supervision of clearing site to ensure relevant protocol requirements are met.</p> <p>Inspection of habitat boxes twice yearly to identify occupancy, and repair damage.</p> <p>Maintain a log of salvaged animals and actions taken to relocate them.</p> | <p>Metka EGN HSE Advisor to arrange mitigation measures, monitoring and ensure compliance.</p> <p>Project Ecologist to undertake pre-clearance surveys, supervise clearing, undertake any fauna handling, identify the precise location of the Grey-crowned Babbler nests</p> |

| Risk/Impact to be managed | Consequences | Mitigation Measures | Summary of Monitoring | Responsibility |
|--|--|---|---|--|
| | Creation of temporary disturbance areas. | | | |
| 2. Construction of solar panels and perimeter fencing | <p>Trapped fauna may exhaust food resources and water supply, causing death.</p> <p>Trapped fauna may cause degradation of retained native vegetation.</p> <p>Security fences may obstruct the movement of larger terrestrial species such as kangaroos, wallabies and other fauna species</p> | <p>Protocol 3 – Management of Displaced Fauna</p> <p>Protocol 8 – Fence Construction and Management</p> | <p>Inspection and supervision of clearing site to ensure relevant protocol requirements are met.</p> <p>Maintain a log of salvaged animals and actions taken to relocate them.</p> <p>Regular (fortnightly) inspection and maintenance of fencing during construction and monthly during first year of operation. Thereafter, either monthly or annually depending on frequency of incidents (See Protocol 8 – Fence Construction and Management)</p> | <p>Metka EGN HSE Advisor</p> <p>Project Ecologist to undertake any fauna handling.</p> |
| INDIRECT IMPACTS | | | | |
| 3. Changed management practices on Site. | Vegetation condition may decline over time. | <p>Protocol 6 – Weed Management</p> <p>Protocol 9 – Erosion and Sediment Control</p> <p>Procedure 14 – No-Go Zones</p> <p>Maintain condition of native vegetation in retained areas (PCT vegetation integrity and flora species richness)</p> | Completion of BAM plots after first year of operation to compare to baseline and then as required | Metka EGN HSE Advisor |
| 4. Increased traffic and visitation | Degradation and modification of retained habitat due to spread of weeds and feral pests. | <p>Protocol 6 – Weed Management</p> <p>Protocol 7 – Feral Pest Management</p> <p>Procedure 14 – No-Go Zones</p> | <p>Visual inspections to detect new weed germination. Fortnightly during construction and monthly after construction completion.</p> <p>On-going monthly inspections to detect presence of feral pests after construction completion.</p> | Metka EGN HSE Advisor |

| Risk/Impact to be managed | Consequences | Mitigation Measures | Summary of Monitoring | Responsibility |
|------------------------------|--|---|--|--------------------------|
| 5. Ground disturbance | Creation of dust and facilitation of waterborne sediment. Sedimentation could adversely affect the surrounding vegetation. | Protocol 9 – Erosion and Sediment Control Protocol 10 – Dust Control Rehabilitate and revegetate temporary disturbance areas with species that are endemic to the area (Appendix 3) in addition to the non-native species mentioned in the LP. Works to be undertaken at an appropriate time of year to ensure survival of the planted species. Revegetation works should be complete within 12 months -post-construction. | Sediment control measures and rehabilitation areas will be checked and maintained at regular intervals (daily during construction and after rainfall events greater than 25 mm in a 24-hour period). Daily visual inspections of construction progress including maintaining the construction area, stockpile/lay down areas and installation/maintenance of sediment control devices. Fortnightly follow up visual inspections of rehabilitation works during construction to assess the success of soil and vegetation stabilisation. Quarterly inspections of rehabilitated areas for two years after works and implement appropriate responses if rehabilitation fails. | Metka EGN HSE Advisor |
| 6. Light Spill | Light spill from artificial light may affect nocturnal species such as arboreal mammals, large forest owls and foraging microbats. | Protocol 11 – Lighting Design Protocol | Inspection at commencement of operation. | Metka EGN HSE Advisor |
| 7. Pollution | Contamination of land and water from chemical spill. | Protocol 12 – Chemical Management Procedure 14 – No-Go Zones | Regular (fortnightly) inspections during construction of chemical storage areas | Metka EGN HSE Advisor |

4.3 MONITORING AND REPORTING

Monitoring and reporting commitments are summarised below in **Table 4-2**. Reports will be provided to the proponent and DPE. Any recommendations or changes to the ecological aspects of the monitoring should be acted upon by the proponent. All monitoring actions/inspections will be recorded in HammerTech (Metka EGN HSE Platform) and used to meet reporting requirements.

Table 4-2: Monitoring and reporting requirements.

| Risk/impact (from Table 4.1) | Monitoring Action | Timing/ frequency | Responsibility | Decision Trigger | Adaptive Response | Reporting |
|---------------------------------|---|----------------------------------|--|--|--|---|
| CONSTRUCTION | | | | | | |
| 1, 2 | Inspect the clearing site to ensure relevant protocol requirements are met. | Daily during clearing activities | Metka EGN HSE Advisor to undertake monitoring and ensure compliance. Project Ecologist to undertake pre-clearance surveys, supervise clearing and undertake any fauna handling. | Vegetation is not appropriately demarcated with fencing and/or flagging tape as per Protocol 1 – Vegetation Clearing Procedure and Protocol 2 – Habitat Tree Removal | Project Ecologist to review BMP and ensure vegetation to be removed vs retained is appropriately marked prior to continuing works. If any vegetation is removed outside the approved development footprint, stop work, and report incident. If work not being completed in accordance with this BMP, stop work and review protocols. | Project Ecologist to record any fauna observed, handling undertaken, and outcome to Metka EGN HSE Advisor. Metka EGN HSE Advisor to report to Metka EGN Site Manager. Metka EGN to report any fauna mortalities to DPE as required. |
| 1, 2 | Inspect and maintain fencing. | Fortnightly | Metka EGN HSE Advisor | Fencing is damaged or not being maintained. Injured or deceased fauna is identified along or near fencing | Fencing to be repaired, re-instated and maintained. Reinstate fencing to relevant protocols standard. Investigate cause of death or injury and record details | Metka EGN HSE Advisor to consult with Project Ecologist and report to Metka EGN Site Manager. Metka EGN to report any fauna mortalities to DPE as required. |

| Risk/impact (from Table 4.1) | Monitoring Action | Timing/ frequency | Responsibility | Decision Trigger | Adaptive Response | Reporting |
|---------------------------------|--|--------------------------------|---|--|--|---|
| | | | | | Review fencing design if investigation identifies improvement required | |
| 1, 2 | Maintain a log of salvaged animals and actions taken to relocate them. | As required/ incident based | Metka EGN HSE Advisor to ensure compliance and review log Project Ecologist to undertake fauna handling and record details | Pattern of fauna mortalities/injuries is identified | Investigate and identify corrective actions | Project Ecologist to record details of fauna handling and report to Metka EGN HSE Advisor. Metka EGN HSE Advisor to undertake recording and report to Metka EGN Site Manager. Metka EGN to report any fauna mortalities to DPE as required. |
| 3,4 | Inspect for weeds | Fortnightly | Metka EGN HSE Advisor | Increase in weed density and distribution from baseline | Identify and implement control measures in Protocol 6 – Weed Management | Metka EGN HSE Advisor to report to Metka EGN Site Manager. |
| 4 | Inspect for the presence of feral pests on the Project Site | Fortnightly | Metka EGN HSE Advisor | Feral pests are detected within the project site | Implement management actions in Protocol 7 – Feral Pest Management | Metka EGN HSE Advisor report to Metka EGN Site Manager. |
| 5 | Inspect Erosion and Sediment Control devices installed and operational | Daily | Metka EGN HSE Advisor | Erosion and sediment control devices not functioning. Sedimentation occurring. | Repair and replace devices. Install new devices as necessary. Stop construction work in wet conditions as necessary. | Metka EGN HSE Advisor report to Metka EGN Site Manager. Metka EGN Site Manager to report to Metka Project Manager. Metka Project Manager to report to DPE as an incident immediately and all non-compliances need to be reported within 7 days. All non-compliances need to be reported to: compliance@planning.nsw.gov.au |

| Risk/impact (from Table 4.1) | Monitoring Action | Timing/ frequency | Responsibility | Decision Trigger | Adaptive Response | Reporting |
|---------------------------------|--|---|---|---|---|---|
| 7 | Inspect chemical storage areas | Daily | Metka EGN HSE Advisor | Chemical spills | Repair and/replace chemical. Organise rehabilitation of polluted area. | Metka EGN HSE Advisor report to Metka EGN Site Manager. Metka EGN Site Manager to report to Metka Project Manager. Metka Project Manager to report to DPE as an incident immediately and all non-compliances need to be reported within 7 days. All non-compliances need to be reported to: compliance@planning.nsw.gov.au |
| OPERATION | | | | | | |
| 1, 2 | Maintain a log of salvaged animals and actions taken to relocate them. | As required/ incident based | O&M Project Manager to ensure compliance and review log Project Ecologist to undertake fauna handling and record details | Pattern of fauna mortalities/injuries is identified | Investigate and identify corrective actions | Project Ecologist to record details of all fauna handling. Metka EGN O&M Project Manager to undertake recording and report any fauna mortalities to DPE. |
| 2 | Inspect and maintain fencing. | Once during construction. Monthly for the first three months post-construction, then quarterly for the remainder of the first year post-construction. Then annually, provided fauna deaths are infrequent | O&M Project Manager to inspect for damage Project Ecologist to inspect for trapped and/or deceased animals | Fencing is damaged or not being maintained. Injured or deceased fauna is identified and is caused by fencing | Fencing to be repaired, re-instated and maintained. Reinstate fencing to Protocol standard. Investigate cause of death or injury and record details Review fencing design if investigation identifies improvement required | O&M Project Manager and Project Ecologist to undertake monitoring. Metka EGN O&M Project Manager to report any fauna mortalities to DPE. |

| Risk/impact (from Table 4.1) | Monitoring Action | Timing/ frequency | Responsibility | Decision Trigger | Adaptive Response | Reporting |
|---------------------------------|---|--|---------------------|--|---|--|
| 1 | Inspect habitat boxes to identify occupancy and damage. | Twice yearly: once in late winter and once in mid-summer | Project Ecologist | Habitat boxes require repair, or 30% occupancy not achieved. | Repair or replace boxes. Review likely cause of limited occupancy. Response may involve modification of style of boxes or an increase in box numbers. | Project Ecologist to report to O&M Project Manager after each monitoring stage |
| 3 | Complete BAM plots to compare to baseline | To occur annually for three years post-construction | Project Ecologist | Reduction in vegetation integrity and flora species richness compared to baseline | Review likely cause of decline, e.g. weather, fence breaches, increase in weeds and pest animals. If cause is related to fencing, weeds and pest animals, repair fence, and implement Weed and Vertebrate Pest Management Protocols. Implement LP and supplement with planting of native species as required. | Project Ecologist to review results and report to O&M Project Manager after each visit |
| 3,4 | Inspect for weeds | Quarterly | Project Ecologist | Increase in weed density and distribution. At 10% cover weed control is to be undertaken at rosette stage/prior to flowering. | Identify management actions in Protocol 6 – Weed Management See also WPMP | Project Ecologist to review results and report to O&M Project Manager after each visit |
| 4 | Inspect for presence of feral pests on project site | Opportunistic sightings and formally Quarterly | O&M Project Manager | Feral pests are detected. | Implement management actions in Protocol 7 – Feral Pest Management See also WPMP | O&M Project Manager |

| Risk/impact (from Table 4.1) | Monitoring Action | Timing/ frequency | Responsibility | Decision Trigger | Adaptive Response | Reporting |
|---|--|---|-----------------------|--|--|--|
| 5 | Monitor rehabilitated areas | Quarterly for first three years of operation then as required | Project Ecologist | Proliferation of non-native vegetation or no ground cover. | Implement management actions in Protocol 9 – Erosion and Sediment Control and Protocol 10 – Dust Control | Project Ecologist to review results and report to O&M Project Manager after each visit |
| 6 | Inspect lighting in project area | Upon commencement of operation then annually as required. | O&M Project Manager | Light spill above best practice level. | Implement management actions in Protocol 11 – Lighting Design Protocol in accordance with AS4282 | O&M Project Manager |
| 7 | Inspect for chemical spills or leaking | Monthly | O&M Project Manager | Chemical spill or leak detected | Implement management actions in Protocol 12 – Chemical Management | O&M Project Manager |

4.3.1 Incident Management

Any incident or accident that results in harm to the environment and/or off-site receptors is to be regarded as an environmental incident. Where an incident results from a failure of a system process the incident shall be regarded as a non-compliance. An incident is “a set of circumstances that causes or threatens to cause material harm to the environment”.

It is a mandatory requirement for any personnel working for or on behalf of Metka EGN to report and respond to all hazards and events that have affected or have the potential to adversely affect the environment.

Examples of events include:

- fauna mortality
- fuel spillage
- excessive noise incidents
- chemical spills
- bushfire
- complaint from a neighbour.

The first line of response is to take immediate actions to minimise risks to persons, equipment, fauna and the environment. These actions may include:

- stop work
- assess site and make the area safe
- notify other parties that may be affected by the hazard/event.

DPIE will be notified in writing to compliance@planning.nsw.gov.au immediately after the Proponent becomes aware of an incident on site which has the potential to cause material environmental harm. The notification must identify the development, including the application number and the name of the development, and set out the location and nature of the incident. Examples of an environmental incident that results in ‘material harm to the environment’ could be:

- an uncontained spill into a water course resulting in harm to the health or safety of human beings or non-trivial harm to ecosystems
- the mortality of or serious injury to wildlife as a result of project activity

Response agencies need to be informed of pollution incidents quickly, so action can be coordinated to prevent or limit harm to the environment and human health generally. These are listed in **Table 4-3**.

Table 4-3. Response Agency Contact Details.

| Response agency | Contact details |
|--|--|
| Environment Protection Authority NSW (EPA NSW) | 131 555 or (02) 9995 5555 |
| Ministry of Health NSW | (02) 9391 9000 |
| SafeWork NSW | 131 050 |
| The local authority, Bland Shire Council | (02) 6972 2266 or, outside office hours, on 0418 402 350 |
| Fire and Rescue NSW | 000 or, for Mobiles only, 112 |
| Rural Fire Service Bland Temora Region | (02) 6977 4737 |

4.3.2 Non-compliance Reporting

A project non-compliance is a project condition that is not in compliance with the development consent conditions. Environmental non-compliances will be reported and actioned through the incident management procedures detailed below.

As per Schedule 4 Condition 5 of the Conditions of Consent, Metka EGN will notify the Department in writing at compliance@planning.nsw.gov.au within 7 days after becoming aware of any non-compliance with the conditions of this consent. The notification will identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the noncompliance (if known) and what actions have been done, or will be, undertaken to address the non-compliance.

As a condition of consent, prior to commencing the construction, upgrading and decommissioning of the development, the Applicant (Metka EGN) must submit a compliance report to DPE in accordance with the latest version of the Compliance Reporting Post Approval Requirements.

To meet this condition, a Compliance Monitoring Plan (CMP), which includes a Compliance Report template, has been completed (see CMP).

4.4 SUMMARY OF REPORTING

The following will be reported to Metka EGN by the O&M Project Manager in consultation with the Project Ecologist at the end of the construction period.

- Vegetation cleared
- Fauna mortalities
- Weeds and feral pest observations
- Habitat box occupancy
- Performance in relation to carrying out works in accordance with this BMP.

The following details will be included in reports to be submitted to DPE by Metka EGN either during construction as required, or at the end of construction:

- Fauna mortalities (numbers, species and likely cause of death)
- Corrective measures undertaken to address fauna mortalities and non-compliance incidents, if necessary.

4.5 INDEPENDENT ENVIRONMENTAL AUDIT

An Independent Environmental Audit of the Wyalong Solar Farm will be conducted in accordance with Condition 7, Schedule 4 of the conditions of consent. Specifically, an audit will be undertaken:

- within 6 months of commencing construction
- or as directed by the Secretary of DPE.

The audit will:

- be prepared in accordance with the relevant Independent Audit Post Approval requirements
- be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of DPE
- be carried out in consultation with the relevant agencies
- assess whether the development complies with the relevant requirements in this consent, and any strategy, plan or program required under this consent
- recommend appropriate measures or actions to improve the environmental performance of the development and any strategy, plan or program required under this consent.

Within 3 months of commencing an Independent Environmental Audit, or unless otherwise agreed by the Secretary, a copy of the audit report will be submitted to the Secretary of DPE, and any other NSW agency that requests it, together with a response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations.

The recommendations of the Independent Environmental Audit will be implemented to the satisfaction of the Secretary of DPE.

4.6 REVIEW AND IMPROVEMENT

Continuous improvement of this BMP will be achieved by the ongoing evaluation of performance to identify opportunities for improvement and will be completed by the Metka EGN O&M Project Manager, and Project Ecologist. This BMP will be reviewed at the following timeframes of the project:

- after construction is completed
- if there is a biodiversity management incident

- if there is a project modification
- if the Secretary requests a review
- every three years after project operation commences.

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.

4.7 TRAINING

4.7.1 Induction

As part of the induction for construction phase of the Project, personnel and relevant subcontractors will become familiar with:

- the purpose of the BMP
- the protocols of the BMP and environmental controls
- key roles and responsibilities relevant to BMP.

Protocols in this BMP relevant to that day's activities will be highlighted in the pre-start meeting, and protocols that relate specifically to managing flora and fauna on site are to be included in the induction material developed for the project.

This site will have Site Inductions facilitated through HammerTech. The proponent also has a Training and Competency Procedure (MYT-AU-PR-COR-HR-0001) that describes what and how training is performed across the business. This procedure is committed to ensuring that all staff have the relevant knowledge, skills and expertise to perform their work to consistently high standards and to achieve their full potential. This procedure is supported by the company Training Needs Analysis (MYT-AU-RT-COR-HR-0001), a spreadsheet that contains all employees/roles and what the requirement of training is for their position. An induction register will be kept on-site, signed by inductees, with awareness of the requirements of the BMP highlighted.

4.7.2 Project Ecologist

The Project Ecologist should have an applicable tertiary qualification or similar. The ecologist should be familiar with the scope of works proposed, the project objectives and have a clear knowledge of the ecology of the locality. The ecologist should:

- Be BAM accredited or possess a minimum of five years of experience working in the western region
- Maintain standard licences and approvals including a National Parks and Wildlife Act 1974 Section 132c Scientific License and Animal Ethics Committee Research Authority to Handle/Survey Wildlife
- Maintain a current first aid certificate
- Maintain working at heights qualifications (required as part of the habitat box installation process)
- Maintain all necessary vaccinations required to handle microchiropterans and be vaccinated against the bacterial infection (Tetanus) caused by *Clostridium tetani*.

Proof of all licences, approvals and qualifications should be uploaded into HammerTech at the commencement of the ecologist's involvement in this project.

4.8 WEBSITE

A website will be established for the Project at <https://wyalongsolar.com.au/>

This website will be maintained and kept up-to-date by the proponent (Metka EGN). In accordance with Condition 8 Schedule 4, of the conditions of consent, the website will make the following information publicly available at minimum, as relevant to the stage of the development:

- EIS and response to submissions
- the final layout plans for the development
- current statutory approvals for the development
- approved strategies, plans or programs required under the conditions of this consent
- the proposed staging plans for the development if the construction, operations or decommissioning of the development is to be staged
- how complaints about the development can be made
- a complaints register
- compliance reports

- any independent environmental audit, and the Applicant's response to the recommendations in any audit
- any other matter required by the Secretary.

5 BIODIVERSITY OFFSETTING

The BMP has been prepared cognisant that offsetting biodiversity impacts of the development will be required under Schedule 3, Condition 10. Within two years of commencing construction under this consent, unless the Secretary agrees otherwise, Metka EGN must retire biodiversity credits of a number and class specified in Table 1 and Table 2 of Schedule 3, Condition 10 (see **Section 2-1; Appendix 1**). Metka EGN intends to retire the biodiversity credit liability by either acquiring or retiring 'biodiversity credits' within the meaning of the Biodiversity Conservation Act 2016 or making payments into an offset fund that has been developed by the NSW Government. Metka EGN must report to DPE every six months on progress towards satisfying their offset requirements.

6 LANDSCAPING PLAN

A separate Landscaping Plan (LP) has been developed to meet the requirements of Conditions 7 and 8 of Schedule 3 (**Appendix 1**). Guidance on the species, mix and quantity are defined within the LP.

The species chosen for the Vegetation Buffer are native species endemic to the area (**Table 6-1**).

Table 6-1. Species recommended in the LP to be planted as the Vegetation Buffer.

| Botanical name | Common name |
|-------------------------------|--------------------|
| <i>Casuarina cristata</i> | Belah |
| <i>Callitris glaucophylla</i> | White cypress |
| <i>Eucalyptus behriana</i> | Bull Mallee |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Acacia oswaldii</i> | Umbrella Wattle |
| <i>Acacia pendula</i> | Weeping Myall |
| <i>Acacia salicina</i> | Sally Wattle |
| <i>Acacia trineura</i> | Three-nerve wattle |
| <i>Dodonaea viscosa</i> | Sticky Hop Bush |
| <i>Eremophila michelli</i> | False Sandalwood |
| <i>Geijera parvifolia</i> | Wilga |
| <i>Melaleuca lanceolata</i> | Black Teatree |

The LP details a list of ground cover species to be planted beneath the solar panels within the site; these are pastoral species nominated by the Department of Primary Industries as suitable to neutral red soils of the West Wyalong District. All species recommended in the LP are non-native (**Table 6-2**). This BMP recommends that some native ground cover be also added to the species list. A list of suitable species are provided in **Appendix 3**. It is noted that native seed can be difficult and expensive to obtain, as such, it may not be possible or practical to implement.

Table 6-2. Species recommended in the LP to be planted as groundcover beneath the Solar Panels.

| Botanical name | Common name |
|--|--|
| <i>Trifolium subterraneum</i> | Urana (or Dalkeith) sub clover York (or Seaton Park) sub clover |
| <i>Trifolium resupinatum</i> | Prolific Persian clover |
| <i>Trifolium vesiculosum</i> | Zulu Arrowleaf clover |
| <i>Digitaria eriantha</i> subsp. <i>eriantha</i> | Digit Grass |

7 MANAGEMENT PROTOCOLS

The following protocols have been developed to make the implementation of the BMP easier to manage for both the Construction and Operation phases.

7.1 PROTOCOL 1 – VEGETATION CLEARING PROCEDURE

Specific measures to minimise the impact of vegetation clearing include:

- Refer to **Figure 3-4** for guidance on trees and stags to be removed vs retained.
- Areas of vegetation to be retained are to be clearly demarcated by the Metka EGN HSE Advisor with high visibility fencing to prevent accidental clearing during the construction phase.
 - Capped star pickets and reflective spinning tape (helicopter tape) is recommended for fencing off larger areas of vegetation that is to be retained (e.g., portions of vegetation in the road corridor and on the northern boundary line). This fence should be installed at least 2 m from the dripline
 - Where the above fencing is not practical (e.g., for isolated paddock trees), blue flagging tape is recommended for marking individual trees to be retained
 - Spray painting a red X on the trunk is recommended for marking individual non-habitat trees to be removed
 - Encircling the tree in red and white flagging tape is recommended for marking individual habitat trees to be removed
- Existing cleared areas, farm tracks or areas of existing disturbance will be utilized where possible for laydown areas, boundary fences and access tracks to minimise the amount of vegetation clearing required.
- All material stockpiles, vehicle parking and machinery storage will be located within cleared areas or areas proposed for clearing, and not in areas of retained native vegetation.
- Actions/management measures that will minimise unnecessary clearance during construction include:
 - Digital recording (photographs and GIS shapefiles) of areas to be cleared prior to clearing
 - Digital recording (photographs and GIS shapefiles) of cleared areas after clearing
 - Recording of rehabilitation works completed
- Pre-clearance surveys must be undertaken by the Project Ecologist prior to commencement of any clearing activities; the Project Ecologist will conduct pre-clearing surveys to identify:

- Fauna species likely to be encountered during construction and potential impacts to those fauna during vegetation clearing
 - Habitat being actively used by fauna within the Project Site (mark with red and white flagging tape)
 - Habitat potentially being used by fauna within the Project Site (mark with red and white flagging tape)
 - Suitable locations to relocate fauna near to the Project Site (collect GPS co-ordinates)
 - Local WIRES representatives or local vets willing to care for injured animals
- Pre-clearing surveys will take place 1-2 weeks prior to the commencement of vegetation clearing. The Proposal Ecologist will mark all potential fauna habitat (e.g. habitat trees, nest trees, burrows, etc.) in the development footprint with red and white flagging tape (e.g. trees, large woody debris and nests).
 - The Project Ecologist is to be present on site during all vegetation clearing operations.
 - Vegetation should be cleared in a way that will allow fauna species living in or near the clearing site enough time to move out of the area without additional human intervention. Specifically, clearing should begin with non-habitat trees and start at the centre of the Project site, working towards the boundary, to encourage wildlife to disperse to remnant patches.
 - No clearing should occur at dawn, dusk or at night, as this is when fauna are most likely to be on the move and are more vulnerable to injury. Specifically, works should begin a minimum of two hours after first light, and cease a minimum of 90 minutes prior to sunset.
 - Habitat links must be maintained during clearing to allow fauna species to move safely from the site to adjacent areas.
 - Clearing should begin in the area that is farthest from vegetation to be retained.
 - The direction of clearing should also ensure that fauna species are directed away from threats such as roads, developed areas or disturbed areas (e.g. residential areas or cleared spaces >100m).
 - An Excavation Permit will be applied for by the contractor and then approved by Metka EGN Project Manager before any works are commenced.
 - This protocol will be incorporated into the induction process for the project.

7.2 PROTOCOL 2 – HABITAT TREE REMOVAL

Habitat trees must be carefully felled under the supervision of the Project Ecologist. The following recommendations have been developed in consideration of best practise guidelines:

- Non habitat trees should be removed first, followed by habitat trees, with at least 24 hours separating the two events.
- Habitat tree removal should be avoided in Spring. As such, habitat trees may only be removed during the period: 01 December – 31 August.
- Check weather conditions prior to removal, habitat trees may only be removed when temperatures are less than 35°C to reduce stress to fauna, i.e., habitat tree clearing must cease if temperatures exceed 35°C.
- All habitat trees to be cleared are to be surveyed and marked with high visibility red and white flagging tape 1-2 weeks prior to clearing taking place.
- Habitat trees are to be mechanically shaken or agitated immediately prior to felling to encourage any remaining animals to either leave the tree or show themselves and subsequently be removed by the Project Ecologist prior to felling. The contractor should wait a minimum of two minutes between shaking the tree and felling the tree to allow time for fauna to emerge.
- Felling will involve gently pushing the tree and lowering or felling using a forestry harvester to avoid sudden falling as this is likely to injure or kill wildlife.
- Following felling, habitat trees will be systematically checked from the ground by the Project Ecologist for any remaining fauna.
- Uninjured fauna must be relocated to suitable nearby habitat by the Project Ecologist
- Injured fauna must be taken to a local Vet or a Wildlife Rehabilitator identified by the Project Ecologist.
- Felled habitat trees will be left in position overnight to allow any undetected fauna further opportunity to escape.
- If any hollow-bearing tree is found or suspected to contain any threatened species, the tree should be left in place for a minimum of two days and must be reinspected no more than two hours prior to felling to ensure that the threatened species is no longer present. If the species is still present these steps should be repeated.
- Habitat links must be maintained during clearing to permit fauna species to move safely from the site to adjacent areas:

- Clearing should begin in the area that is farthest from those areas of vegetation that are to be retained and move progressively towards the area retained. i.e, clearing should begin in the centre of the site and work towards the perimeter.
 - Sequential clearing should not create an 'island' of habitat that is isolated from adjoining habitat by roads, or cleared and disturbed areas
 - The direction of clearing should ensure that fauna species are directed away from threats such as roads, developed areas or disturbed areas
- Records of the habitat clearing must be kept by Project Ecologist, and submitted to Metka EGN HSE Advisor. Information recorded to include tree species, tree size, hollow number and size, fauna encountered, the outcome for those fauna (e.g., relocated to nearby habitat, taking to a wildlife rehabilitator, deceased etc), and staff/contractors involved in clearing.

7.3 PROTOCOL 3 – MANAGEMENT OF DISPLACED FAUNA

The following recommendations apply to the management of any displaced fauna species during vegetation clearing activities or routine inspections:

- All handling of fauna should be conducted by the Project Ecologist.
- Animals are to be removed and relocated to the adjacent bushland/nest boxes prior to felling or the tree shall be sectioned and dismantled under the supervision of the Project Ecologist before relocating the animals.
- In the event that arboreal animals do not move or they cannot be captured because the tree hollow to be removed is too large, too high or its recovery would breach HSE requirements, then the tree will be felled (i.e. in the direction of other tree debris if possible) and animals recovered and relocated to suitable adjacent habitat.
- Nocturnal fauna species, such as microbats, are to be 'soft released' using bat boxes placed in adjacent habitat.
- Nocturnal fauna species, such as gliders and possums, are to be secured in suitable enclosures and kept in a quiet, dark and cool environment until they can be released into suitable habitat after dark.
- If any injured fauna species are found, works in the immediate vicinity of the fauna must stop immediately so that the injured animal can be taken to a veterinarian or wildlife carer that the Project Ecologist has located and contacted prior to construction commencement.

7.4 PROTOCOL 4 – HABITAT BOX PROCEDURE

To reduce the potential for impacts to arboreal fauna, it is recommended that the removal of habitat trees be offset by the installation of habitat boxes using the following protocol:

- Prior to conducting any clearance works, purpose-built habitat boxes will be placed in retained vegetation within the Project Site, or in the immediately adjacent habitat.
- Habitat boxes suitable for a range of fauna species will be installed at a 1:1 ratio (1 box for each habitat tree removed, i.e., 13 habitat boxes). To maximise use, it is recommended that a mix of boxes contained small, medium, and large entry holes be used.
- 13 habitat boxes will be installed and monitored by the Project Ecologist.
- The habitat boxes should be monitored twice a year (late winter and mid-summer) after installation to check for signs of use and condition. During monitoring, habitat boxes should be internally inspected using appropriate equipment such as a burrow scope, remote camera, or visual inspection with the aid of a ladder (provided the Project Ecologist has Working at Heights Training).
- During the monitoring period, any damaged boxes will be replaced on a like for like basis by the Project Ecologist unless deemed inappropriate. If deemed inappropriate, they will be replaced with suitable alternatives.
- At the completion of each monitoring stage, a brief report should be prepared by the Project Ecologist and provided to the O&M Project Manager.

7.5 PROTOCOL 5 – STOCKPILES AND RE-USING RESOURCES AS WOODY DEBRIS

To reduce the potential for impacts to native vegetation and fauna species, it is recommended that the following methods for re-using resources be implemented:

- Identify and mark out suitable stockpile locations.
- Stockpiles to be located away from native vegetation and drainage paths and in areas already cleared/disturbed.
- Salvage vegetation, coarse woody debris and soil from construction would be inspected and reserved for beneficial re-use on site in similar locations/environments if suitable. Suitable salvage vegetation includes limbs with hollows (>10 cm in diameter), coarse woody debris (>10 cm in diameter and >50 cm long), and vegetation that can be mulched and reused on site to stabilise cleared areas. Soil would be suitable for reuse provided it is not contaminated with chemicals or weeds. Woody debris, including logs with hollows, should be placed within the areas of the Project Site where vegetation is to be retained.
- When areas that require regeneration are ready for re-establishment, preference is given to re-using resources available from on site. Seed collection on site should be undertaken by an experienced seed collector for use in revegetation. Where seeds are not available on site, preference is to utilise a local endemic seed supplier. If this is not successful, the LP will be the guiding document on species, mix, and ratio requirements.

7.6 PROTOCOL 6 – WEED MANAGEMENT

In addition to the measures below see WPMP.

Measures to prevent the spread of weeds should include the following weed hygiene procedures:

- Induction materials containing detailed information pertaining to the identification of high threat weeds should be prepared by a suitably trained ecologist or bush regenerator. These materials should be provided to contractors who will carry out construction works within the Project Site.
- Prior to construction, control of High Threat Exotic weeds must be completed.
- All vehicles, equipment, footwear and clothing should be clean and free of weed propagules prior to entering the Project Site. In a designated area, vehicles will be decontaminated using the Vehicle Hygiene Procedure (Protocol 13 – Vehicle Hygiene Procedure).
- Any weeds that are removed during the construction phase must be disposed of via an appropriate waste facility.
- Weed abundance and fuel load to be managed through monitored sheep grazing, with regimes based on annual vegetation surveys (BAM plots).
- Livestock exclusion fencing to be installed around areas of native vegetation to be retained (Protocol 14).
- Regular (fortnightly) weed monitoring and control will be completed, documented and reported to the Metka EGN HSE Advisor during construction.
- Quarterly weed reconnaissance and reporting during normal operations and measures implemented to control new infestations.
- This protocol will be incorporated into the induction process for the project.

7.7 PROTOCOL 7 – FERAL PEST MANAGEMENT

In addition to the measures below see WPMP.

Measures to control feral and overabundant native herbivores:

- Conduct fence inspection prior to completion of fencing to reduce risk of animals being trapped within the Project site.
- Keep a log of opportunistic sightings of feral pests in the Project site, including location or sighting, species sighted, and any relevant details (e.g., damaged fence that they are entering through)
- Quarterly monitoring of project site to determine presence of feral animals to reduce impact to native vegetation (see further details in the WPMP).
- Species management will be determined by species specific culling requirements as follows:
 - Feral Cat: Cage trapping in late winter to catch dispersing young (annual – late winter)
 - Feral Rabbit: Combination of chemical (Pindone or 1080) and mechanical (ripping of burrows) (annual or on demand)
 - Feral Pig: Combination of chemical (1080 poisoning), ground shooting and trapping (when sighted)
 - House Mouse: In the event of a mouse plague, rodenticides may be used, specifically, first-generation poisons recommended by the Australian Pesticides and Veterinary Medicines Authority (APVMA) should be selected. Second generation poisons such as bromadiolone should not be used due to their potential impacts on wildlife, domestic animals, and humans.
- Recording fauna mortalities on the Project Site and subsequent notification to DPE
- Adjoining landholders will be notified by letterbox drop if and when 1080/baiting for feral animals is planned to be used and signage will be displaced on boundary fences and gates.
- This protocol will be incorporated into the induction process for the project.

7.8 PROTOCOL 8 – FENCE CONSTRUCTION AND MANAGEMENT

To reduce the potential for impacts to fauna, it is recommended that the following fencing construction and management protocol be implemented:

- The use of barbed wire should be avoided, where possible (acknowledging operational requirements of the project) in the site perimeter fence. If required, limit to one strand of barbed wire second wire from the top (to reduce the risk to flying and gliding animals).
- Fencing should not act as a barrier to the movement patterns of flying species, or those small animals (body height < 60 cm) that are ground traversing. It is recommended that there be a minimum of 15 cm gap between the bottom of the fence and the ground surface.
 - The planned fence is a chainlink fence 1.8 m high with three wires on top, bringing the total height to 2.25 m. The top wire will be plain wire, the lower two wires will be barbed wire. The chainlink will be raised 15 cm off the ground to enable passage of small animals.
- Fortnightly inspection of perimeter fencing will be undertaken during construction to identify any fauna incidents related to the fencing.
- The security perimeter fence is inspected monthly for the first year of operation. If fauna incidents are regularly identified, then a change of design should be considered and monthly monitoring should continue. However, if fauna incidents are infrequently identified then monitoring should be conducted annually.
- Fence security reconnaissance and reporting during normal operations to allow for remedial actions will be implemented.
- This protocol will be incorporated into the induction process for the project.

7.9 PROTOCOL 9 – EROSION AND SEDIMENT CONTROL

Refer to the Erosion and Sediment Control Management Plan (ESCP). Broadly, it is recommended that the following erosion and sediment management protocol be implemented:

- Install erosion and sediment control measures prior to any works.
- Complete regular inspection, particularly after rainfall to ensure ongoing functionality.
- Temporary stockpiles that have suitable erosion and sediment control measures will be implemented.
- Avoid stockpiling of materials adjacent to native vegetation, use cleared/disturbed areas.
- Undertaken maintenance of silt fences and other mitigation measures to isolate runoff.

7.10 PROTOCOL 10 – DUST CONTROL

Dust control is covered in more detail in the TMP and CEMP. Specific measures to minimise the generation of dust and associated impacts on adjacent natural environments include:

- Setting maximum speed limits of 20 km for all traffic on internal roads within the Project site to limit dust generation (see TMP).
- Use of a water tanker or similar to spray unpaved access tracks during construction phase, particularly during dry and windy conditions.
- Application of dust suppressants during dry and windy conditions.
- Application of covers on soil stockpiles.
- Avoiding, where possible, vegetation removal and earthworks during dry and/or windy conditions

7.11 PROTOCOL 11 – LIGHTING DESIGN PROTOCOL

National Light Pollution Guidelines for Wildlife has the following Best Practice Lighting Design:

- Start with natural darkness and only add light for specifically required purposes.
- Use adaptive light controls to manage light timing, intensity and colour.
- Light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill.
- Use the lowest intensity lighting appropriate for the task.
- Use non-reflective, dark-coloured surfaces.
- Use lights with reduced or filtered blue, violet and ultra-violet wavelengths.
- Lighting Design should comply with Australian Standard 4282 – Control of the obtrusive effects of outdoor lighting for additional management options.

7.12 PROTOCOL 12 – CHEMICAL MANAGEMENT

Simple management principles to reduce potential for chemical spills are:

- All chemicals must be kept in clearly marked bunded areas
- Regularly inspect vehicles and mechanical plant for leakage of oil or fuel.
- No re-fuelling, washing or maintenance of vehicles and plant to be undertaken within 20 m of natural drainage lines, if present.
- Chemical Management should comply with Australian Standard 1940.

7.13 PROTOCOL 13 – VEHICLE HYGIENE PROCEDURE

Vehicle hygiene procedures will be implemented for any vehicle that enters the development site, during construction and operation, which is likely to come into contact with the natural ground or weeds. These procedures are outlined in full in the WMP and Construction Environmental Management Plan (CEMP). Training for personnel involved in vehicle inspections will be provided during the site inductions. The procedures include:

- Plant and light vehicle authorisations (including weed and seed inspections) upon arrivals in laydown area.
- Inspection prior to vehicles being given the all clear to enter indirect disturbance areas and weed and seed sticker applied to plant or light vehicle. Metka EGN HSE Advisor is responsible during the construction phase. O&M Contractor is responsible during the operational phase.
- If deemed necessary (i.e., dirt and seeds are present) the vehicle should be washed at a designated washdown area by trained site personnel.
- Inspection and washing (if necessary) after leaving disturbance areas and prior to leaving the site.
- Inspections will be recorded on and kept on site. Metka EGN HSE Advisor is responsible during the construction phase. O&M Contractor is responsible during the operational phase.
- Any water from the designated washdown area will be managed in accordance with the WMP.

7.14 PROTOCOL 14 – NO-GO ZONES

No-Go Zones are identified in **Figure 3-4**. This protocol will be incorporated into the induction process for the project.

Specific measures relating to the No-Go Zones include:

- No-Go Zones will be clearly sign posted and demarcated using high visibility orange or yellow bunting and will be in place as part of the Site Establishment phase and prior to any other construction activities being undertaken. The alignment of this demarcation will be in accordance with *the Australian Standard Protection of Trees on Development Sites* (AS4970-2009) and incorporate the relevant tree protection zones for trees and vegetation to be retained.
- No-Go Zones will be clearly marked and labelled on design drawings issued for construction and will be displayed in prominent places (e.g. site offices) and provided in site inductions.
- No storage of materials or machinery is allowed within No-Go Zones or retained vegetation. There is also to be no preparation of chemicals or concrete in these areas, or adjacent areas, and care must be taken to avoid the compaction of soils.
- If stock is allowed to access the site, a stock proof fence will be erected around No-go Zones to control access.

8 BIBLIOGRAPHY

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APPENDIX 1: DEVELOPMENT CONSENT CONDITIONS RELEVANT TO BIODIVERSITY (SCHEDULE 3 – ENVIRONMENTAL CONDITIONS – GENERAL)

| Landscaping – Vegetation Buffer Condition 7 - Condition Requirements | Location in this document | Other relevant documents |
|---|---|---------------------------------|
| <p>The Applicant must establish and maintain a mature vegetation buffer (landscape screening) as outlined in the figure in Appendix 1 [of the Development Consent document] to supplement the existing vegetation along the Newell Highway to the satisfaction of the Secretary. The landscape screening must:</p> <ul style="list-style-type: none"> (a) be planted prior to commencing operations; (b) be comprised of species that are endemic to the area; (c) within 3 years of commencing construction, effectively screen views of the solar panels and ancillary infrastructure on-site from the Newell Highway; and (d) be properly maintained with appropriate weed management. | Section 6. Landscaping Plan | LP |
| Landscaping – Landscaping Plan Condition 8 - Condition Requirements | Location in this document | Other relevant documents |
| <p>Prior to commencing construction, the Applicant must prepare a detailed Landscaping Plan for the development in consultation with Council and RMS and to the satisfaction of the Secretary. This plan must include:</p> <ul style="list-style-type: none"> (a) a description of measures that would be implemented to ensure that the vegetated buffers achieve the objectives of condition 7 (a) - (d) above; (b) a program to monitor and report on the effectiveness of these measures; and (c) details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for the completion of actions. | Section 6. Landscaping Plan | LP |
| Land Management Condition 9 - Condition Requirements | Location in this document | Other relevant documents |
| <p>Following any construction or upgrading on the site, the Applicant must:</p> <ul style="list-style-type: none"> (a) restore the ground cover of the site as soon as practicable; (b) maintain the ground cover with appropriate perennial species; and (c) manage weeds within this ground cover. | Protocol 1 – Vegetation Clearing Procedure Section 6. Landscaping Plan Appendix 3. Protocol 6 – Weed Management Protocol 14 – No-Go Zones | LP WPMP |

**Biodiversity – Biodiversity Offsets
Condition 10 - Condition Requirements**
Location in this document

Within two years of commencing construction under this consent, unless the Secretary agrees otherwise, the Applicant must retire biodiversity credits of a number and class specified in Table 1 and Table 2 below to the satisfaction of OEH (now DPE).

The retirement of these credits must be carried out in accordance with the *NSW Biodiversity Offsets Scheme* and can be achieved by:

- (d) acquiring or retiring 'biodiversity credits' within the meaning of the *Biodiversity Conservation Act 2016*;
- (e) making payments into an offset fund that has been developed by the NSW Government; or
- (f) funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the biodiversity offset scheme.

Table 1: Ecosystem Credit Requirements

| Vegetation Community | PCT ID | Credits Required |
|---|---------------|-------------------------|
| Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | 76 | 38 |

Table 2: Species Credit Requirements

| Vegetation Community | Credits Required | Total |
|--|-------------------------|--------------|
| Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>) | 2 | 9 |
| Swift Parrot (<i>Lathamus discolor</i>) | 3 | |
| Masked Owl (<i>Tyto novaehollandiae</i>) | 2 | |
| Sloane's Froglet (<i>Crinia sloanei</i>) | 2 | |

Section 5 Biodiversity
Offsetting

| Biodiversity Management Plan Condition 11 - Condition Requirements | Location in this document |
|---|--------------------------------------|
| Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with OEH (now DPE), and to the satisfaction of the Secretary. This plan must: | |
| (a) include a description of the measures that would be implemented for: | |
| <ul style="list-style-type: none"> managing the remnant vegetation and fauna habitat on site; | Table 4.1, Protocol 1-5, 14 |
| <ul style="list-style-type: none"> minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; | Table 4.1, Protocol 1, 14 |
| <ul style="list-style-type: none"> minimising the impacts to fauna on site and implementing fauna management protocols; | Table 4.1, Protocol 1-4, 14 |
| <ul style="list-style-type: none"> avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; | Protocol 1, 2 |
| <ul style="list-style-type: none"> rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area; | Table 4.1; Section 6 |
| <ul style="list-style-type: none"> protecting vegetation and fauna habitat outside the approved disturbance areas; | Table 4.1; Protocol 1, 14 |
| <ul style="list-style-type: none"> 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 | Protocol 5 |
| <ul style="list-style-type: none"> controlling weeds and feral pests | Table 4.1; Protocol 6 and 7 |
| (b) include details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions. | Sections 1.8 and Tables 4.1 and 4.2. |

APPENDIX 2: BAM PLOT DATA FOR THE SUBJECT SITE (FROM BDAR)

BAM Plot Data from 18-Sep-2018 from page 68-69 of the BDAR (plot data continued overleaf).

| Transect No. | | | | 1 | | 2 | | 3 | | 4 | |
|-------------------|--------|---------|---|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|
| Date | | | | 18-Sep | | 18-Sep | | 18-Sep | | 18-Sep | |
| Recorders | | | | Simon Scott and Stuart Cooney | | Simon Scott and Stuart Cooney | | Simon Scott and Stuart Cooney | | Simon Scott and Stuart Cooney | |
| Name | | | | Road Reserve 1 | | Road Reserve 2 | | Road Reserve 3 | | Private Property 1 | |
| Type | | | | Impact | | Reference | | Reference | | Reference | |
| Easting | | | | 6249572.5 | | 6249733.6 | | 6249359.7 | | 6249670.6 | |
| Northing | | | | 529510.1 | | 529770.8 | | 529177.6 | | 529140.8 | |
| Orientation | | | | East | | East | | East | | East | |
| IBRA Subregion | | | | NSW South Western Slopes | | NSW South Western Slopes | | NSW South Western Slopes | | NSW South Western Slopes | |
| PCT | | | | 76 - Western Grey Box Woodland | | 76 - Western Grey Box Woodland | | 76 - Western Grey Box Woodland | | 76 - Western Grey Box Woodland | |
| Eucalypts 80+ | | | | 0 | | 2 (2 hollows) | | 1 (1 hollow) | | 0 | |
| 50-79 | | | | 0 | | 1 | | 0 | | 1 (0 hollows) | |
| 30-49 | | | | 0 | | 0 | | 6 | | 0 | |
| 20-29 | | | | 0 | | 0 | | 6 | | 0 | |
| 10-19 | | | | 0 | | 0 | | 2 | | 0 | |
| 5-9 | | | | 0 | | 0 | | 3 | | 0 | |
| <5 | | | | 0 | | 0 | | 1 | | 1 | |
| Non-Eucalypts 80+ | | | | 0 | | 0 | | 0 | | 0 | |
| 50-79 | | | | 0 | | 0 | | 0 | | 0 | |
| 30-49 | | | | 0 | | 0 | | 0 | | 0 | |
| 20-29 | | | | 0 | | 0 | | 0 | | 0 | |
| 10-19 | | | | 0 | | 8 | | 0 | | 1 | |
| 5-9 | | | | 0 | | 7 | | 2 | | 0 | |
| <5 | | | | 0 | | 31 | | 5 | | 0 | |
| Length of Logs | | | | 0 | | 10 | | 17 | | 3 | |
| Litter Cover | | | | 40 | | 75 | | 70 | | 40 | |
| Bare Ground Cover | | | | 10 | | 2 | | 12 | | 25 | |
| Cryptogram Cover | | | | 0.1 | | 0.1 | | 0.5 | | 0.1 | |
| Rock Cover | | | | 0 | | 0.1 | | 0 | | 0 | |
| Plant List | | | | 60 | | 31 | | 22 | | 30 | |
| GF Code | Status | Stratum | Species Name | Cover | Abundance | Cover | Abundance | Cover | Abundance | Cover | Abundance |
| S | N | MS | <i>Acacia deanei</i> | | | 0.2 | 1 | 0.1 | 1 | | |
| S | N | MS | <i>Acacia hakeoides</i> | | | | | 1 | 5 | | |
| T | N | OS | <i>Acacia omalophylla</i> | 0.1 | 1 | 0.5 | 15 | | | | |
| T | N | OS | <i>Acacia salicina</i> | | | 0.3 | 1 | | | | |
| T | N | OS | <i>Allocasuarina luehmannii</i> | | | 1 | 3 | | | | |
| C | N | US | <i>Atriplex semibaccata</i> | 1 | 50 | 0.1 | 5 | 0.1 | 5 | 0.1 | 10 |
| G | N | US | <i>Austrostipa aristiglumis</i> | | | 1 | 50 | | | | |
| G | N | US | <i>Austrostipa bigeniculata</i> | 2 | 50 | | | | | | |
| G | N | US | <i>Austrostipa scabra subsp. falcata</i> | 10 | 1000 | 1 | 50 | 1 | 100 | 8 | 50 |
| G | N | US | <i>Austrostipa sp.</i> | | | | | | | 0.1 | 30 |
| | E | US | <i>Avena fatua</i> | 1 | 100 | | | | | | |
| | E | US | <i>Brassica rapa</i> (or similar), canola | 0.1 | 1 | | | | | | |
| T | N | OS | <i>Callitris glaucophylla</i> | | | 5 | 40 | 1 | 12 | 0.5 | 1 |
| F | N | US | <i>Calocephalus citreus</i> | | | | | | | 0.1 | 1 |
| G | N | US | <i>Chloris truncata</i> | | | | | 0.5 | 50 | | |
| F | N | US | <i>Craspedia sp.</i> | 0.1 | 10 | | | | | | |
| | E | US | <i>Cucumis myriocarpus subsp. leptodermis</i> | 0.5 | 30 | | | | | | |

BAM Plot Data from 18-Sep-2018 from page 68-69 of the BDAR (continued).

| GF Code | Status | Stratum | Species Name | Cover | Abundance | Cover | Abundance | Cover | Abundance | Cover | Abundance |
|---------|--------|---------|---|-------|-----------|-------|-----------|-------|-----------|-------|-----------|
| E | US | | <i>Echium plantagineum</i> | | | | | 0.1 | 20 | | |
| F | N | US | <i>Einadia nutans</i> | | | | 0.5 | 50 | 0.3 | 30 | |
| G | N | US | <i>Elymus scaber</i> | 10 | 500 | | 3 | 200 | 6 | 400 | |
| C | N | US | <i>Enchylaena tomentosa</i> | 5 | 100 | 10 | 100 | 7 | 500 | 3 | 50 |
| T | N | OS | <i>Eucalyptus microcarpa</i> | | | 5 | 2 | 5 | 6 | 2 | 1 |
| F | N | US | <i>Goodenia gracilis</i> | 1 | 100 | | | | | 0.1 | 10 |
| E | US | | <i>Hordeum sp. (Barley)</i> | 2 | 500 | 3 | 200 | 2 | 100 | 3 | 100 |
| R | N | US | <i>Juncus flavidus</i> | 0.1 | 10 | 0.1 | 5 | | | | |
| E | US | | <i>Lolium perenne</i> | 2 | 1000 | | | | | 3 | 300 |
| R | N | US | <i>Lomandra filiformis</i> | | | | | 0.1 | 3 | 0.1 | 20 |
| HT | MS | | <i>Lycium ferocissimum</i> | | | 0.5 | 2 | 0.1 | 1 | 0.1 | 1 |
| E | US | | <i>Oxalis perennans</i> | | | | | | | 0.1 | 5 |
| HT | US | | <i>Romulea rosea</i> | 3 | 5000 | | | | | 1 | 500 |
| F | N | US | <i>Rumex brownii</i> | 0.1 | 5 | | | | | | |
| G | N | US | <i>Rytidosperma caespitosum</i> | 10 | 500 | 1 | 30 | | | 0.1 | 30 |
| G | N | US | <i>Rytidosperma duttonianum</i> | | | 1 | 30 | | | 0.1 | 30 |
| G | N | US | <i>Rytidosperma setaceum</i> | 10 | 500 | | | 0.5 | 50 | 1 | 50 |
| C | N | US | <i>Sclerolaena muricata</i> var. <i>villosa</i> | 3 | 100 | | | | | 0.5 | 10 |
| F | N | US | <i>Vittadinia gracilis</i> | | | | | | | 0.2 | 30 |
| G | N | US | <i>Walwhalleya prolata</i> | 0.1 | 10 | 2 | 30 | 0.5 | 50 | 0.1 | 20 |

APPENDIX 3: SUITABLE NATIVE SPECIES TO SUPPLEMENT GROUND COVER

List of native groundcover species recorded within 5km of the development site, including an indication as to whether these species would likely be available as seeds or tubestock.

| Scientific Name | Availability as seed or tubestock (Y=Yes; P=Possibly; N=No) |
|--|--|
| <i>Actinobole uliginosum</i> | N |
| <i>Ajuga australis</i> | P |
| <i>Aristida behriana</i> | N |
| <i>Aristida jerichoensis</i> var. <i>subspinulifera</i> | N |
| <i>Aristida ramosa</i> | P |
| <i>Arthropodium minus</i> | P |
| <i>Atriplex suberecta</i> | N |
| <i>Austrostipa elegantissima</i> | P |
| <i>Austrostipa gibbosa</i> | N |
| <i>Austrostipa scabra</i> | Y |
| <i>Austrostipa wakoolica</i> | N |
| <i>Brachyscome chrysoglossa</i> | N |
| <i>Brachyscome dentata</i> | N |
| <i>Brachyscome gracilis</i> | N |
| <i>Brachyscome gracilis</i> subsp. <i>gracilis</i> | N |
| <i>Brachyscome lineariloba</i> | N |
| <i>Brachyscome perpusilla</i> | N |
| <i>Bulbine bulbosa</i> | Y |
| <i>Bulbine semibarbata</i> | P |
| <i>Burchardia umbellata</i> | P |
| <i>Calocephalus sonderi</i> | N |
| <i>Calostemma luteum</i> | N |
| <i>Calostemma purpureum</i> | N |
| <i>Calotis cuneifolia</i> | P |
| <i>Calotis hispidula</i> | N |
| <i>Centipeda cunninghamii</i> | N |
| <i>Chenopodium desertorum</i> subsp. <i>microphyllum</i> | N |
| <i>Chloris truncata</i> | P |
| <i>Chloris ventricosa</i> | P |
| <i>Chrysocephalum apiculatum</i> | P |
| <i>Chrysocephalum semipapposum</i> | P |
| <i>Clematis microphylla</i> | P |
| <i>Comesperma integerrimum</i> | N |
| <i>Craspedia variabilis</i> | P |
| <i>Crassula tetramera</i> | N |
| <i>Crocea exalata</i> subsp. <i>exalata</i> | N |
| <i>Cryptandra amara</i> var. <i>floribunda</i> | N |
| <i>Cryptandra tomentosa</i> | N |
| <i>Cynoglossum suaveolens</i> | N |
| <i>Dampiera lanceolata</i> var. <i>lanceolata</i> | N |

| Scientific Name | Availability as seed or tubestock (Y=Yes; P=Possibly; N=No) |
|---|--|
| <i>Daucus glochidiatus</i> | P |
| <i>Dianella revoluta</i> var. <i>revoluta</i> | Y |
| <i>Drosera hookeri</i> | N |
| <i>Einadia hastata</i> | P |
| <i>Einadia nutans</i> subsp. <i>nutans</i> | P |
| <i>Enchylaena tomentosa</i> | P |
| <i>Enteropogon acicularis</i> | Y |
| <i>Enteropogon ramosus</i> | N |
| <i>Eragrostis elongata</i> | N |
| <i>Eragrostis lacunaria</i> | N |
| <i>Erodium crinitum</i> | N |
| <i>Eryngium paludosum</i> | P |
| <i>Eutaxia diffusa</i> | N |
| <i>Eutaxia microphylla</i> | P |
| <i>Gonocarpus elatus</i> | N |
| <i>Goodenia cycloptera</i> | N |
| <i>Goodenia glabra</i> | N |
| <i>Goodenia hederacea</i> subsp. <i>hederacea</i> | N |
| <i>Goodenia ovata</i> | P |
| <i>Goodenia pinnatifida</i> | N |
| <i>Harmsiodoxa blennodioides</i> | N |
| <i>Hyalosperma semisterile</i> | N |
| <i>Iseilema membranaceum</i> | Y |
| <i>Lachnagrostis filiiformis</i> | N |
| <i>Lomandra leucocephala</i> subsp. <i>leucocephala</i> | P |
| <i>Marsilea drummondii</i> | N |
| <i>Mentha satureioides</i> | P |
| <i>Microseris lanceolata</i> | P |
| <i>Minuria cunninghamii</i> | P |
| <i>Minuria leptophylla</i> | N |
| <i>Myriocephalus rhizocephalus</i> | N |
| <i>Omphalolappula concava</i> | N |
| <i>Oxalis perennans</i> | N |
| <i>Panicum effusum</i> | P |
| <i>Paspalidium constrictum</i> | N |
| <i>Plagiobothrys elachanthus</i> | N |
| <i>Platysace lanceolata</i> | P |
| <i>Poa sieberiana</i> | P |
| <i>Podolepis canescens</i> | N |
| <i>Ptilotus nobilis</i> subsp. <i>semilanatus</i> | P |
| <i>Ptilotus spathulatus</i> | P |
| <i>Pycnosorus chrysanthus</i> | P |
| <i>Ranunculus pachycarpus</i> | N |
| <i>Ranunculus sessiliflorus</i> var. <i>sessiliflorus</i> | N |

| Scientific Name | Availability as seed or tubestock (Y=Yes; P=Possibly; N=No) |
|--|--|
| <i>Rhodanthe corymbiflora</i> | N |
| <i>Rhodanthe floribunda</i> | P |
| <i>Rhodanthe pygmaea</i> | N |
| <i>Rumex tenax</i> | N |
| <i>Rytidosperma caespitosum</i> | P |
| <i>Rytidosperma erianthum</i> | N |
| <i>Rytidosperma setaceum</i> | P |
| <i>Sclerolaena muricata</i> var. <i>muricata</i> | N |
| <i>Sclerolaena muricata</i> var. <i>semiglabra</i> | N |
| <i>Sclerolaena stelligera</i> | N |
| <i>Senecio glossanthus</i> | N |
| <i>Senecio phelleus</i> | N |
| <i>Senecio spanomerus</i> | N |
| <i>Stackhousia monogyna</i> | P |
| <i>Stellaria filiformis</i> | N |
| <i>Stenopetalum lineare</i> | N |
| <i>Stuartina muelleri</i> | N |
| <i>Swainsona procumbens</i> | N |
| <i>Templetonia stenophylla</i> | N |
| <i>Thysanotus patersonii</i> | N |
| <i>Tragus australianus</i> | N |
| <i>Triptilodiscus pygmaeus</i> | N |
| <i>Vittadinia gracilis</i> | P |
| <i>Wahlenbergia capillaris</i> [syn = <i>W. communis</i>] | P |
| <i>Wahlenbergia stricta</i> subsp. <i>alterna</i> | P |
| <i>Xerochrysum bracteatum</i> | P |
| <i>Xerochrysum viscosum</i> | P |

APPENDIX 4: RESPONSE TO DPE COMMENTS

The below comments have been addressed during revision of this BMP (see Protocol 7).



Department of Planning and Environment

Charissa Pillay
Senior Planning Officer
Energy Resource Assessment
Department of Planning and Environment

Our ref: DOC21-1108301
Senders ref: SSD-9564-PA-11

Via Major Projects Portal: SSD-9564-PA-11

2 February 2022

Dear Ms Pillay

Subject: Wyalong Solar Farm (SSD 9564) – Biodiversity Management Plan

I refer to your email dated 1 February 2022 seeking input from the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment on the Biodiversity Management Plan (BMP) for the Wyalong Solar Farm.

BCD has reviewed the draft BMP against the requirements established by Condition 11 of Schedule 3 of the Development Consent dated 7 May 2019, and the Environmental Impact Statement (EIS). A summary of recommendations for the BMP is included in **Attachment A**. Detailed comments are provided in **Attachment B**.

The BMP meets most of the requirements from the Development Consent and the EIS. However, BCD recommends a method of control for House Mouse that is safe for use in an agricultural area.

We note that the Landscaping Plan established by Condition 7 and the offsetting requirements established by Condition 10 are yet to be finalised.

To be confident that the BMP will be effective we request the opportunity to review a final version.

If you have any questions regarding this review, please contact Michael Todd, Senior Conservation Planning Officer, via rog.southwest@environment.nsw.gov.au or 03 5021 8915.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A Fisher'.

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

ATTACHMENT A – Summary of BCD recommendations for the Wyalong Solar Farm Biodiversity Management Plan (SSD 9564)
ATTACHMENT B – Detailed comments for the Wyalong Solar Farm Biodiversity Management Plan (SSD 9564)

**ATTACHMENT A Summary of BCD recommendations for Wyalong Solar Farm
Biodiversity Management Plan (SSD 9564)**

List of acronyms and terms used in this response:

| | |
|-------|--|
| AVPMA | Australian Pesticides and Veterinary Medicines Authority |
| BMP | Biodiversity Management Plan |
| EIS | Environmental Impact Statement for Wyalong Solar Farm project dated November 2018, the associated response to submissions dated January 2019 and additional information provided by the Applicant. |

Summary of recommendations:

1. Remove reference to the second-generation pesticide (Bromadiolone) for House Mouse control and instead use a first-generation poison as recommended by the AVPMA.

ATTACHMENT B Detailed comments for the Wyalong Solar Farm Biodiversity Management Plan (SSD 9564)

Use of Bromadiolone to control House Mouse

Section 7.7, Protocol 7 – Feral Pest Management (page 36) recommends the use of Bromadiolone to control House Mouse (*Mus musculus*). BCD does not support this due to its potential for impacts to non-target species including birds, reptiles and humans. Bromadiolone is a second-generation poison that is now well known for its effect on non-target species (Mendenhall and Pank, 1980; Saunders and Cooper 1982; Lohr and Davies 2018).

During the 2021 mouse plague it was rejected for use by the Australian Pesticides and Veterinary Medicines Authority (APVMA) and was not recommended for use by the NSW Farmers Federation <https://apvma.gov.au/node/87226>. Overall, the APVMA does not recommend its use in crops because of the risk of contamination.

Given the proximity of the solar farm to agricultural areas it would not be appropriate to use this poison, especially when other options are available. The APVMA recommends other safer pesticides.

Recommendation:

1. *Use an alternative pesticide (first generation poison) for controlling house mouse if required.*

References

Bromadiolone and the current mouse plague, 2 November 2021, accessed on 25 January, 2022. <https://apvma.gov.au/node/87226>

Lohr, M.T. and Davis, R.A. (2018) Anticoagulant rodenticide use, non-target impacts and regulation: A case study from Australia, SCIENCE OF THE TOTAL ENVIRONMENT, 634: 1372-1384.

Mendenhall, V. and Pank, L. (1980) Secondary poisoning of owls by anticoagulant rodenticides, WILDLIFE SOCIETY BULLETIN, 8 (4): 311-315. <https://www.jstor.org/stable/3781183>

Saunders, G.R. and Cooper, K. (1982) Pesticide contamination of birds in association with mouse plague control, EMU, 82: 227-229.