# MNES Management Plan

## Aldoga Solar Farm

August 2023

**Project Number: 22-547**

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# Document verification

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|---|---|
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| Revision | Date | Prepared by | Reviewed by | Approved by |
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| Draft V.0 | 16/11/2022 | Eamon O'Meara | Jacqui Coughlan | Jacqui Coughlan |
| Draft V.1 | 10/02/2023 | Taylor Hume | Jacqui Coughlan | Jacqui Coughlan |
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**W.** www.nghconsulting.com.au

**E.** ngh@nghconsulting.com.au

**BEGA - ACT & SOUTH EAST NSW**
Suite 11, 89-91 Auckland Street
(PO Box 470) Bega NSW 2550
**T.** (02) 6492 8333

**NEWCASTLE - HUNTER & NORTH COAST**
Level 1, 31-33 Beaumont Street
Hamilton NSW 2303
**T.** (02) 4929 2301

**BRISBANE**
T3, Level 7, 348 Edward Street
Brisbane QLD 4000
**T.** (07) 3129 7633

**SYDNEY REGION**
Unit 17, 21 Mary Street
Surry Hills NSW 2010
**T.** (02) 8202 8333

**CANBERRA - NSW SE & ACT**
Unit 8, 27 Yallourn Street
(PO Box 62) Fyshwick ACT 2609
**T.** (02) 6280 5053

**WAGGA WAGGA - RIVERINA & WESTERN NSW**
35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650
**T.** (02) 6971 9696

**GOLD COAST**
2B 34 Tallebudgera Creek Road
Burleigh Heads QLD 4220
(PO Box 424 West Burleigh QLD 4219)
**T.** (07) 3129 7633

**WODONGA**
Unit 2, 83 Hume Street
(PO Box 506) Wodonga VIC 3690
**T.** (02) 6067 2533

**NSW • ACT • QLD • VIC**
**W.** www.nghconsulting.com.au
ABN 31 124 444 622 ACN 124 444 622

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# Acronyms and abbreviations

| Term | Definition |
|---|---|
| ALA | Atlas of Living Australia |
| BA | Birdlife Australia |
| BoM | Bureau of Meteorology |
| CEMP | Construction Environmental Management Plan |
| DAWE | Department of Agriculture, Water and the Environment (Cwth) (now DCCEEW) |
| DBH | Diameter at breast height |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water (Cwth) |
| DES | Department of Environment and Science (QLD) |
| Development Footprint | This is the area that will be directly impacted by development (i.e., the clearing footprint) |
| DEHP | Department of Environment and Heritage Protection (now Department of Environment and Science) |
| DSDMIP | Department of State Development, Manufacturing, Infrastructure and Planning (QLD) |
| EAR | Ecological assessment report |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) |
| GIS | Geographic Information Systems |
| HBT | Hollow bearing tree |
| MNES | Matters of national environmental significance |
| MSES | Matters of state environmental significance |
| MW | Megawatts |
| MWh | Megawatt hours |
| NC Act | *Nature Conservation Act 1992* (Qld) |
| PMST | Protected Matters Search Tool |
| Project Area | Refers to area defined in Figure 3-1. |
| RE | Regional ecosystem |
| SMP | Species Management Program |
| SPRAT | Species profile and threats database |
| TEC | Threatened ecological community |
| the Project | Aldoga Solar Farm project |
| MNES Plan or MMP | This MNES Management Plan |
| WoNS | Weeds of national significance |
| WPMP | Weed and Pest Management Plan |

# Declaration of accuracy

I declare that to the best of my knowledge, all the information contained in, or accompanying this document is complete, current and correct. I am duly authorised to sign this declaration on behalf of the proponent/approval holder. I am aware that:

a) section 490 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.

b) section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cwth) where the person knows the information or document is false or misleading.

c) the above offences are punishable on conviction by imprisonment, a fine or both.

| | |
|---|---|
| Signed: | |
| Full name (please print): | |
| Organisation (please print): | ACCIONA Energy Australia Global Pty Ltd |
| EPBC Referral Number: | 2020/8773 |
| Name of Action Management Plan this document and declaration refers to: | Environmental Management Plan (approval conditions 15–22) |
| Date: | |

# 1. Introduction

## 1.1 Context

This document is the Aldoga Solar Farm Matters of National Environmental Significance (MNES) Management Plan (hereafter referred to as 'the MNES Plan') which has been developed to address relevant commonwealth conditions of approval (CoA for the Aldoga Solar Farm project ('the Project').

The MNES Plan will be used to avoid, mitigate and manage impacts of the Project on *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) threatened species and their habitat during construction and operation of the Project. If the Project is to be decommissioned, this plan will be revised and submitted for approval to minimise impacts from decommissioning activities.

This Plan addresses the requirements of the Commonwealth EPBC Act conditions of approval EPBC 2020/8773.

## 1.2 Objectives

The objective of this MNES Plan is to demonstrate how impacts on MNES and their habitat will be avoided, minimised, mitigated and managed. This MNES Plan has been developed in accordance with EPBC approval 2020/8773. Specifically, this MNES Plan addresses conditions 15 – 22 of EPBC approval 2020/8773, as summarised in Table 2-1.

The MNES relevant to this MNES Plan include:

- *Cycas megacarpa* (endangered under the EPBC Act)
- Koala (endangered under the EPBC Act)
- Greater Glider (endangered under the EPBC Act)
- Squatter Pigeon (vulnerable under the EPBC Act)

The Project is committed to develop and implement measures to avoid impacts to the above MNES through avoidance, mitigation and management at all stages of the Project (construction, operation and decommissioning). This MNES Plan identifies these measures, provides detailed mitigation and monitoring actions and applies performance indicators to ensure successful outcomes are achieved.

## 1.3 Qualified personnel

Condition 16 of the CoA requires that the MNES Plan must be prepared by a suitably qualified ecologist, defined as:

*"a person who has relevant professional qualifications and at least three years experience designing and implementing management plans for the **protected matters** and can give authoritative independent assessment, advice and analysis on the management requirements of the **protected matters** and their habitat using the relevant protocols, standards, methods and/or literature."*

This document was prepared by a team of suitably qualified ecologists at NGH Pty Ltd, all of whom have more than three years of experience preparing and/or implementing management plans.

Preparation of this MNES Plan was overseen by Beth Kramer (Principal Ecologist/Director) and developed by Jo Davis (Senior Ecologist).

Beth Kramer is a Principal Ecologist with 17 years practical experience across multiple disciplines within the environmental field. She has been the Project Manager and lead biodiversity report author for all phases of a project, including organising field surveys, preparing development approvals (Queensland and New South Wales), referrals under the *Environment Protection and Biodiversity Conservation Act 1999*, post approval management plans, construction management plans, and operational monitoring programs.

Jo Davis is a Senior Ecologist with over 12 years' experience undertaking ecological assessments, compiling ecological assessment reports, referrals and State and Commonwealth approval documents. Jo has experience developing management plans including species management programs, offset area management plans and MNES plans.

CVs of suitably qualified personnel can be found in Appendix H.

## 1.4 Related management plans

A range of environmental management plans relevant to this MNES plan are required to be developed for the Project prior to commencement of the Project in accordance with State approvals (SDA AP2020/006) (Appendix G) and the EPBC approval 2020/8773 (Appendix F), including the following:

- Construction Environmental Management Plan (CEMP)
- Biosecurity Management Plan (includes Weed and Pest Management Plan),
- Waste Management Plan
- Bushfire Management Plan
- Rehabilitation Management Plan
- High Risk Species Management Program.
- Offset Area Management Plan

Some of these plans are not yet prepared, however, where they have an inter-relationship with MNES, they will be written to align with the MNES measures outlined here.

A Cycad Translocation Plan is not a Condition of Approval under the EPBC Approval, but a plan has been developed to satisfy State protected plant clearing requirements.

# 2. Commonwealth conditions of approval

Approval was granted by a delegate of the Federal Minister for the Environment, in accordance with the EPBC Act, on 29 September 2022 (EPBC 2020/8773).

The Commonwealth Government has specified the requirements of the MNES Plan. Table 2-1 presents each relevant condition, a summary of how the MNES Plan addresses each condition and the section of this MNES Plan where requirements are addressed.

Table 2-1 Conditions of approval reference table (EPBC 2020/8773)

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| 15 | To avoid, mitigate and manage **impacts** of the Action on **EPBC Act** listed threatened species and their habitat, the approval holder must submit a MNES Management **Plan** to the **department** for the **Minister's** approval prior to the **commencement of the Action**. | This document will be submitted for approval prior to commencement of the action. | This document |
| 16 | The MNES Management Plan must be prepared by a suitably qualified ecologist and in accordance with the department's Environmental Management Plan Guidelines. | This Plan has been prepared by experienced ecologists who meet the definition of a suitably qualified ecologist outlined in the approval: *a person who has relevant professional qualifications and at least three years experience designing and implementing management plans for the protected matters and can give authoritative independent assessment, advice and analysis on the management requirements of the protected matters and their habitat using the relevant protocols, standards, methods and/or literature*.<br>Beth Kramer is the Principal Ecologist overseeing the preparation of this MNES Plan. Beth has more than 15 years of experience designing and implementing management plans for relevant protected matters and is suitably experienced to provide advice and analysis on the management requirement of relevant matters.<br>The Environmental Management Plan Guidelines (DOE,2014) were used to guide the preparation of this MNES plan. | Section 2 |
| 17 | The approval holder must not **commence the Action** until the **Minister** has approved the MNES Management **Plan** in writing. | The action will not commence until the MNES Plan has been approved. | Section 3.5.1 |
| 18 | The approval holder must commence implementing the approved MNES Management **Plan** and continue to | The MNES Plan will be implemented from the date of its approval and will be implemented for the duration of the approval. | Section 3.5.5 |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | implement it for the duration of the approval. | | |
| 19 | The environmental outcomes that must be achieved by implementing the MNES Management **Plan** are:<br>a. to ensure that **impacts** to **protected matters** do not exceed the **clearance** limits specified in condition 1 and 2;<br>b. to ensure that no Koala or Greater Glider or Squatter Pigeon individuals are injured or killed as a result of the Action;<br>c. to ensure no net loss of *Cycas megacarpa* individuals as a result of the Action;<br>d. to ensure there is no clearance in riparian zones; and<br>e. to **maintain** wildlife corridors, **habitat quality** and habitat connectedness within the **Project Area** and Mount Larcom by maintaining the **habitat quality** of the proposed functional wildlife corridor within the **Project Area** connecting Larcom Creek and Mount Larcom. | a. Clearing limits will be adhered to, with the area to be cleared clearly marked prior to construction activities commencing;<br>b. A number of measures are proposed to be implemented to ensure no Koala, Greater Glider or Squatter Pigeon are directly impacted by the Project. These measures include; restricted vehicle speeds within the Project area, pre-clearance surveys, use of fauna spotter catchers, fauna sensitive clearing methods, exclusion of barbed wire from fencing, and management of trenching to minimise timeframes pits are open;<br>c. The location *Cycas megacarpa* will be surveyed during protected plant and pre-clearance surveys undertaken prior to construction. *Cycas megacarpa* that can't be avoided will be translocated and propagated in accordance with the proposed translocation and propagation plan to ensure there is no net loss of individuals. Cycads that are to be retained in the Project Area will be demarcated and signed to educate personnel that those plants are protected and not to be interfered with;<br>d. The riparian zones (*area within a minimum of 25 metres of the defining bank for all watercourses with stream orders above 1*) within the Project area have been mapped and avoided so that no clearing is undertaken within these areas. The extent of clearing will be clearly marked prior to construction and no riparian zones will be cleared;<br>e. The habitat quality and connectedness of the wildlife corridor within the Project area that connects Larcom Creek and Mount Larcom will be retained. This area has been avoided through the design phase and will be monitored as part of the environmental audits and managed to ensure that the habitat quality is | a. Section 5.6.1<br>b. Section 5.3, Section 5.7 and Section 5.8.2<br>c. Section 5.6.2, Section 5.6.3<br>d. Section 5.7.9<br>e. Section 5.7.12 |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | | maintained for the duration of the approval. | |
| 20 | The MNES Management **Plan** must:<br>a. commit to undertake pre-**clearance** surveys to identify any **protected matter**s within the **vicinity** of the **clearing** within the **Project Area** to inform predicted **impacts;**<br>b. detail the predicted **impacts** to **protected matters** and their habitat from the **clearing**, **construction**, **operation** and **decommissioning**, phases of the Action;<br>c. detail the measures that will be undertaken in the **Project Area** to avoid, mitigate and limit **impacts** on **protected matters** and their habitat during **clearing**, **construction**, **operation** and **decommissioning**;<br>d. detail the specific timing of implementation, frequency and duration of the measures to be implemented;<br>e. provide evidence of how the measures are based on best available practices, appropriate standards, and supported by scientific evidence;<br>f. detail how the measures have been developed with consideration of the **S.M.A.R.T principle**;<br>g. include a risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the MNES Management **Plan** and timely achievement of the environmental outcomes, including a rating of all initial and post- | a. Pre-clearance surveys will be undertaken within the vicinity of proposed clearing to assess the potential occurrence of protected matters and inform protected impacts. Pre-clearance surveys will be undertaken by someone who is suitably qualified and experienced to assess protected matters;<br>b. Predicted impacts to protected matters have been quantified through the approvals phase of the project and will not exceed limits specified in the approval;<br>c. Measures to avoid impacts to protected matters during clearing, construction, operation and decommissioning have been implemented through the design and sighting of infrastructure. Mitigation measures to limit potential impacts on protected matters include; weed and feral animal control, weed hygiene, pre-clearance surveys, timing of clearing works, use of fauna spotter catchers, sequential clearing, sensitive clearing techniques, salvaged hollow/nest box and glider pole installation, rehabilitation and revegetation and monitoring and adaptive management;<br>d. Management and mitigation measures will be implemented through clearing, construction, operation and decommissioning of the Project. Weed management and pest animal control will be undertaken during environmental audits, with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations (see Section 7.5.1). Additional control measures will be implemented if triggered in accordance with Table 5-3;<br>e. Management and mitigation measures have been developed with consideration for best practice based on current conservation | a. Section 5.6.2<br>b. Section 5.1<br>c. Section 5<br>d. Section 6.1<br>e. Appendix E<br>f. Section 5.2<br>g. Section 5.9<br>h. Appendix E<br>i. Section 1.4<br>j. Section 5.7.2<br>k. Section 5.7.3 and Appendix C.4<br>l. Section 5.7.5<br>m. Section 5.7.4<br>n. Section 5.7.7<br>o. Section 5.7.7<br>p. Section 5.7.6<br>q. Section 5.7.8<br>r. Section 5.7.2<br>s. Section 5.3<br>t. Section 5.8.1 and Appendix C |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | mitigation residual risks in accordance with the **risk assessment matrix**;<br>h. provide evidence of how the measures and corrective Actions take into account relevant **approved conservation advice** and are consistent with relevant **recovery plans** and **threat abatement plans**;<br>i. include links to relevant management **plans** or conditions of approval (including State approval conditions);<br>j. commit to ensuring that **a fauna spotter-catcher** will be present during all **clearance** activities, with the authority to cease **clearance** for an appropriate timeframe where one or more **protected matters** could be **impacted** and relocate any fauna captured during **clearing** to an appropriate nearby habitat area to be undertaken by a **fauna spotter-catcher**;<br>k. limit construction laydown areas and stockpiles to areas **cleared** or disturbed prior to the Action;<br>l. ensure no **Koala habitat** tree in which a **Koala** is present, and no **Koala habitat** tree with a crown overlapping a tree in which a **Koala** is present, is **cleared** until the **Koala** leaves of its own accord;<br>m. commit to ensure the **clearing** width for all new and existing road and track widths within the **Project Area** do not exceed 15 metres;<br>n. commit to install glider poles if the distance between trees at the road crossings in the **riparian** | advice and recovery plans for protected matters, as demonstrated by this Plan being prepared by a suitably qualified ecologist, with guidance of the resources provided in Appendix E;<br>f. Management and mitigation measure have been developed to ensure that they are specific, measurable and time-bound;<br>g. A risk assessment of successful implementation of the MNES Plan and achieving expected environmental outcomes was undertaken in accordance with the methodology outlined in the Environmental Management Plan Guidelines (Commonwealth Government 2014) and the risk assessment matrix in Attachment F of the approval;<br>h. Approved conservation advice and recovery plans for protected matters have been considered in the development of mitigation measures and corrective actions as outlined in Table 5-3. Relevant sources of guidance for each MNES are presented in Appendix E;<br>i. This Plan is also supported by several State requirements, including those outlined in the Gladstone SDA approval conditions (AP2020/006). Management plans relevant to this MNES Plan include a Construction Environmental Management Plan (CEMP) (Appendix I) and High Risk Species Management Program. These plans are still in preparation but will align with this MNES Plan;<br>j. A suitably qualified fauna spotter-catcher will be present prior to and during all clearance activities. As required under State legislation, this fauna spotter-catcher will be authorised under a rehabilitation permit to that requires them to abide by the *Code of practice - Care of Sick, Injured or Orphaned Protected Animals in Queensland* (DES 2020). The fauna spotter-catcher will have the | u. Section 5.3<br>v. Section 5.3<br>w. Section 5.7.1<br>x. Section 5.3, Section 5.7.9 and Section 5.7.10<br>y. Section 5.5 and Appendix B |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | **zone** are greater than 15 m, to mitigate fragmentation of **Greater Glider habitat**;<br>o. include a commitment to install cameras facing the glider poles to monitor use of glider poles;<br>p. include a commitment to mitigate **Greater Glider habitat** loss by ensuring all potential **Greater Glider hollows** to be **cleared** as a result of the Action are re-located to **Greater Glider habitat** in areas of retained vegetation, or the **Greater Glider** offset site to provide additional habitat. The approval holder must undertake the salvage and relocation of **Greater Glider hollows** according to the conditions detailed in Attachment H (sic Attachment G);<br>q. include a commitment to reduce loss or injury of **protected matters** from barbed wire fencing through ensuring that barbed wire fencing is only used where it is required to meet the Australian safety standards or necessary for insurance. Where barbed wire is used, fence visibility to **protected matters** must be increased by affixing durable visibility tags, or tape, at every 30cm interval along top of barbed wire fencing for the duration of the approval;<br>r. ensure areas of habitat for the **Squatter Pigeon** are flushed for **Squatter Pigeon** individuals immediately prior to **clearing**;<br>s. require the placement of legible warning signs on all tracks that intersect locations in which **Squatter** | authority to cease clearing and provide guidance to the clearing contractor about sensitive clearing methods that minimise potential impact to protected matters;<br>k. Construction laydown areas and stockpiles have been planned to only occur in areas cleared or disturbed prior to commencement of the Project;<br>l. Clearing will be undertaken in accordance with requirements set out in the *Nature Conservation (Koala) Conservation Plan 2017 - Koala Conservation Plan* clearing requirements. This plan sets out clearing requirements for clearing of Koala habitat trees that includes the requirement for identifying Koala habitat trees, sequential clearing, no clearing of a tree with Koala present or the adjacent trees with overlapping crowns;<br>m. Through the Project design phase, clearing for all roads within the Project Area will not exceed 15 m. Clearing boundaries will be clearly demarcated on ground prior to construction to ensure clearing is carried out in accordance with design and approval requirements;<br>n. Pre-clearance surveys will determine locations for the installation of glider poles in accordance with requirements of this condition. Glider poles will be designed and installed in accordance with requirements set out in the Department of Transport and Main Roads technical document *Fauna Sensitive Road Design Manual*;<br>o. Motion-triggered cameras will be installed on glider poles to monitor usage by Greater Gliders and will be checked quarterly following installation for the life of the Project, with records provided in annual compliance monitoring;<br>p. Trees with hollows will be inspected prior to clearing activities, | |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | **Pigeon** has been identified within the **Project Area** to inform all persons on site of areas that have a higher risk of vehicle collision and the need to be alert to risk of vehicle collision with **Squatter Pigeon** and drive slowly to prevent vehicle collision with **Squatter Pigeon**;<br>t. ensure land under all solar panels is revegetated with locally occurring grass species not considered to be invasive weeds or in contradiction to Condition 20y;<br>u. ensure a maximum speed of 50km/hr for all vehicles within the **Project Area**;<br>v. restrict vehicle access to within the **Development Footprint** and existing access routes;<br>w. keep artificial site lighting to the minimum required for safety. Lighting beams must be directed downwards and use shields and baffles to limit light spill beyond the area that requires lighting;<br>x. ensure refuelling is not undertaken within 50 metres of any waterway, retained habitat or **riparian zone/s**. Storage of fuels, chemicals, wastes and other potentially environmentally hazardous substances must be bunded or otherwise contained in areas away from waterways, retained habitat or **riparian zone/s**; and<br>y. ensure the prevalence of weeds and feral animals identified as threats to **protected matters** are kept at less than the prevalence of weeds and feral animals prior to **commencement of the Action**. | and where Greater Gliders are identified they will be relocated to areas of retained vegetation with suitable habitat features. Salvage of Greater Glider hollows will be undertaken in accordance with requirements set out in Attachment G of the approval. Nest boxes suitable for Greater Gliders will be installed to replace hollows which are unable to be successfully salvaged.<br>q. Barbed wire will only be used where it is required to meet Australian safety standards or are necessary for insurance. Security and safety considerations for the project include around substations and areas with electrical hazards. Where barbed wire must be used, durable visibility tags or tape will be placed at 30cm intervals along the top of barbed wire fencing for the duration of the approval to increase the visibility of the wire;<br>r. A fauna spotter-catcher will be present during clearing activities and will flush areas of potential Squatter Pigeon habitat immediately prior to clearing to ensure they are not impacted;<br>s. Signage on all tracks that intersect Squatter Pigeon habitat will in installed to alert drivers to the risk of Squatter Pigeon's potentially being present;<br>t. Land under all solar panels will be revegetated with local grass species in accordance with requirements set out in the Rehabilitation Protocol for the Project.<br>u. A Project-wide speed limit of 50km/hr will be enforced from commencement of the Project for the duration of the approval;<br>v. Vehicle access will be restricted to existing and designed roads within the Project area. This requirement will be communicated during mandatory site inductions for all personnel entering the site;<br>w. Lighting required for safe construction and operation of the | |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| | | Project will be minimised and include shields and baffles to limit light spillage beyond the area that requires lighting;<br>x. Refuelling will not be undertaken within 50 m of any waterway or riparian zone. This requirement will be communicated during mandatory site inductions for all personnel entering the site. Fuel storage, chemicals and wastes will occur in accordance with requirements set out in AS1940 and will not occur in proximity to retained habitat, waterways or riparian zones;<br>y. Weed and pest management will be undertaken in accordance with the requirements of the CEMP for the duration of the approval to ensure weed and pests that may impact protected matters are kept to less than the number prior to commencement. | |

| No. | Condition | Demonstration of how the MMP addresses condition requirements | Section of MMP |
|---|---|---|---|
| 21 | The MNES Management **Plan** at Condition 20 must include a monitoring program to ensure the environmental outcomes at Condition 19 are achieved. The monitoring program must:<br>a. include measurable performance indicators;<br>b. monitor use of **Greater Glider** poles through the installed cameras and report use of **Greater Glider** poles (by **Greater Glider**s or other animals) in the annual **compliance records** under condition 25;<br>c. maintain a register of **Squatter Pigeon** sightings and use it to identify and inform all persons on site of areas that have a higher risk of vehicle collision and the need to be alert to risk of vehicle collision with **Squatter Pigeon** and drive slowly to prevent vehicle collision with **Squatter Pigeon**;<br>d. trigger values for corrective Actions;<br>e. the timing and frequency of monitoring to detect trigger values and changes in the performance indicators;<br>f. proposed corrective Actions, if trigger values are reached. | The monitoring plan to ensure environmental outcomes are assessed and achieved has been developed with consideration for the following:<br>a. Measurable performance indicators developed for each protected matter;<br>b. Monitoring of Greater Glider poles to assess usage and behaviours;<br>c. A register of Squatter Pigeon sightings to inform the education of site personnel and warning signs;<br>d. Trigger values for each protected matter that link to corrective actions;<br>e. Specific monitoring timeframes linked to different project phases;<br>f. Proposed corrective actions should monitoring against performance indicators identify that trigger values have been reached. | a. Table 6-1<br>b. Section 5.7.7<br>c. Section 5.3<br>d. Table 5-3<br>e. Table 6-1<br>f. Table 5-3 |
| 22 | Rehabilitation of **temporary infrastructure** areas must be undertaken within two months after **clearing** and after these areas are no longer required for the Action. Rehabilitation must ensure the area is returned to a self-sustaining ecosystem similar to that which previously existed before **clearing** and **construction**. | Areas disturbed by temporary infrastructure will be rehabilitated in line with requirements set out in the Rehabilitation Protocol for the Project. This will aim to return areas to pre-construction, self-sustaining ecosystems. | Appendix C |

# 3. Project description

The Project Area is located approximately 20km northwest of Gladstone, Queensland. The Project Area is situated on Lot 2 SP301578 and Lot 1 SP157677 within the Gladstone State Development Area. The Project Area is approximately 688ha and will result in clearing up to 399ha of remnant and non-remnant vegetation. Of this, the key infrastructure components comprise approximately 376 ha, as shown in Table 3-1. The historical and current land use of the Project Area is cattle grazing.

The Project location and solar farm layout are shown in Figure 3-1 (sourced ACCIONA Energy Australia Global Pty. Ltd.).

## 3.1 Project objectives

The objective of the Project is to generate renewable electricity from photovoltaic solar panels and connect the renewable electricity into the high voltage national electricity network for use throughout the state and wherever it is needed.

## 3.2 Project terms

The following terms are used in this document:

**Development Footprint** – Referred to as 'Project Footprint' under the EPBC CoA. Defined as the area where construction, operation and decommissioning will occur within the Project Area, represented by the area enclosed by the hatched polygons labelled 'Project Footprint' in Attachment A of Appendix F.

**Project Area** – the location of the Action, represented by the area enclosed by the red line labelled 'Project Area' in Attachment A of Appendix F including the project footprint. Also referred to as the 'Site'.

**Study Area** – The combined areas of the Development Footprint, Project Area and the 30km Buffer around the Project Area.

## 3.3 Project description

Table 3-1 Project description

| | |
|---|---|
| **Project name** | Aldoga Solar Farm |
| **Proponent** | ACCIONA Energy Australia Global Pty Ltd |
| **Project cost** | $500 million |
| **Construction start** | February 2024 |
| **Duration** | 18-24 months |
| **Project contact** | ACCIONA Energy Australia Global Pty Ltd<br>+61 7 3087 4333<br>Energy.brisbane@acciona.com |
| **Local Government Authority (LGA)** | Gladstone Regional Council LGA |

| | |
|---|---|
| **Location** | Refer Figure 3-1 |
| **Address** | Lot 2 SP301578<br>Lot 1 SP157677 |

## 3.4 Key infrastructure components

Each key infrastructure component is described in Table 3-2, along with the approximate infrastructure footprint of each component.

Table 3-2 Approximate area of key infrastructure components within the Development Footprint

| Component | Total footprint (ha) |
|---|---|
| Substation including an indoor switch room for medium voltage circuit breakers and an outdoor switch yard for transformers | 7.44 |
| Up to 500,000 solar Photovoltaic modules fixed on metal mounting structures | 320.75 |
| Access roads | 36.3 (internal)<br>4.69 (public) |
| Medium Voltage underground networks (up to 36kV) from PCUs meet at the PV power plant substation | 25.42 |
| High voltage and medium voltage power poles and powerline corridors | 5.71 |
| Energy storage capability | 9.58 |
| Offices and workshops | 2.52 |
| Laydown areas | 3.56 |
| **TOTAL FOOTPRINT OF KEY INFRASTRUCTURE COMPONENTS (overlaps removed)** | 376.34 |

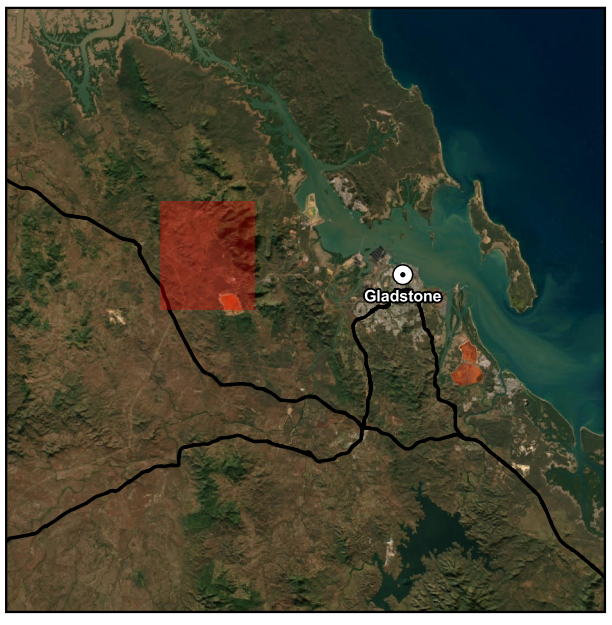
GLADSTONE MOUNT LARCOM ROAD

BRUCE HIGHWAY

**Figure 3-1 Project Location**

Legend

- Project Area
- Total Project Footprint
- Project Footprint relating to MNES Plan
- Roads




0 0.5 1 1.5 2 km



Ref: 20-226 Aldoga SF Mapping \ Figure 3-1 Project Location
Author: taylor.h
Date created: 26.04.2023
Datum: GDA94 / MGA zone 56

NGH

## 3.5 Project Schedule

### 3.5.1 Pre-construction early works

Pre-construction early works are anticipated to commence in 2024 and may include off-site road improvements (not assessed as part of EPBC approval 2020/8773 and therefore not relevant to this MNES Plan), establishing the Site entrances and the access and Site preparation works for a temporary construction compound and the accommodation facilities. This process is expected to take up to three months and will constitute 'commencement' of the project in accordance with the definition in the CoA. As such, pre-construction early works will not commence until the MNES Plan has been approved in writing, as per Condition 17 of the CoA.

### 3.5.2 Construction

The Project construction is planned to start in February 2024 and the solar farm will be constructed over approximately 24 months. The solar farm is expected to be designed, developed and constructed progressively.

For the construction of the Project, the following activities are expected to occur:

- Site establishment (temporary site facilities, lay down areas, mobilisation of equipment and materials)
- Earthworks, paving (with gravel cap) and drainage for access roads and solar panel
- Excavation for the solar panel foundations
- Construction of solar panel foundations (reinforcement and concrete)
- Installation of electrical and communications cabling and equipment (including overhead lines and underground cables to the substation)
- Establishment of substations, in parallel with electrical reticulation works
- Delivery of photovoltaic panel components to the Project Area
- Installation of photovoltaic panels in parallel with component deliveries
- Commissioning and reliability testing of photovoltaic panels
- Progressive rehabilitation and restoration of the Project Area.

The activities listed above will predominately occur in the order listed, however some of these activities will be carried out concurrently (or at multiple construction locations across the solar farm) to minimise the overall length of the construction programme and to minimise environmental risks.

This Plan contains information on the biodiversity and ecological values relevant to the Project and the measures to avoid, minimise and mitigate impacts to identified values. The CEMP (Appendix I) applies the management measures described in the MNES Plan during the construction period. The CEMP will be submitted to the DSDMIP prior to the commencement of construction, in accordance with the State condition of approval.

### 3.5.3 Operation

The operational period will be approximately 30 years. ACCIONA Energy Australia Global Pty. Ltd. (ACCIONA) will be responsible, either directly or via a contractor, for the ongoing maintenance of

the photovoltaic panels following their commissioning and reliability testing. Maintenance personnel will be on site and responsible for the scheduled and unscheduled maintenance of the photovoltaic panels and associated infrastructure and connection works. ACCIONA, either directly or via a contractor, will undertake routine inspections of the photovoltaic panels and other electrical infrastructure or complete the necessary scheduled (planned) maintenance activities. Ongoing maintenance of the access tracks and the electrical network will be required to always maintain safe access.

### 3.5.4 Decommissioning

At the end of the operational life of the Project ACCIONA may decommission the solar farm which will involve the removal of photovoltaic panels and all other above-ground infrastructure on site being dismantled and removed from the Project Area. This includes all the interconnection and substation infrastructure unless the infrastructure which is owned by a network operator or is required by the Network Operator for other purposes. The photovoltaic panels will be removed, but the foundations will be kept in situ.

Alternatively, ACCIONA may repower the solar farm (replace the photovoltaic panels) or replace the photovoltaic solar components, such as the panels, and frames.

The overhead lines will be removed once no longer required. The underground cables contain no harmful substances. They can be recovered, if economically attractive, or left in the ground. Gravel roads, hard standings and gravel areas associated with the project infrastructure will be left in situ for ongoing access.

### 3.5.5 Duration

The period of the project from start of construction to decommissioning could be ~30 years, and assuming a 2024 start date, the action would continue until the year 2054. Note, the DCCEEW approval has effect until 31 December 2080, however if the project continues beyond 31 December 2080 a request will be made to extend the period of EPBC Act approval. The approved MNES Plan must be implemented for the duration of the approval.

## 3.6 Project Environment

### 3.6.1 Existing environment

The Project Area is located on gently undulating alluvial plains, immediately west of Mount Larcom. Elevation across the Project Area ranges between approximately 60m and 100m AHD. A series of rocky rises extends from north to south on the western side of the Project Area. The north-east boundary of the Project Area traverses the western foothills of Mount Larcom. A moderately steep (~30 degree) incline occurs at that location, rising to an elevation of approximately 120m AHD on the eastern perimeter of the Project Area.

The Project Area occurs within the Calliope Drainage Basin and Sub-basin. The Calliope Drainage Basin and Sub-basin both incorporate areas from east of Callide to north of Mount Larcom in coastal south-central Queensland. Several ephemeral waterways occur within the Project Area. These are all mapped as first, second, third and fourth-order streams in the Queensland Stream Order Mapping (DoR, 2021). Five second order streams flow in a westerly direction from the foothills of Mt Larcom toward the western side of the Project Area. These meet a third and fourth-

order stream (Larcom Creek) that runs through the western portion of the Project Area (Larcom Creek), flowing from the north to south. All first and second order streams are ephemeral in nature, completely drying during periods of low rainfall (typically during the winter months). The third and fourth order stream is likely to be semi-permanent, contracting to a series of isolated pools during periods of low rainfall. All streams had a rocky base. Those near the foothills of Mt Larcom were characterised by a series of cobbles and boulders. In lower lying areas, watercourses had a higher level of alluvial deposition with loamy clay banks.

Larcom Creek flows south of the Project Area for approximately 22km before feeding into the Calliope River. The Great Barrier Reef World Heritage Area begins more than 31km downstream from the Project Area via Larcom Creek and the Calliope River. The Calliope River flows for 30km before it reaches the mouth at Gladstone Harbour.

The area within the Project Area comprises of three dominant soil types (Atlas of Australian Soils Queensland, DES, 2018):

1. Low-lying areas near the centre are dominated by haplic, epipedal, black vertosols with non-gravelly texture and medium fine, very fine to moderate grain size.
2. Southern parts of the Project Area had haplic, eutrophic, brown dermosols with medium, non-gravelly, clayey texture.
3. The east of the Project Area rises to the lower slopes of Mount Larcom. Soils in this area are very deep, eutrophic, subnatric, brown sodosols with medium grain size and slightly gravelly, clay loamy, clayey texture.

Large areas of historically occurring remnant vegetation shown in pre-clear extent mapping have been cleared for agriculture across the majority of the Project Area. Giant Rat's Tail Grass (*Sporobolus pyramidalis*) occurs in varying densities across the Project Area. Other weeds have more localised distribution with rubber vine common along watercourse and lantana and prickly pear found in dense local infestations. The Development Footprint has been subject to moderate levels of cattle grazing. Most watercourses have varying degrees of existing stock damage through localised trampling and soil compaction, dung deposition and erosion.

The Project Area has been subject to selective logging of large timber trees. Minimal mature hollow bearing trees (HBT) were observed within the Development Footprint and very few were observed in remnant vegetation adjacent to the Development Footprint, with the assumption that these have been selectively felled over time. This has reduced the abundance and diversity of den and nest sites available to local arboreal mammals, birds and microbats.

The Project Area and immediate surrounds have been subject to substantial prior impact from existing infrastructure. The Project Area is intersected by an existing Powerlink high voltage powerline. The Project Area is located within 390m of the Aurizon freight rail line located south of the Project Area and bordered to the north-west by three high-pressure coal seam gas (CSG) pipelines (APLNG, QCLNG and GLNG). These major linear infrastructure features have caused substantial fragmentation to existing habitats.

The dominant land use is cattle grazing.

Mean daily maximum temperatures (from the temperature recording station located in Gladstone Airport [Bureau of Meteorology {BoM} station 039326] approximately 16.7km south-east of the Project Area) indicates that summer maximum temperatures average around 30.1°C (a high of 41.0°C has been recorded in March) with a minimum average of 22.2°C. In winter, temperatures average around 13.8°C.

Rainfall data from the BoM indicates that rainfall is seasonally distributed with a distinct wet season typically present from November through March and a drier season extending from April through October. The mean rainfall received during the summer wet season is approximately 123mm/month; however, wet season rainfall is subject to a high degree of variability. Variability in rainfall depth throughout the winter dry season (April through October) is lower than during the wet season generally with mean monthly rainfall during the dry season approximately 36mm, with August and September being the driest months.

### 3.6.2 Ecological survey and reporting

Detailed ecological field surveys were undertaken in June 2020 and April 2021 by NGH ecologists. These surveys were undertaken to document existing vegetation communities, ground-truth State RE mapping, and to document fauna habitat types and communities. Targeted surveys were conducted for listed threatened fauna species. Surveys were in accordance with relevant guidelines and informed the project approval documentation, including:

- Preliminary documentation for EPBC Act assessment (NGH 2022)
- Ecological Assessment Report for Development Application (NGH 2020)

Additional targeted searches for threatened Cycads were undertaken in July 2022.

Key results of field surveys are summarised below.

#### Flora and vegetation communities

Six main vegetation communities were found to be present within the Project Area. These vegetation communities are described as:

- Vegetation Community 1: *Eucalyptus tereticornis* and/or *Eucalyptus camaldulensis* woodland fringing drainage lines
- Vegetation Community 2: *Eucalyptus tereticornis* woodland on alluvial plains
- Vegetation Community 3: *Eucalyptus moluccana* woodland on alluvial plains
- Vegetation Community 4: *Corymbia citriodora* / *Eucalyptus crebra* woodland on old sedimentary rocks with varying degrees of metamorphism, Coastal Ranges
- Vegetation Community 5: *Eucalyptus crebra* woodland +/- *Corymbia erythrophloia* +/- *E. melanophloia* on deformed and metamorphosed sediments and interbedded volcanics
- Vegetation Community 6: Grassland/Cleared Paddock Areas.

The majority of the Development Footprint contains *Corymbia citriodora* woodland with patches of other communities scattered throughout the footprint. The majority of the mixed eucalypt woodland lies on the eastern side of the Development Footprint.

Habitat condition within the Project Area varied according to soil type, disturbance histories, and land management. Habitat condition influences the availability of micro-habitat resources, such as hollow-bearing trees, and habitat extent and connectivity to other areas.

Generally, habitat quality was higher in the eastern portion of the Project Area, and more degraded in the western portion. Areas where habitat types intersect, creating ecotones, on western slopes, gullies, and in riparian vegetation communities, provided the highest quality habitat.

There are a total of nine cycads recorded within the Project Area, five of which are recorded inside the Development Footprint and are likely to be impacted by the project. All five of these plants are proposed to be translocated into adjacent habitat prior to construction of the solar farm, in accordance with an approved Cycad Translocation Plan.

## Fauna habitat assessment

Habitat features of the Project Area for native fauna consist of resources (e.g., foraging and breeding niches) of varying quality and condition. Regarding native fauna, the Site provides the following habitat resources:

- foraging resources in the form of flowering and sap producing *Acacia*, *Corymbia* and *Eucalypt* species
- a limited number of hollow bearing trees with small to large hollows
- ephemeral watercourses and permanent dams providing habitat for aquatic fauna and resources for all other fauna
- terrestrial habitat including coarse woody debris and termite mounds
- leaf litter throughout the woodland areas.

High quality riparian habitat was associated with 2$^{nd}$ and 4$^{th}$ order streams within the Project Area, with a number of fruit-bearing trees and large habitat trees with hollows. Logs of various sizes were found throughout much of the woodland areas as well as within and along the banks of the waterways. These are likely to provide suitable habitat for reptiles. The woodland areas in the centre and south of the Site had moderate habitat values, with some fallen logs, and arboreal and terrestrial termite mounds. These areas only had a few tree hollows. Habitat within the Project Footprint is typically degraded from past selective clearing, grazing and weed infestations.

No nests were recorded on Site although it is predicted that there are nesting birds on Site including Squatter Pigeon.

The southern section of the Project Area, along Larcom Creek, contains a high number of and range of hollows and supports a high biodiversity and number of threatened species including EPBC listed species Greater Glider Koala, and Squatter Pigeon This area had the highest microbat trapping success within the more closed forest areas. Hollows would also be used by Least Concern birds, possums, gliders, reptiles. Hollows will be checked prior to clearing to confirm their occupancy (Section 5.6.2).

The locations of the hollow bearing trees and other habitat features recorded during pre-clearance surveys will be provided as spatial data to the Principal and construction contractors. This data will also be provided to the ecologists and/or spotter catchers undertaking the pre-clearance surveys so that they can assess equipment requirements and check if the hollows are being used prior to clearing.

## Weeds and pests

A number of weed species were recorded on Site, including Weeds of National Significance (WoNS) and other environmental weed species. Three pest animal species were confirmed in the Project Area. Refer to Appendix B for further information regarding the weed and pest species within the Project Area.

## 3.7 Matters of national environmental significance

The following MNES were recorded (or were considered likely to occur) during the field surveys. These species and their listings under the EPBC Act are identified in Table 3-3. A detailed profile has been provided for threatened species in Appendix E. A map has been provided within Appendix A to show the area of Koala, Greater Glider and Squatter Pigeon habitat.

Table 3-3 MNES known or likely to occur within the Project Area, or noted in the EPBC CoA.

| Matter | EPBC Act status |
|---|---|
| **Flora** | |
| *Cycas megacarpa* | Endangered |
| **Fauna** | |
| Koala (*Phascolarctos cinereus*) | Endangered |
| Greater Glider (*Petauroides volans*) | Endangered |
| Squatter Pigeon (southern) (*Geophaps scripta scripta*) | Vulnerable |

### 3.7.1 Threatened species habitat

Suitable habitat for each EPBC Act listed species known to occur in the Project Area is discussed in Appendix E. Habitat for Koala, Greater Glider and Squatter Pigeon is shown in the Figures within Appendix A.

#### *Cycas megacarpa*

This species prefers hilly or undulating terrain with rocky soil dominated by *Eucalyptus crebra* and *Corymbia citriodora, Corymbia erythrophloia, Eucalyptus melanophloia* and *Lophostemon confertus. Corymbia citriodora* woodlands (RE 11.7.6) do occur in the Project Area but these are flat and have a very sparse understorey. The majority of the Project Area has alluvial soils which are not preferred by the species. It is unlikely that the majority of the habitat in the Project Area is the preferred habitat for this species due to the terrain, soils and geology. It is likely that the individuals found were individuals on the edge of the population that likely occurs on Mt Larcom.

#### Koala

Koala primary food tree species, *Eucalyptus tereticornis, Eucalyptus crebra* and *Eucalyptus moluccana* were present along with secondary food species, *Corymbia citriodora* and *Corymbia tessellaris*, *Eucalyptus moluccana* was the most common food species. There is 454.16 hectares of potential Koala habitat within the Project Area.

#### Greater Glider

Greater Gliders inhabit woodlands, open woodlands and open forests in eastern Australia. They have a preference for taller, montane, moist eucalypt forests with old trees and abundant hollows. They favour forests with mixed eucalypt species; especially forests with *Eucalyptus moluccana*, *Eucalyptus fibrosa*, *Eucalyptus tereticornis* and *Corymbia citriodora* which are their preferred food

tree species. The forested vegetation communities identified within the Development Footprint are indicative of this habitat totalling to 258.77 ha within the Project Area.

Greater Glider is reliant on live, hollow bearing, large trees (greater than 50cm diameter at breast height), for denning. A total of 11 HBT transects were conducted. Within the vegetated Project footprint the average number of total hollow bearing trees was 1.45 trees per hectare and the average number of hollows per hectare was 2.9. However, the density of live hollow bearing trees (which are preferred by Greater Glider) was very low, at around 0.7 trees per hectare. In comparison, the number of hollow bearing trees and the total number of hollows was much greater along the riparian areas outside of the Project footprint, with an average of 15.9 hollows per hectare. The number of live hollow bearing trees was also high, with around four live hollow bearing trees per ha.

Habitat with sufficient hollows occurs within the riparian areas which lie mostly outside of the Project Footprint. These riparian areas also provide connectivity to the large patch of vegetation to the east of the Project Area. A very small area (0.68 ha) of this riparian vegetation will be impacted by the Project.

The Project Footprint does include foraging tree species for Greater Glider, but it is unlikely to be utilised by a significant number of Greater Glider due to the lack of denning opportunities and the reduced connectivity to adjacent vegetation. To access the foraging resources in the Project Footprint, individuals living in adjacent vegetation (with more denning opportunities) would need to cross Cullen Road (around 25m wide). Although the distance across Cullen Road is not insurmountable for Greater Glider, they also have small home ranges, typically around 1–4ha so do not travel long distances to access foraging habitat. It is however considered that there will be 33.54ha of Greater Glider habitat within the Project Area with majority of this habitat being outside of the Development Footprint boundary.

### Squatter Pigeon

Squatter Pigeons were observed within areas of sparse non-remnant vegetation with a patchy ground layer containing bare patches of gravelly soil. There is 404.8 hectares of potential Squatter Pigeon breeding habitat and 0.81 hectares of potential foraging habitat within the Project Area.

# 4. Potential impacts to matters of national environmental significance

## 4.1 Key aspects and impacts

Key aspects of the Project that could result in impacts to biodiversity include:

- Site establishment, including installation of temporary facilities and mobilisation of equipment and materials
- Vegetation clearing
- Excavation and blasting
- Trenching works for installation of underground cabling
- Overhead power lines, hardstands and access track construction, including vegetation clearing, topsoil stripping, earthworks, and drainage works
- Installation of photovoltaic panels
- Commissioning and operation of solar farm and Site compound facilities
- Vehicle movement during construction and operation.

### 4.1.1 Flora

Impacts to flora are expected to include:

- Potential damage to *Cycas megacarpa* within the Development Footprint
- The removal of remnant vegetation
- Increased competition from weed species which may be introduced to the Project Area or spread to new locations as a result of the Project.

### 4.1.2 Fauna

Impacts to fauna are expected to include:

Vegetation clearance which may lead to:

- Loss of vegetated habitat including hollow-bearing trees, bird nests and food resources
- Damage or removal of ground-based habitat features including fallen timber, dead wood and bush rocks
- Injury and mortality to fauna during vegetation clearing
- Fauna collisions with vehicles
- Light, noise and vibration impacts which may disturb nesting or roosting fauna
- Removal of up to 269.72ha of suitable Koala habitat
- Removal of up to 258.77ha of suitable habitat for Greater Glider
- Removal of up to 259.20ha of suitable habitat for Squatter Pigeon
- Degradation of habitat through runoff and pollutant resulting from clearing and infrastructure

# 5. Management actions and risk assessment

## 5.1 Clearing limits

Management actions will be implemented to ensure the following clearing limits for MNES are not exceeded, in accordance with Condition 2 of the EPBC approval:

- 269.72ha of suitable Koala habitat
- 258.77ha of suitable habitat for Greater Glider
- 259.20ha of suitable habitat for Squatter Pigeon
- no more than four *Cycas megacarpa* individuals

More than four individuals have been located within the Project Area but these do not lie within the Project Footprint. The conditions of approval state that if more than four *Cycas megacarpa* individuals are identified in the Project Area, then no *Cycas megacarpa* individuals are permitted to be translocated, cleared or impacted without the written approval of the Minister. Approval from the minister has been sought for impacts to more the four individuals.

## 5.2 S.M.A.R.T principles

Measures in this MNES Plan have been developed in accordance with the S.M.A.R.T principles, which are:

- Specific - Measures are focused, specific and identify a tangible outcome.
- Measurable – Measures are quantified with an indicator of progress.
- Achievable – Reviewing what can realistically be achieved given available resources.
- Relevant – - Measures are developed and utilize resources to purposefully contribute to MNES Plan.
- Time-bound – Measures are time-bound with a specified timeframe in which it can be achieved.

Measures developed for this MNES Plan are specific to the target MNES species and can be measured through ongoing monitoring programs. The measures are designed to be practical and reasonably able to be implemented in the Project Area. Each measure is relevant to MNES and has been developed with the aim of maintaining the Project Area in a condition that supports the essential life processes for each species. The timing of implementation of each measure is provided, as well as monitoring requirements which in some cases last the lifetime of the approval.

## 5.3 Vehicle use

Vehicles accessing and driving through the Project Area must not exceed a maximum speed limit of 50 km/hr for all vehicles. Vehicle access will be restricted to existing access roads and tracks.

Refuelling of any vehicle on Site is to occur greater than 50 m from any waterway, retained habitat, and/or riparian zones.

A register of Squatter Pigeon sighting will be maintained and used to inform all persons of on Site areas that have a higher risk of vehicle collision. Legible warning signs will be placed on all tracks that intersect locations in which Squatter Pigeon has been identified within the project area to

inform all persons on Site of areas that have a higher risk of vehicle collision and the need to be alert to risk of vehicle collision with Squatter Pigeon and to drive slowly to prevent vehicle collision with Squatter Pigeon.

## 5.4 Avoid and minimise impacts

Avoidance of impacts to threatened species has been achieved through the design refinement process detailed in the Project's Preliminary Documentation Submission Report, which has guided the Project to minimise impacts to ecologically significant areas including remnant vegetation.

### 5.4.1 Final detailed design and micro-siting

Detailed design is in the process of being finalised and is considering how to further reduce vegetation clearing. The project detailed design is expected to result in an overall reduction of impact to MNES.

The following mitigation measures will be implemented for the detailed design, including roads, underground cabling and other infrastructure, to reduce or avoid ecological impacts:

- Minimising clearing within the riparian vegetation community (which also incorporates core Greater Glider habitat).
- Minimising clearing within high value Greater Glider habitat (mixed eucalypt woodland)
- Final detailed design of road and overhead powerline alignments to minimise the overall Development Footprint to the greatest extent feasible, whilst also reducing the overall loss of Koala and Greater Glider habitat.
- Micro-siting infrastructure to avoid *Cycas megacarpa* (or translocate in advance).
- Micro-siting infrastructure to minimise the number of hollow bearing trees cleared.

## 5.5 Weed and pest management; pre-, during, and post clearing

### 5.5.1 Weed management

The prevalence of weeds that are identified as threats to protected matters must be kept at a level less than the prevalence of weeds already occurring in the Project Area prior to the commencement of the Project. A weed and pest management measures which will be implemented are provided in Appendix B.

Mitigation measures for managing weeds on Site include:

- Managing existing weeds on Site, including:
    - appropriate treatment of each species of weed taking into account protection of remaining native vegetation (Table 5-1)
    - disposal of removed weeds
- Weed hygiene protocols including:
    - developing a procedure for ensuring vehicles and machinery are weed free prior to entry to the site
    - procedures for importing fill (if needed) to ensure it is weed free
    - exclusion of staff, machinery and vehicles in native vegetation areas

- Ongoing weed monitoring and control.

The Weed Management Contractor will take all reasonable steps to prevent the introduction, escape and/or spread of weeds through the Project Area and surrounds.

Table 5-1 Treatment options for weeds recorded in the Project Area.

| Species | Common name | Gladstone Regional Council Biosecurity Plan | Treatment Method |
|---|---|---|---|
| *Cryptostegia grandiflora* | Rubber Vine | Containment | Foliar spray, cut-stump or basal bark. |
| *Lantana camara* | Lantana | Local Control | Foliar spray, cut-stump or mechanical removal. |
| *Opuntia tomentosa* | Velvet Tree Pear | Local Control | Cut-stump or basal bark. |
| *Sporobolus natalensis* | Giant Rats Tail Grass | Containment | Foliar spray |

### 5.5.2 Feral animal control

The prevalence of feral animals that are identified as threats to protected matters must be kept at a level less than the prevalence of feral animals already occurring in the Project Area prior to the commencement of the Project.

Specific feral animal controls are outlined in the Cycad Translocation Plan and will also be addressed separately in an Offset Area Management Plan. The measures that will be implemented in the Project Area (if deemed necessary to protect MNES) include but are not limited to:

- Shooting – Feral pig (*Sus scrofa*), European Rabbit (*Oryctolagus cuniculis*), Feral cat (*Felis catus*), Wild Dog (*Canis familiaris*)
- Trapping- Feral pig (*Sus scrofa*), Feral cat (*Felis catus*), Wild Dog (*Canis familiaris*)
- Baiting- Feral pig (*Sus scrofa*), Feral cat (*Felis catus*), Wild Dog (*Canis familiaris*)

Further details on pest management measures that will be implemented are in Appendix B.

The Principal will be responsible for co-ordinating feral animal control e.g. shooting, trapping and baiting (as required) and will be guided by advice of a specialist contractor if adaptive management is required.

Site inductions and/or toolbox talks will include general training around minimising attraction for pest animal species, such as securing food scraps and rubbish bins, and not feeding wildlife.

## 5.6 Pre-clearance management actions

Prior to clearing a stage, the following assessment will be undertaken:

1. Identify on-site areas where clearing, earthworks and/or alterations to a waterway corridor (i.e., construction of bridges, culverts, etc) will be required.
2. Complete a desktop due diligence to identify potential values and legislative triggers including ensuring clearing of remnant vegetation in accordance with the CoA

3. Pre-clearance survey must be undertaken prior to clearing (see below).

### 5.6.1 Delineating the clearing boundary

All plant operators will have access to spatial data for the vegetation clearing boundary, to be provided by the Principal upon request. Physical demarcation (e.g., pegging, temporary fencing or similar) will be used to delineate the clearing area, especially in areas of dense vegetation or other high-risk areas (such as within riparian vegetation).

All areas outside of the approved Development Footprint are to be designated as no-go areas and protected as follows:

- Surveyor's pegs with brightly coloured flagging (or equivalent) will delineate the clearing boundary. These pegs are to be clearly placed and located so that contractors can easily discern the boundary of the area to be cleared.
- Trees will be felled away from retained vegetation, to ensure retained vegetation is not damaged.

### 5.6.2 Pre-clearance surveys

Prior to clearing works commencing, vegetation to be cleared will be inspected by an ecologist and/or suitably qualified fauna spotter (where they meet the definition in Appendix D). The fauna spotter for each Contractor will undertake a pre-clearance survey of vegetation within the clearing boundary of the Contractor's respective scope of work, within one month prior to clearing and will be present to supervise clearing activities. The pre-clearance survey will identify and protected matters within the vicinity of the clearing within the project area. The pre-clearance survey will record and mark the following:

- Presence of fauna and/or fauna habitat
- Threatened flora (*Cycas megacarpa*)
- WoNS
- Evidence of pest animal species.

The ecologist and/or suitably qualified fauna spotter will locate, record and mark the location of nesting, roosting and denning habitat, including the following specific habitat features:

- Hollow-bearing trees
- Large fallen logs and branches
- Bird nests
- Complex rock fissures
- Boulder piles.

Fauna habitat features will be clearly recorded and marked, preferably with pink spray marking paint (or similar), in order to identify those which will be inspected immediately prior to clearing and then be felled or removed with care. This includes habitat trees, which are trees that provide or potentially provide a number of resources including:

- Hollows, fissures or cracks
- Hollow logs on ground
- Stags

- Trees with diameter at breast height (dbh) >300mm
- Large canopy spread
- Significant foraging resources for fauna.

In areas with surface rocks and timber, the fauna spotter will search for terrestrial reptiles and mammals.

If any other threatened species under EPBC Act are identified throughout the Project, DCCEEW will be notified and consulted on any requirement for an amendment to the MNES Plan. If more than four *Cycas megacarpa* individuals are identified within the project area, then no *Cycas megacarpa* individuals are permitted to be translocated, cleared or impacted without the written approval of the Minister.

### 5.6.3 Protected plants

The Project includes areas which are shown as high risk on the Protected Plants Flora Survey Trigger Map (DES, 2019). Pre-clearance surveys in these areas will follow the pre-translocation assessment process in the Cycad Translocation Plan, which is an EPBC CoA. These surveys will be done by qualified ecologists and may be combined with pre-clearance surveys. Areas will be surveyed approximately four weeks prior to clearing (or earlier where practicable). The purpose of these surveys is to:

- Determine the number of cycads that are impacted by the Project through direct count surveys.
- Map and tag the extent and individual locations of cycads within the Development Footprint.
- Record baseline data for each individual plant within the impact area, which will be used to monitor individuals following translocation, to inform management actions for translocated plants and to evaluate the ongoing and overall success of the translocation program.
- Confirm suitable location for a temporary storage site (if required); and
- Confirm suitability of habitat for translocation recipient site/s within the Development Footprint.

The pre-translocation surveys of listed flora within the Development Footprint area will consist of a systematic walk-through of the Development Footprint. The location of individuals within the Development Footprint which will be impacted by the development will be recorded with a hand-held GPS receiver. Each individual will be assigned a unique identification number that is to be recorded on fire-proof tags (e.g., aluminium plant tags) that are attached in a secure manner to the plant (e.g., with fine-gauge wire at the base of a mature but not senescent leaf). The Queensland Herbarium will be consulted to confirm the species type where this cannot be confirmed by the on-site qualified ecologist.

The following data will be recorded:

- Geo-location of each plant;
- Individual plant ID number;
- Cluster size and proximity to other clusters;
- Age class/maturity- seedling, juvenile, adult at reproductive maturity;
- For *C. megacarpa*: Seedling, juvenile, adult at reproductive maturity;
- Presence of fruit, flower and cone maturity (i.e., immature, currently fruiting or old cones);

- Where confirmation can be made, the proximity of seedlings to the maternal parent and the identification number of the maternal parent, this information is useful when undertaking seed collection for propagation purposes;
- Evidence of current disturbance factors e.g., recent fire event, insect damage and defoliation;
- Severity of any damage arising from current disturbance factors; and
- Georeferenced photographs of the individual.

This data will be collated into a database in an appropriate format (e.g., GIS Esri Shapefile, MS Excel spreadsheet or MS Access database).

Cycads which are identified in the Project Area, but that are going to be avoided will be demarcated and signage will be erected notifying all personnel that those plants are not to be interfered with.

If any additional EPBC Act listed threatened plant species are found within the Project Area, DCCEEW will be notified, and appropriate action determined in consultation with the Department prior to clearing commencing in the known location of a threatened flora species.

## 5.7 Vegetation clearing management actions

### 5.7.1 Timing

Clearing and bulk earthworks will be avoided during and immediately following heavy rainfall events to protect soils and vegetation at the Site.

If undertaking nightworks, lights (both during nightworks and operation where necessary) will be directed away from vegetation and adjacent habitats to minimise light spillage. Lighting fixtures must be directed downwards and use shields and baffles to limit light spill beyond the area that requires lighting. The minimum requirements for safety during night works will be used.

### 5.7.2 Fauna spotter activities

A suitably qualified fauna spotter catcher will undertake a visual inspection of habitat features immediately prior to commencement of any clearing to identify resident fauna species that will require relocation. Areas of Squatter Pigeon habitat will be flushed for Squatter Pigeon individuals immediately prior to clearing, in accordance with condition 20-r of the CoA.

The fauna spotter catcher will supervise all clearing activities and will have authority to cease clearing activities if protected matters could be impacted, or if they need to leave the clearing front temporarily to relocate any fauna captured during clearing to an appropriate nearby habitat area.

The definition of suitably qualified fauna spotter catcher is outlined in Appendix D.1, and further details of fauna spotter activities are outlined in Appendix D.2.

### 5.7.3 Clearing approach

A two-staged clearing process will be used, with ground, understory and shrub layers removed a minimum of 48 hours prior to tree felling. This prompts fauna to vacate habitat trees. Trees will be progressively cleared to enable fauna residing in or near the clearing site the opportunity to vacate the clearing area and move into adjacent woodland without assistance. Cleared vegetation that

has been checked by a fauna spotter catcher will be stockpiled or mulched, or where practical, may be relocated as fauna habitat:

- Where cleared vegetation has habitat features (such as hollow branches), these may be salvaged and relocated for use as replacement habitat outside the Development Footprint, as advised by the FSC. Salvaged hollows intended for Greater Glider use will be installed according to the specifications outlined in Section 5.7.5.
- Stockpiled vegetation may be suitable for use in erosion and sediment control and rehabilitation works. Stockpiled vegetation can provide habitat for fauna, and therefore a fauna spotter catcher will be present where stockpiles are removed or mulched. Mulch will be used within the Project Area as a preventative erosion control, to improve soil condition, reduce weeds, retain moisture and increase ecological diversity.
- Stockpiles and laydown areas will be located in areas that were cleared or disturbed prior to the Project commencing.

### 5.7.4 Sensitive clearing technique

A sensitive clearing technique will be implemented to fell HBTs, particularly in areas of mapped Greater Glider habitat (Appendix A.1).

Hollow bearing trees will be felled in a manner which reduces potential for fauna mortality. Trees will be tapped/nudged gently with excavator head before felling to allow for fauna to self-relocate. It is at the discretion of the fauna spotter whether tapping is appropriate. The fauna spotter will also determine which trees will be felled using the sensitive clearing technique. This will consist of the trees being felled with an excavator or equivalent machinery using its boom to slow the trees fall. Hollow bearing trees are not to be pushed and allowed to fall under their own weight. After felling, HBTs will be inspected by a fauna spotter to determine if any animals are present. Fauna spotters will capture and safely release any uninjured fauna present. See detailed tree clearing procedure in Appendix D.

Within areas of Greater Glider habitat clearing width for all new and existing road and track widths within the Project Area will not exceed 15 metres, in accordance with condition 20-m of the CoA.

### 5.7.5 Clearing Koala habitat

Clearing of Koala habitat will be undertaken using the best practice clearing techniques in accordance with Nature Conservation (Koala) Conservation Plan 2017 - Koala Conservation Plan clearing requirements.

Clearing of Koala habitat will be undertaken as follows:

- Sequential clearing to ensure Koalas in the clearing area have time to relocate of their own volition, including:
    - staged clearing such that no more than 3% of Koala habitat is cleared each day (stage).
    - ensuring that a gap of 12 hours each day from 6pm to 6am in which no Koala trees are cleared.
- Clearing is carried out in a way which maintains appropriate habitat links between the clearing areas and adjacent habitat to allow Koalas to self-disperse.

- No Koala tree in which a koala is present, and no Koala habitat tree with a crown overlapping a tree in which a Koala is present, is cleared.
- A suitably qualified fauna spotter is to be present at all times to undertake a pre-clearance survey and to supervise clearing (Appendix D for more detailed fauna spotter information).

### 5.7.6 Salvaging tree hollows – Greater Glider

Clearing HBTs which show signs of use by Greater Glider will require provision of alternative habitat. Salvaged tree hollows, will be installed in habitat suitable for Greater Glider outside of the Development Footprint in accordance with condition 20-p of the CoA. Fit-for-purpose nest boxes may be utilised if tree hollows are unable to be salvaged.

Salvage and relocation of Greater Glider hollows must be undertaken in accordance with the following condition stipulated in the CoA:

- Prior to clearing:
    - ensure all Greater Glider hollows to be cleared as a result of the Action are inspected for protected matters;
    - ensure the use of techniques to encourage Greater Gliders to leave their hollows prior to removal of any tree, including tapping trees and using spotlights. If Greater Gliders are potentially present, trees must be dismantled in sections;
    - the height and orientation of the Greater Glider hollow and the species of tree it is derived from must be recorded prior to the salvaging of the hollows;
    - Greater Glider hollows must be installed in the relocation site at a similar orientation, height and tree species as recorded in the above condition;
    - depth and height of the Greater Glider hollows must be determined prior to salvage operation and retained in the salvage operation;
    - after harvesting, top and bottom of the Greater Glider hollows must be sealed to weather- proof the hollow;
    - ensure the excised hollows are deep enough to enable the addition of insulation material and Greater Gliders;
    - sawdust from the harvesting of the tree hollow should be retained and used as insulation in the base of the hollow. Insulation material at the base of the hollow must be at least as deep as the thickness of the sides of the hollow. Additional insulation may be required;
    - Greater Glider hollow removal and installation must be undertaken by trained arborists;
    - ensure host tree, where Greater Glider hollow is to be installed, is protected from ring-barking;
    - installed Greater Glider hollows are to be monitored to detect evidence of Greater Glider use and monitoring results are to be included in the annual compliance report under condition 36 of the CoA.

Hollow bearing trees which show signs of use by Greater Glider will be sensitively cleared in accordance with the conditions above. Constructed nest boxes will be available on Site in case natural hollows are not able to be salvaged and installed. The salvaged hollow or constructed nest

box will be installed at a similar orientation, height and tree species as it was removed from, in accordance with the conditions outlined above.

Nest box design will be in accordance with Franks and Franks (2003), i.e., hollow entrance 90mm diameter, rear entrance (to avoid competition from Common Myna). Fauna spotters will advise as to the most appropriate location for nest box installation. Nest boxes will be installed outside the Development Footprint and as close to the impacted HBT as possible.

The location of all installed Greater Glider hollows or nest boxes will be recorded (GPS location) and monitoring of the salvaged hollows/nest boxes will be undertaken in accordance with Section 6.1.

### 5.7.7 Glider pole installation – Greater Glider

During construction within Greater Glider habitat, glider poles will be installed where the clearing widths of roads is such that distances between trees is greater than 15 m. Glider poles will be designed in accordance with best practice measures outlined in (DTMR 2010), including:

- Poles will be constructed from used electricity poles or tree trunks salvaged from the Site
- The height of the poles will be no less than canopy height, with a minimum height of 12 m.
- Poles will not be constructed where there is potential for conflict with powerlines or other infrastructure.
- Horizontal crossbars will be located at various heights of the pole, with the highest crossbar within 1 m of the top of the pole and at least 11 m above ground.
- The DBH of the poles is no less than 300 mm.
- The distance between glider poles and suitable landing platforms on the opposite side of the road is no greater than 1.5 times the height of the pole and allows for a loss of glide elevation of 1 m for every 1.8 m of glide distance (i.e. allows for a fall of 8.5 m if poles are located 15 m apart).
- Metal will be attached around poles to prevent Greater Glider from descending to the ground.

In accordance with condition 20-n of the CoA, glider poles will be installed if the distance between trees at the road crossings in the riparian zone are greater than 15 m. Remote cameras will be installed facing all Greater glider poles to monitor their use. Use of Greater Glider poles (by Greater Gliders or other animals) will be reported on in the annual compliance records under condition 25 of the CoA.

Monitoring of glider poles will be conducted passively through placement of motion-triggered cameras. Cameras will be installed:

- At the top of each glider pole facing the top side of the cross-beam and the direction of travel (i.e. opposing side of the road).
- Oriented that any fauna species moving along the length of the beam or to the top of the pole, or toward or out of the opening of the relocated hollows, will trigger the passive infra-red sensor.
- That each camera records 9–20 seconds of video footage or takes a minimum of 5 still photographs.

Data from each camera will be checked monthly, with the following information recorded for each animals detected:

- date, Time, Pole Location/Number, And
- species recorded
- number of individuals recorded
- number of videos
- direction of travel
- distinctive markings, such as male scent glands, body size, sex, and estimated age.

Data will be reported in annual compliance records.

### 5.7.8 Fencing- Greater Glider

To prevent loss or injury to Greater Glider from barbed wire fencing, barbed wire will only be used where it is required to meet the Australian safety standards or are necessary for insurance. Security and safety considerations for the project may include around substations and areas with electrical hazards. Where barbed wire must be used, durable visibility tags or tape will be placed at 30 cm intervals along the top of barbed wire fencing for the duration of the approval to increase the visibility of the wire. These tags will be monitored to ensure that they are present and in good condition as part of the fence maintenance routine. Any lost tags will be replaced as soon as possible.

Any injury or mortality of Greater Glider on barbed wire will be recorded and the fencing construction and visibility will be reviewed.

### 5.7.9 Riparian zones

The CoA define riparian zones in the Project area as (*area within a minimum of 25 metres of the defining bank for all watercourses with stream orders above 1*).

The Project will ensure there is no clearance in riparian zones by:

- Project design that avoids riparian zones
- Riparian zones are mapped and spatial data made available to clearing contractor for avoidance
- The extent of clearing will be clearly marked prior to construction to ensure no riparian zones will be cleared.

To further prevent impacts to riparian zones, no refuelling will occur within 50 m of any waterway, retained habitat or riparian zone/s.

### 5.7.10 Erosion and sediment control

Prior to and during construction, the construction Contractors will implement erosion and sediment control procedures for their works as per the CEMP. These measures will include:

- Preparing erosion and sediment control measures prior to commencement of construction in an area.
- Training all personnel on effective erosion and sediment control practice.

- Designing works to minimise the extent and duration of disturbance.
- Installation of erosion and sedimentation controls.
- Stabilising disturbed ground and exposed soils.
- Progressive rehabilitation.

Storage of fuels, chemicals, wastes and other potentially environmentally hazardous substances must be bunded or otherwise contained in areas away from waterways, retained habitat or riparian zone/s, with erosion and sediment controls in place to contain substances in situ in case of a spill.

### 5.7.11 Habitat features

Smaller rocks and logs will be inspected by the fauna spotter during the pre-clearance survey. Larger rocks and logs will be rolled using the excavator to search for fauna.

Where the fauna spotter considers grass or soil stripping has an elevated risk of encountering fauna, the fauna spotter will follow the bulldozer or grader and capture and relocate any uncovered fauna. The fauna spotter will supervise and direct soil stripping until they are satisfied that no further fauna will be uncovered.

Cleared vegetation will be stockpiled along the edges of the disturbance footprint or may be mulched. Certain habitat features (such as tree hollows that can serve as breeding structures) will be retained and relocated nearby as habitat for native fauna, if requested by the fauna spotter. Any such request will be implemented by the bulldozer or grader operator, where safe and practical to do so.

Where salvaged and relocated hollow branches are intended for Greater Glider use, as advised by the FSC, they will be installed according to the specifications outlined in Section 5.7.5.

### 5.7.12 Wildlife corridors

The Project will maintain wildlife corridors, habitat quality and habitat connectedness within the Project Area and Mount Larcom. This will be achieved by avoidance of the area through Project design. Th Project will maintain the habitat quality of the wildlife corridor through management actions detailed Appendix B and Appendix C. The habitat quality will be maintained for the life of the approval. Measure specific to MNES will include:

- Weed monitoring and control to ensure the Project does not result in an increase of weeds that are a listed threat to MNES.
- Feral animal monitoring and control to ensure the Project does not result in an increase of feral pest animals that are a listed threat to MNES.
- Monitoring of glider poles and salvaged hollows if they are required to be installed in the wildlife corridor (Section 5.7.7).
- Ongoing monitoring of the habitat condition in the wildlife corridor for the life of the approval.

Monitoring of the remaining wildlife corridors and other MNES habitat (including cleared areas for Squatter Pigeon) will be undertaken during environmental audits, with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations. Monitoring will be undertaken by the Principal contractor or a suitably qualified ecologist.

### 5.7.13 Injured fauna and wildlife caring

Procedures for handling injured fauna are outlined in Appendix D. This involves the use of suitably qualified fauna spotter catchers, licensed wildlife carers, and veterinarians.

Licensed and qualified wildlife carers will be contacted at least two weeks before the commencement of clearing to prepare for a potential admission of injured/orphan fauna. The Project will donate $50 for each admission. Appendix D.5 lists contact details for local wildlife carers, and veterinarians. Due to the need for bats to only be handled by people who are vaccinated for Australian Bat Lyssavirus, the ability of local wildlife carers and veterinarians to receive bats will be established by the fauna spotter consultancy prior to clearing commencing.

### 5.7.14 Captured threatened species

The mitigation measures stated above generally cover a sensitive and best practice clearing technique for increasing fauna survival and allowing for successful relocation. This MNES Plan includes measures to ensure that no Koala or Greater Glider or Squatter Pigeon individuals are injured or killed as a result of the Action.

If a nocturnal threatened species, other than a Greater Glider, is recovered, it will be promptly transported by the Fauna Spotter Catcher to a suitable location. The animal will be released near to where it was found just after dusk. Section 5.7.5 includes details on the appropriate action to take for Greater Glider.

If other threatened species are recovered during the pre-clearance or clearance stages, the clearing methodology will be modified to reduce potential risks.

In the unlikely event that a threatened species is orphaned or injured by clearing activities, it will be immediately transported to the nearest wildlife hospital for treatment. Any injuries or deaths of threatened fauna species must be reported immediately to the Site Environmental Coordinator and recorded as an environmental incident. DCCEEW will be notified of any death of a threatened fauna species listed under the EPBC Act within 2 business days of the incident. The incident will then be reported in writing to DCCEEW within 10 business days.

### 5.7.15 Translocation of *Cycas megacarpa*

Translocation will be undertaken in accordance with the Cycad Translocation Plan. Translocation can be undertaken at any time of the year; however, the optimal time is immediately prior to the start of new growth, generally in the cooler months (i.e., winter and spring) and before the onset of the wet season.

Cycads are generally tolerant of some root damage; however, as with most species, better results are achieved with the retention of a solid root ball. Translocation of the plants will be undertaken using the following methodology:

a) Establish and maintain a “Cycad Translocation Database ” to record actions required for delivery of this Plan. The cycad translocation database will record the following:
    i. the chain of custody for plant salvaged and seeds collected;
    ii. details of seed collection and propagation;
    iii. details of translocation to recipient site and final location of translocated or propagated plants.

b) Site preparation will be undertaken prior to salvage e.g., preparation to ensure unimpeded access, weed treatment (where relevant) to minimise the risk of transporting weed propagules, collection of data records etc.
c) Mark each plant with metal tag with individual numbers and strong wire.
d) Marker paint or fluorescent dye will be used to mark the north side of each plant. This will ensure that the plants are replanted with a similar north-south orientation. This step will not be applicable to seedlings or juveniles.
e) Clear the area surrounding the individual plants by hand.
f) Trim fronds back to where the rachis is attached to the stems.
g) Spray trunks and around the crown area (not the crown itself) with an anti-transpirant (e.g. Envy®) to prevent the plants drying out.
h) Mechanical removal using plant equipment will be undertaken where topography and soil characteristics allow for it e.g., on gentle slopes and soft soils.
i) To avoid bruising the trunks/stems of the cycads, care will be taken whilst transporting the plants. Any large or heavy plants will be loaded using a soft sling on a backhoe or excavator bucket and packed using rolls of hessian sacking or similar.
j) Any damaged roots will be trimmed with clean/sterile secateurs and fungicide powder (e.g., Banrot®, Formula 20®) applied to prevent infection.

Any damage incurred to an individual plant as part of the salvage process will be recorded in the translocation database. This will assist in identifying any immediate or future horticultural requirements and will inform the analysis of monitoring results when tracking the progress of individual plants (particularly in the event of plant death following translocation). Where appropriate, damage to cycads will be treated with an appropriate disinfection and/or protection product (e.g., wound sealant or dressing) to minimise the risk of pathology.

Actions undertaken prior to the translocation of individuals will include, at a minimum:

- Weed management measures will be implemented and rehabilitation measures shall be undertaken.
- Where present in material numbers, the management of pest animal species from within the immediate vicinity and surrounds of the recipient site through trapping, baiting or exclusion fencing. Note pest animals to cycads include exotic and native species. Exotic species include feral pigs, cattle, horses and deer which may dig up or trample cycad plants and seedlings.
- Firebreaks will be constructed, where deemed beneficial and not already established.
- The recipient site will be fenced with feral proof fences to prevent impact to translocated plants.
- Suitable watering arrangements, for example, the installation of a water tank and watering infrastructure or suitable access for a water cart.

Translocating plant to the permanent recipient site will include the following steps:

1. Ideally plants will be translocated on the same day they are salvaged; however, where this is not practicable, they may be held overnight and planted as soon as practicable the next day.

2. To avoid bruising the trunks/stems of the cycads, care will be taken whilst transporting the plants to the recipient site(s). Any large or heavy plants will be loaded using a soft sling on a backhoe or excavator bucket and packed using rolls of hessian sacking or similar.

## 5.8 Post-clearing management actions

### 5.8.1 Rehabilitation and revegetation

Implement rehabilitation protocol outlined in Appendix C.

Undertake progressive rehabilitation of the disturbed ground no longer required for construction or operation (e.g. hardstand and road batters, cable routes, etc). Rehabilitation of temporary disturbance areas to be undertaken within 2 months of the area no longer being in use for the Project. Where appropriate, topsoil will be reinstated to create a soil bedding layer for seeding and natural regermination of vegetation.

Remedial revegetation works will include the following:

- Scarification of subsoil
- Application of topsoil
- Re-seeding with temporary cover crops (where future disturbance is anticipated prior to establishing long-term vegetation cover)
- Seeding with appropriate longer-term vegetation cover (where deemed necessary).

Monitoring (and maintenance) of rehabilitated areas will continue until the rehabilitation success criteria has been met, in consideration of the local environmental conditions (Appendix C). Rehabilitation in previously remnant areas that are no longer needed for operation or construction must ensure the area is returned to remnant status (according to the definition under the *Vegetation Management Act 1999* (VM Act)) and is a self-sustaining ecosystem that aligns with rehabilitation criteria. Specific measures to be incorporated into rehabilitation of MNES habitat are provided in Appendix C.5.

Habitat features such as hollow branches may be salvaged and relocated for use as habitat, as outlined in Section 5.7.11.

Land under solar panels will be revegetated with locally occurring grass species that are not invasive weeds or species that are identified as threats to protected matters.

### 5.8.2 Trenches

Trenches will be backfilled within 48 hours to minimise potential fauna trapping. If trenches are left open for longer than a day, they will be inspected daily (early in the morning) and any trapped fauna will be removed. Ramps or ladders in the trenches will be placed when leaving trenches overnight to facilitate the escape of trapped fauna.

## 5.9 Risk Assessment

The following matrix methodology (Table 5-2) has been used to assess risks to environmental factors during the construction and operational phases of the Project. This risk assessment was undertaken by experienced ecologists who have been involved with the project during the ecological assessments, pre-approval and approvals phases. The proponent's environment

manager, construction manager and project manager have all reviewed and contributed to this assessment.

Table 5-2 Risk matrix method for risk assessment

| **Measures** | |
|---|---|
| **Qualitative measure of likelihood** | **How likely is it that this event/circumstances will occur after management activities are implemented?** |
| **Highly likely** | Is expected to occur in most circumstances |
| **Likely** | Will probably occur during the life of the project |
| **Possible** | Might occur during the life of the project |
| **Unlikely** | Could occur but considered unlikely or doubtful |
| **Rare** | May occur in exceptional circumstances |
| **Qualitative measure of consequences** | **What will be the consequence/result if the issue does occur?** |
| **Minor** | Minor incident of environmental damage that can be reversed (e.g. short-term delays to achieving plan objectives, implementing low-cost, well-characterised corrective Actions) |
| **Moderate** | Isolated but substantial instances of environmental damage that could be reversed with intensive efforts (e.g. short term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective Actions) |
| **High** | Substantial instances of environmental damage that could be reversed with intensive efforts (e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective Actions) |
| **Major** | Major loss of environmental amenity and real danger of continuing (e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies) |
| **Critical** | Severe widespread loss of environmental amenity and irrecoverable environmental damage (e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies) |

| **Risk Matrix** | | | | | | |
|---|---|---|---|---|---|---|
| | | **Consequence** | | | | |
| **Likelihood** | | **Minor** | **Moderate** | **High** | **Major** | **Critical** |
| | **Highly Likely** | Medium | High | High | Severe | Severe |
| | **Likely** | Low | Medium | High | High | Severe |
| | **Possible** | Low | Medium | Medium | High | Severe |
| | **Unlikely** | Low | Low | Medium | High | High |
| | **Rare** | Low | Low | Low | Medium | High |

### 5.9.1 Results of risk assessment

The risk assessment (Table 5-3) considers the risk that the MNES Plan's environmental objectives will not be met. These objectives are presented in the table below and have been developed with reference to established management objectives for MNES within recovery plans, conservation advice and other guidelines.

If monitoring (refer to Section 6.1) or opportunistic observations indicate that a risk has been realised, a contingency response will identify appropriate and tailored corrective actions to rectify the specific event or circumstance.

Outcomes will be communicated to relevant personnel (i.e. through ongoing training opportunities; Section 7.2). Risks and the suggested contingency response are provided in Table 5-3.

Table 5-3 Risk assessment

| Environmental objective | Risk event or circumstance | Initial Risk | | | Management actions[1] | Residual risk | | | Trigger detection/ monitoring activity[2] | Contingency response and corrective action |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Likelihood | Consequence | Risk | | Likelihood | Consequence | Risk | | |
| **Flora species** | | | | | | | | | | |
| **EPBC Act threatened species - flora** | | | | | | | | | | |
| No net loss of threatened Cycad individuals (*Cycas megacarpa*). | Direct disturbance and death of individual cycads during vegetation clearing. | Highly Likely | Major | Severe | **Pre-clearing:**<br>· Pre-clearance surveys to identify and mark individual *Cycas megacarpa*.<br>· If more than four *Cycas megacarpa* individuals are identified within the Project Area, then no *Cycas megacarpa* individuals are permitted to be translocated, cleared or impacted without the written approval of the Minister.<br>· Clearly mark *Cycas megacarpa* recorded during survey efforts.<br>· Micro-siting infrastructure and roads to avoid or minimise removal of *Cycas megacarpa*.<br>· Implement an approved Cycad Translocation Plan.<br>**During clearing:**<br>· Where there is unavoidable clearing, individual *Cycas megacarpa* within the construction footprint will be translocated in accordance with the Cycad Translocation Program. | Likely | High | High | **Trigger:** if more than four *Cycas megacarpa* individuals are identified within the Project Area<br>**Monitoring activity:** Pre-clearance surveys | Undertake seed collection, propagation and planting of cycads if translocation efforts have not reached desired success rates (in accordance with Cycad Translocation Plan).<br>1:1 ratio of propagated plants for any one mortality for EPBC Act Endangered *Cycas megacarpa*. |
| | Death of mature *Cycas megacarpa* during and/or following translocation | Highly Likely | High | High | Translocation of individual, mature *Cycas megacarpa* in accordance with Cycad Translocation Plan. | Possible | High | Medium | **Trigger:** If health of plants falls below the baseline<br>**Monitoring activity:** Regular monitoring of temporary storage (if applicable) and recipient sites, undertaken by contractor in charge of implementing Cycad Translocation Plan. | |
| **Vegetation Communities** | | | | | | | | | | |
| Retain viable native vegetation communities in the Project Area | Areas of remnant vegetation in excess of approved clearing limits are damaged or removed. | Likely | High | High | **Pre-clearing:**<br>· Delineating clearing boundaries prior to clearing | Unlikely | Moderate | Low | **Trigger:** Approved vegetation clearing limits are exceeded.<br>**Monitoring activity:** Environmental inspections | Investigate the incident in accordance with Section 6. Amendments proposed for relevant approvals and (where required) offsets to be provided. |

[1] Management actions detailed in Section 5
[2] Monitoring detailed in Section 6

| Environmental objective | Risk event or circumstance | Initial Risk | | | Management actions[1] | Residual risk | | | Trigger detection/ monitoring activity[2] | Contingency response and corrective action |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Likelihood | Consequence | Risk | | Likelihood | Consequence | Risk | | |
| Riparian vegetation is retained and restored | Removal of or damage to native vegetation associated with a waterway, impacting on waterway health. | Likely | High | High | **Pre-clearing:**<br>· Siting infrastructure to minimise clearing within waterways and within a defined distance of a waterway<br>· Waterway crossings designed in a manner that will not impede or alter stream flows.<br>**Post-clearing:**<br>· Undertake rehabilitation in accordance with the Rehabilitation Protocol (Appendix C). | Unlikely | Moderate | Low | **Trigger:** Riparian vegetation is cleared.<br><br>**Monitoring activity:** Environmental inspections | Investigate the incident in accordance with Section 6. Amendments proposed for relevant approvals and (where required) offsets to be provided. |
| **Fauna** | | | | | | | | | | |
| **EPBC Act threatened species - fauna** | | | | | | | | | | |
| To protect **EPBC Act threatened fauna species** (including Koala, Greater Glider and Squatter Pigeon) | Removal of habitat | Likely | High | High | **Pre-clearing:**<br>· Pre-clearance surveys to identify threatened species, including active nests, hollows, and Koala presence.<br>· Siting infrastructure (i.e. underground cable alignment) to minimise direct impacts to active nests, hollows and other habitat features in use by a threatened species.<br>· Signage on all tracks that intersect areas of Squatter Pigeon habitat to ensure on-site workers are aware and can avoid any collisions when driving on Site.<br>· Areas of Squatter Pigeon habitat will be flushed for Squatter Pigeon.<br>· Provide alternative habitat (salvaged hollows) for Greater Glider, where active hollow bearing trees are to be removed<br>· Relocation of viable Greater Glider hollows to suitable Greater Glider habitat<br>· Provision of fit-for-purpose Greater Glider nest boxes in the event that tree hollows cannot be salvaged. | Possible | High | Medium | **Trigger:** Threatened species found within clearing impact area.<br><br>**Monitoring activity:** Pre-clearance surveys, fauna spotter activities. | Order stop work if threatened fauna found in clearing impact area.<br><br>Review risk, with fauna spotter to advise on appropriate action.<br>Exclusion zone enforced if Koala present, until Koala self-disperses.<br><br>Viable Greater Glider hollows relocated and monitored |
| | Injury or death during vegetation clearing | Possible | Major | High | **During clearing:**<br>· Use sensitive clearing techniques in accordance with Appendix D.4.1. This will include tapping hollow-bearing trees to encourage self-relocation, and slowly lowering the trees down to the ground prior to inspection by fauna spotter.<br>· Order stop works if threatened fauna is found within clearing area. | Rare | High | Low | **Trigger:** Animal observed during clearing.<br>**Monitoring activity:** Pre-clearance surveys/ fauna spotter observation during clearing. | Injured fauna transported to a wildlife carer.<br>If a threatened species, report as per Section 5.7.14.<br><br>Review risk, fauna spotter to assess whether clearing approach could be improved. |
| | Injury or death from vehicle/mobile plant strike | Possible | Major | High | · Educate on-site staff<br>· Strict enforcement of speed limits of maximum 50km/hr for all vehicles. | Rare | Mod | Low | **Trigger:** Injuries or death of threatened species are an environmental incident and must be reported to the Site Environmental | Review risk, may be appropriate to amend speed limit, install signage and conduct additional staff training. |

| Environmental objective | Risk event or circumstance | Initial Risk | | | Management actions[1] | Residual risk | | | Trigger detection/ monitoring activity[2] | Contingency response and corrective action |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Likelihood | Consequence | Risk | | Likelihood | Consequence | Risk | | |
| | | | | | | | | | Coordinator within 48 hours (see Appendix D).<br>**Monitoring activities:** Fauna spotter observation, ongoing Squatter Pigeon sighting register | |
| **General biodiversity** | | | | | | | | | | |
| Successful rehabilitation of disturbed ground | Disturbed ground not rehabilitated, or rehabilitation fails, resulting in increased erosion. | Likely | Major | High | **Pre-, during and post clearing:**<br>· Erosion and sediment control<br>· Progressively rehabilitate disturbed ground | Possible | High | Medium | **Trigger:** Groundcover rehabilitation target not met or observed increase in erosion presence and severity.<br>**Monitoring activities:** as per the Project's rehabilitation monitoring program. | Corrective action to be appropriate to local environmental conditions. Corrective actions may include, but are not limited to, application of topsoil, fertiliser or re-seeding of vegetation and erosion remediation works. |
| Bushfire risk will not increase as a result of the Project. | Bushfire caused by Project activities | Possible | Critical | Severe | Contact fire authorities on 000 if an uncontrolled fire is seen on Site.<br>Implement appropriate bushfire safety measures, endorsed by the Queensland Fire and Emergency Service in accordance with DSDMIP condition 10, including (but not limited to):<br>· Hot work permit system<br>· Specific mitigation measures relating to vehicle use, smoking, and use of flammable materials. | Rare | Major | Medium | **Trigger:** Bushfire or near miss<br>**Monitoring activity:** annual monitoring of fire breaks. All personnel responsible for reporting incidents of fire. | Investigate the incident in accordance with Section 6 and review risk. May necessitate additional controls or staff training.<br>Corrective action may require:<br>· Inspect and repair/clear fire breaks and widen if necessary<br>· Reassess fuel load reduction practices (i.e. increase controlled stock access if appropriate, or increase control of invasive grasses with high biomass. |
| | Project unprepared for bushfire | Possible | Critical | Severe | Contact fire authorities on 000 if an uncontrolled fire is seen on Site.<br>Implement appropriate bushfire safety measures, endorsed by the Queensland Fire and Emergency Service in accordance with DSDMIP condition 10, including (but not limited to):<br>· Established separation distances (buffer) between infrastructure and threat (vegetation).<br>· Maintaining asset protection zones.<br>· Mowing and slashing.<br>· Fire-fighting equipment and water on hand.<br>· Emergency service access clear. | Unlikely | Major | Medium | | |
| Pest animal activity will not increase as a result of the Project. | Pest animals attracted to the Project Area, i.e. by increased food resources | Likely | High | High | Conduct pest animal management measures in accordance with the weed measures listed in Appendix B. | Unlikely | Moderate | Low | **Trigger:** Opportunistic sightings of feral species (direct sighting or evidence of presence), observed increase in pest animal activity<br>**Monitoring activity:** as per environmental audits (with the first within 3 months of construction | Pest animal control and/or increased frequency of trapping events, additional staff training, review of attractants (i.e. unsecured bins with food waste). Adaptive management under the direction of a specialist pest animal control contractor. |

| Environmental objective | Risk event or circumstance | Initial Risk | | | Management actions[1] | Residual risk | | | Trigger detection/ monitoring activity[2] | Contingency response and corrective action |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Likelihood | Consequence | Risk | | Likelihood | Consequence | Risk | | |
| | | | | | | | | | commencing and then every 6 months thereafter during construction, and annually during operations). Also noted during Environmental inspections. | |
| No new restricted weed species introduced as a result of the Project.<br><br>No new outbreaks of restricted weeds within the Project Area. | Weeds are spread by Project plant or equipment. | Likely | High | High | Conduct weed control measures in accordance with the measures listed in Appendix B.<br>Weed and seed protocol to be implemented to wash down vehicles, plant and any machinery coming to Site. | Possible | Moderate | Medium | **Trigger:** New weed species observed, or weeds in a new location, or weed levels above baseline conditions.<br>**Monitoring activity:** Pre-clearance surveys, Environmental audits (with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations). Also noted during Environmental inspections and construction environmental compliance monitoring.. | Weed control, reviewed weed hygiene practices.<br>Adapt weed treatments with the advice of the weed management contractor.<br>Upon being notified or becoming aware of new weed infestation relevant Contractor is to implement weed control measures within one month. |
| | Weed seeds introduced through mulch, topsoil or other material brought to Site. | Likely | High | High | Imported materials such as sand, gravel and sediment controls materials will be sourced from sites which have been declared free of noxious weeds or Phytophthora infection by a suitably qualified person (included in glossary). | Unlikely | Moderate | Low | | |
| Protected fauna will not be killed or injured as a result of the Project | Injury or death during vegetation clearing | Likely | High | High | **Pre-clearing:**<br>· Siting of infrastructure to avoid or minimise clearing native fauna habitat<br>· Pre-clearance surveys to identify animal breeding places.<br>**During clearing:**<br>· Use sensitive clearing techniques in accordance with Appendix D.4.1. Order stop works if threatened fauna is found within clearing area | Possible | High | Medium | **Trigger:** Dead animal observed during clearing.<br>**Monitoring activity:** Pre-clearance surveys/ fauna spotter observation during clearing. | Injured fauna transported to a wildlife carer.<br>Review risk, fauna spotter to assess whether clearing approach could be improved. |
| | Injury or death from vehicle/mobile plant strike | Likely | High | High | · Educate on-site staff.<br>· Strict enforcement of speed limits of maximum 50km/hr for all vehicles. | Unlikely | Moderate | Low | Injuries or death of threatened species are an environmental incident and must be reported to the Site Environmental Coordinator within 48 hours (see Appendix D). | Investigate the incident in accordance with Section 6.<br>Review risk, may be appropriate to amend speed limit, install signage and conduct additional staff training. |

# 6. Monitoring and reporting

## 6.1 Monitoring

Environmental monitoring will be undertaken to observe and report on the performance of proposed mitigation and management measures and performance indicators, with a focus on demonstrating:

- 'early-control' (that management actions are effective) and 'early warning' (corrective actions are required) functions, with respect to the performance targets
- early intervention and remediation of potential or realised non-conformances. Non-conformances include failure to achieve the MNES Plan objectives as measured by the performance targets and management triggers. The monitoring program will inform adaptive implementation and demonstrate whether the management objectives for protected matters have been, or are likely, to be met.

Suitably qualified personnel will design and conduct monitoring and survey activities and analyse monitoring results.

Table 6-1 Monitoring schedule

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| **EPBC Act threatened species - flora** | | | | |
| No net loss of threatened *Cycas megacarpa* individuals. | Threatened cycads within the disturbance footprint are successfully translocated or propagated (refer to Cycad Translocation Plan). Cycads that are to remain within the Project Area are unimpacted. | Monitoring as per Cycad Translocation Plan. Monitoring will include but not limited to collecting information on the cycads' health, reproductive status, growth status and presence of pests. | Temporary storage area and recipient site. | Cycad condition assessment to be performed monthly at the temporary storage site, followed by monthly (year 1), quarterly (year 2–5) (60 months), as described in the Cycad Translocation Plan (for (Commonwealth Endangered cycads). |
| | Cycads that are to remain within the Project Area are unimpacted. | Pre-clearing survey - *Cycas megacarpa* individuals which are to remain in situ in the Project Area will be demarcated and signage will be erected to identify those plants as protected flora that is not to be interfered with. | Where *Cycas megacarpa* occurs in the Project Area, but outside of the Development | Prior to construction, all *Cycas megacarpa* that are identified in the pre-clearance survey, but are to be left in situ, will be demarcated with flagging tape or similar, to ensure they are not inadvertently cleared or interfered with in other ways. Signage will be erected that identifies those individuals are not to be tampered with. These plants will be monitored as part of the Cycad condition assessment |

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| | | | Footprint. | described in the Cycad Translocation Plan. |
| **EPBC Act threatened species - fauna** | | | | |
| To protect **EPBC Act threatened fauna species** (including Koala, Greater Glider, and Squatter Pigeon) | No mortality or injury to EPBC Act threatened species as a direct result of the Project.<br>Alternative habitat (relocated hollows) provided for Greater Glider for hollow bearing trees removed that shows sign of occupation by a Greater Glider (presence of nest or species). | **During clearing**:<br>Clearing protocols and Fauna spotter methodology in Appendix D will be adhered to by fauna spotters and clearing contractors.<br>**During operation:**<br>Monitoring of weed and pest species that are a listed threat to EPBC Act threatened fauna.<br>Maintain a register of Squatter Pigeon sightings.<br>**At all times:**<br>Opportunistic observations. | Project Area. | **During clearing:**<br>By fauna spotter during clearing.<br>**During operation:**<br>Ongoing updates to Squatter Pigeon sighting register.<br>Monitoring of cameras facing Greater Glider poles to be reported in annual compliance records.<br>**At all times:**<br>Injuries or death of threatened species are an environmental incident and must be reported to the Site Environmental Coordinator within 48 hours (see Appendix D). |
| | Alternative habitat (salvaged hollows or nest box) provided for Greater Glider and in use by this species. | Visual inspection of salvaged hollow or nest box for signs of decay, damage, pest animal/insect incursion.<br>Signs of use/occupancy.<br>Species occupying the box (if any). | Greater Glider habitat areas where salvaged hollows or nest boxes area installed. | Once yearly, with results to be incorporated into annual compliance records. |
| Assess utilisation of glider poles and salvaged hollows across Development Footprint, by Greater Glider | i. Criteria for assessing Greater Glider use of glider poles and salvaged Greater Glider hollows has been identified.<br>ii. Glider poles are installed correctly, according to best practice information and can be used by Greater Gliders to cross fragmented Greater Glider | Monitoring of glider poles will be conducted passively through placement of motion-triggered cameras. Cameras will be installed:<br>• At the top of each glider pole facing the top side of the cross-beam and the direction of travel (i.e. | Greater Glider habitat areas where glider poles are installed. | Motion-triggered cameras on the top of poles, and facing relocated hollow opening, checked quarterly (every three months) with results of use of Greater Glider or other animals included in the annual compliance records. |

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| | habitat in the Development Footprint;<br>iii. monitoring occurs as per the monitoring program. | opposing side of the road).<br>• Oriented that any fauna species moving along the length of the beam or to the top of the pole, or toward or out of the opening of the relocated hollows, will trigger the passive infra-red sensor.<br>• That each camera records 9–20 seconds of video footage or takes a minimum of 5 still photographs.<br>Data from each camera will be checked monthly, with the following information recorded for each animals detected:<br>• Date, time, pole location/number, and<br>• Species recorded<br>• number of individuals recorded<br>• number of videos<br>• direction of travel<br>• distinctive markings, such as male scent glands, body size, sex, and estimated age.<br>Data to be to be reported in annual compliance records. | | |
| **General biodiversity** | | | | |
| Successful rehabilitation | Disturbed ground reaches groundcover | Monitoring of implementation and | Areas where | Baseline conditions to be recorded from reference |

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| of disturbed ground. | equivalent to the pre-cleared baseline condition, or of surrounding reference areas not disturbed by the Project. | success of progressive rehabilitation across project (including temporary groundcover in relevant construction areas). Before (baseline) and after records are required for representative areas requiring treatment, monitored through photo points and quadrat sampling outlined a rehabilitation monitoring program.<br>% cover of vegetation (native/non-native) and weed species will be recorded. | the ground cover and substrate are disturbed by Project activities. | areas to establish rehabilitation success criteria.<br>Rehabilitation of temporary disturbance areas to be undertaken within 2 months of the area no longer being in use for the Project.<br>Annual rehabilitation monitoring during operations until success criteria has been met (see Section 7.5.1). |
| Bushfire risk will not increase as a result of the Project. | Activities associated with the Project do not cause a bushfire. | Visual inspection, including fire breaks. | Within the property boundaries. | Annual inspection of fire breaks in Autumn, with remediation works (if necessary) to be undertaken prior to start of the bushfire season (i.e. before August) |
| Pest animal activity will not increase as a result of the Project. | Pest animal presence is at the same (or reduced) level as during pre-approval ecological surveys. | Monitoring sites established in MNES (Koala, Greater Glider, Squatter Pigeon) habitat, using remote cameras to identify feral species presence.<br>Opportunistic sightings of feral species (direct sighting or evidence of presence). | Within the Project Area. | During environmental audits, with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations (Section 7.5.1).<br>Opportunistic sightings will also be recorded. |
| No new restricted weed species introduced as a result of the Project.<br>No new outbreaks of restricted weeds within the Project Area. | Weed species diversity and location of infestations is at the same (or reduced level) as during pre-construction surveys. | Pre-clearance surveys (Section 5.6.2).<br>Weed species will be noted and infestations marked by GPS, including an approximate extent and density. | Within the Project Area. | Pre-clearance.<br>During environmental audits, with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations (Section 7.5.1). |
| Protected fauna will not be killed or injured as a | No mortality or injury to protected native fauna as a direct result of the Project. | **During clearing**:<br>Fauna spotter methodology in | Project Area. | **During clearing:** |

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| result of the Project. | | Appendix D will be adhered to by fauna spotters and clearing contractors.<br>**At all times:**<br>Opportunistic observations. | | By fauna spotter during clearing.<br>**At all times:**<br>Injuries or death of threatened species under EPBC Act are an environmental incident and must be reported to the Site Environmental Coordinator within 48 hours (Appendix D). |
| Ensure no clearance in riparian zones | No clearance occurs in riparian zones | **Prior to clearing:**<br>Riparian zones will be demarcated with flagging tape or similar to clearly identify riparian zones as no-go zones. The riparian zones will be mapped, to be provided to the clearing contractor.<br><br>**During clearing:**<br>Daily toolbox reminders to the construction operators that the riparian zones are not to be cleared.<br>Environmental inspections in accordance with Section 6.2. | Riparian zones in Project Area. | **Prior to clearing:**<br>Contractor Site Environmental Coordinator to ensure riparian zones are identified and demarcated as no-go areas for clearing and this information has been provided to the clearing contractor.<br><br>**During clearing:**<br>Clearing contractor to ensure daily toolbox talks remind the construction operators that riparian zones are no-go zones for clearing.<br>Environmental inspections to occur on a weekly basis during construction and commissioning, in line with Section 6.2. |
| Maintain wildlife corridors, habitat quality and habitat connectedness within the Project Area and Mount Larcom | The current **habitat quality** of the proposed functional wildlife corridor within the **Project Area** connecting Larcom Creek and Mount Larcom is maintained. | Weed and pest animal monitoring as per Appendix B. Habitat quality monitoring. | Wildlife corridor. | During environmental audits, with the first within 3 months of construction commencing and then every 6 months thereafter during construction, and annually during operations (Section 7.5.1). |
| Biodiversity performance monitored and reported on. | Annual compliance report prepared for each 12-month period from construction commencement, published on the Project website within 60 business days of the relevant 12-month period.<br>The Department has been notified by email within 5 days of the compliance report being | Annual compliance reporting | Project Area. | Annually (as per EPBC 2020/8773 CoA 29).<br>All compliance reports to remain publicly available on the Project's website for the life of the approval (sensitive data may be redacted from the public report, but must be provided in full to the Department within 5 days of publication on the |

| Environmental objective | Performance indicator | Monitoring activity | Location | Timing/frequency |
|---|---|---|---|---|
| | published on the Project website and a link to the report is provided. | | | Project website). |

## 6.2 Environmental inspections

The relevant Contractor Site Environmental Coordinator and/or Site Engineers will regularly inspect work sites and critical activities throughout construction and commissioning of the Project. Site Environmental Coordinator/ Site Engineer inspections will occur on a weekly basis during construction and commissioning. Non-conformances will be identified and corrective actions specified and prioritised for action at the completion of the inspection.

Each inspection, with observations, non-conformance, corrective actions and timeframes will be documented and logged. Further detail on environmental inspections will be provided in the CEMP.

## 6.3 Data handling

ACCIONA or their nominated representative will oversee data collection, handling and storage.

Suitably qualified personnel will be used to capture, analyse and report on data collected during the Project.

Data will be stored electronically in consolidated databases (such as Excel) which will be maintained by external consultant(s) with responsibility for implementing components of the MNES Plan. External consultants will provide data annually (or as required by the Proponent) to ACCIONA, who will include this data within the overarching Project Database, stored on the ACCIONA server.

## 6.4 Reporting

Environmental reporting requirements are summarised in Table 6-2. The table sets out the environmental reporting requirements applicable to the Project, timing of the reporting, who is responsible for managing preparation of the reports and the intended recipient(s).

Additional reporting may be necessary as the works progress. In such a circumstance, Table 6-2 will be amended to reflect these changes.

Table 6-2 Reporting requirements

| No. | Report | Requirement | Timing | Responsibility | Recipient |
|---|---|---|---|---|---|
| **1** | Compliance Report. | Reporting as per EPBC 2020/8773 CoA 29. | Annual (within 60 business days following the relevant 12-month period. | ACCIONA | Project Website with notification to DCCEEW by email. |
| **2** | Species management program reporting. | Data on breeding places from pre-clearance surveys. | Quarterly. | Fauna spotter catcher contractor. Data also provided to Principal for overall project records. | Department of Environment and Science. |

Annual reports will be published on the project website within 60 business days following the end of the relevant 12-month period, in accordance with the relevant EPBC condition (CoA 29). To meet the requirements of the CoA and to demonstrate compliance with the MNES Plan, the annual compliance report will set out the following for the reporting period:

- impact avoidance, mitigation and/or rehabilitation measures implemented
- the timing of implementation of the above measures, and an assessment of the effectiveness of those measures; management triggers detected and risks realised, contingency response/s and corrective actions implemented
- an evidence-based assessment of whether and to what extent the MNES Plan is achieving its objectives.

# 7. Compliance

## 7.1 Compliance management

Compliance management, including non-conformity, corrective, and preventative actions, will be addressed in the CEMP and are summarised in relation to the MNES Plan.

Non-conformances may be identified through routine weekly Site inspections, impromptu Site inspections and general observations, via the MNES Plan review or audit process, or be incident or complaint based. Any member of the Project team may raise a non-conformance or improvement opportunity.

The MNES Plan and associated management-plans will be used as the reference to monitor and verify that environmental management objectives for threatened species are effectively implemented.

Environmental non-conformances might include:

- Failing to comply with the environmental regulations or license/permit conditions.
- Failure to implement commitments in the approved Plan or other environmental requirement.
- Carrying out work practices that have the potential to cause harm to threatened species.
- Activities that have caused actual harm to the environment not permitted by the project approvals or covered in the environmental assessment or management documentation.
- Deficiencies or concerns raised by client representatives and/or state and local authorities or agencies.

Upon detection, any of the above will trigger immediate steps to control the non-conformance and immediate reporting, investigation of the non-conformance and development of additional controls to prevent re-occurrence. A response will be developed in consultation with DCCEEW and will be assigned to the appropriate personnel for close out. Records will be kept of all corrective actions and follow-up processes to ensure close-out.

Environmental incidents will be recorded and reported in a number of ways:

- As identified during inspections, audits or routine observations.
- Recorded on the Environmental Incidents Register (and if required by Law, reported to the regulator).
- Communicated to workers during toolbox talks to share lessons learnt.

## 7.2 Training

All personnel involved with the Project will receive relevant training to ensure they understand their responsibilities under this MNES Plan.

Details on training requirements will be provided in the Project CEMP. The requirements of the CEMP (and sub-plans, including the MNES Plan) will be communicated through:

- Environmental induction, which will include but not be limited to:
    - MNES in the Project Area

  - environmental controls in the Project Area
  - roles and responsibilities
  - emergency response to environmental incidents
  - consequences of responsibilities not being met
- Toolbox talks
- Environmental awareness training
- Daily Pre-Start meetings.

In addition:

- Annotated Site plans will be displayed in lunchroom / Site offices.
- Specific management required near constraints areas will be discussed in toolbox talks and environmental work method statement (EWMS) inductions.

Records will be kept of all persons who have completed environmental training, including the trainee's name, the date, the person delivering the training and a summary of the training completed.

## 7.3 Relevant permits and licenses

The following permits and licenses will be in place before undertaking vegetation clearing:

- Animal Welfare and Ethics, administered by the Queensland Department of Agriculture and Fisheries (DAF) under the Animal Care and Protection Act 2001.
- Registration as a Scientific User, administered by DAF under the Animal Care and Protection Act 2001.
- Scientific Purposes Permit, administered by DES under the NC Act.
- Rehabilitation permit, administered by DES under the NC Act and relevant to fauna spotter catcher activities.
- Protected Plant Harvesting License, administered by DES under the NC Act.
- Protected Plant Clearing (or Clearing Exemption) Permit, administered by DES under the NC Act.
- Breeding Place Disturbance Permit, High Risk Species Management Plan (supported by the MNES Plan).

## 7.4 Roles and responsibilities

Roles and responsibilities for the implementation of the MNES Plan are described in Table 7-1.

Table 7-1 Project roles and responsibilities

| Positions | Responsibilities | Activities |
|---|---|---|
| Principal's Site Representative | Overall responsibility for project compliance | • Supervision of the Principal's responsibilities on Site<br>• Coordination of construction Contractors and their activities to maintain overall project compliance<br>• Undertake Site inspections and review records of audits to ensure works are proceeding in compliance with project |

| Positions | Responsibilities | Activities |
|---|---|---|
| | | environmental obligations<br>• Reviewing and approving EWMS prior to any clearing / earthworks<br>• Reviewing planned works and controls, notifying contractors of unsatisfactory controls and required corrective action<br>• Oversee management of MNES<br>• Monitoring consistency of overall construction impacts against design<br>• Supporting project audits through provision of required information and availability for audit interviews<br>• Following up on Contractor responses to incident investigations, corrective actions and requests<br>• Provide leadership in relation to responsible environmental management and behaviours<br>• Participate in incident investigations and monitor corrective actions<br>• Respond to any complaints received regarding environmental issues<br>• Ensure emergency response contacts and procedures are in place and people are aware of their role in an emergency situation.<br>• Report to senior management. |
| Contractor Construction Manager | Overseeing Contractors scope of work | • Manage Contractor's scope of work in accordance with the project environmental documentation (e.g., the MNES Plan, CEMP) and contract requirements throughout the construction phase<br>• Ensure processes are in place to include the necessary provisions of the project environmental requirements into works (as relevant to Contractor' scope)<br>• Ensure workers are trained in the requirements of the environmental documentation<br>• Monitoring consistency of Contractors' construction impacts against design<br>• Ensure that the appropriate arrangements and agreements are in place for the management of flora and fauna<br>• Ensure all the vegetation protection measures are implemented and maintained during the construction phase<br>• Report incidents to the Principal's Site Representative<br>• Undertake incident investigation and corrective actions. |
| Contractor Site Environmental Coordinator | Overseeing Contractors' environmental activities during construction works | • Preparation of Contractor's EWMS and oversee their implementation<br>• Coordinate the implementation of the relevant environmental management measures required for the respective scope of work<br>• Coordinate the fauna spotter to implement the required fauna related actions |

| Positions | Responsibilities | Activities |
|---|---|---|
| | | • Respond to incidents advising Contractor Construction Manager and Principal's Representative of actions undertaken<br>• Fulfil environmental management and reporting obligations<br>• Inspect Site works, provide inspection/compliance reports and follow up on the implementation of corrective actions. |
| Ecologist / suitably qualified Fauna Spotter Catcher | Pre-clearance surveys, and monitoring clearing activities | • Undertake the required pre-clearance survey within one month of clearing<br>• Undertake a visual inspection of habitat features immediately prior to clearing to identify resident fauna species that will require relocation<br>• Monitor all clearing activities and relocate wildlife where required<br>• Be on-call for duration of clearing activities for the Project<br>• Support the Civil Contractor in their endeavours to undertake the work in accordance with the relevant legislative requirement around the protection of native wildlife on Site<br>• Determine which trees will be felled using the sensitive clearing technique<br>• Must be suitably qualified (defined in Appendix D)<br>• Must hold a current DES license/permit with appropriate experience in surveying, monitoring, and rescuing fauna. |

## 7.5 Audit and review

### 7.5.1 Environmental auditing

The Project will be subject to ongoing auditing, to be undertaken at regular intervals throughout construction (within three months of construction commencing and every 6 months thereafter) and operations (annually).

Audits will focus on:

- Compliance with environmental and planning conditions, including the application of the MNES Plan.
- Compliance with performance indicators listed in Table 6-1.
- Document control and review.
- Incident reporting and closure.

### 7.5.2 Adaptive management

This plan uses an adaptive management approach, whereby management measures set out in the MNES Plan may be amended in accordance with EPBC 2020/8773 approval conditions 35–40 "Revision of management plans" to ensure effective management and mitigation are implemented. A suitably qualified person will draft any amended management measures or monitoring, including training of personnel, data analysis, interpretation, and reporting.

To ensure the effectiveness of the MNES Plan, all activities are subject to regular review and reporting. The MNES Plan reviews will be undertaken as a minimum every three years as part of a continual improvement process. Triggers for the MNES Plan review will include (but not be limited to):

A reportable incident (any incident where material harm to the environment is caused or threatened, material harm being harm that is not trivial or negligible in nature, extent or context [s 16 Environmental Protection Act 1994]), including but not limited to:

- Mortality of a listed matter
- Injury of a listed matter requiring the matter to undergo care or transport to a wildlife facility
- Identification of a threatened matter on Site not listed under this Plan
- Confirmed presence of a threatened species not covered by this Plan
- Changes to the Project (methodology, activity, footprint).

The outcome of the reviews may result in amendments to the MNES Plan and related documentation, risk assessment review, re-evaluation of the Project objectives and targets, as well as updates to other Project documents.

Continuous improvement of the MNES Plan will be achieved by the ongoing evaluation of environmental management performance against the MNES Plan's objectives and performance targets, and subsequent review and regulatory approval of revised versions of the MNES Plan.

The continuous improvement process will therefore:

- Ensure new data/information is collected and incorporated into the MNES Plan, as a result of lessons learnt through the MNES Plan implementation, and new information from external sources
- Effectively coordinate, schedule and/or trigger monitoring, risk management, auditing and reporting activities
- Periodically review risks, including in response to changing circumstances or in light of the results from implementing contingency response/corrective actions
- Review the effectiveness of management measures upon which the MNES Plan is highly dependent
- Address the consequences of significant environmental incidents
- 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
- Assess attainment of the MNES Plan's environmental objectives against the performance indicators.

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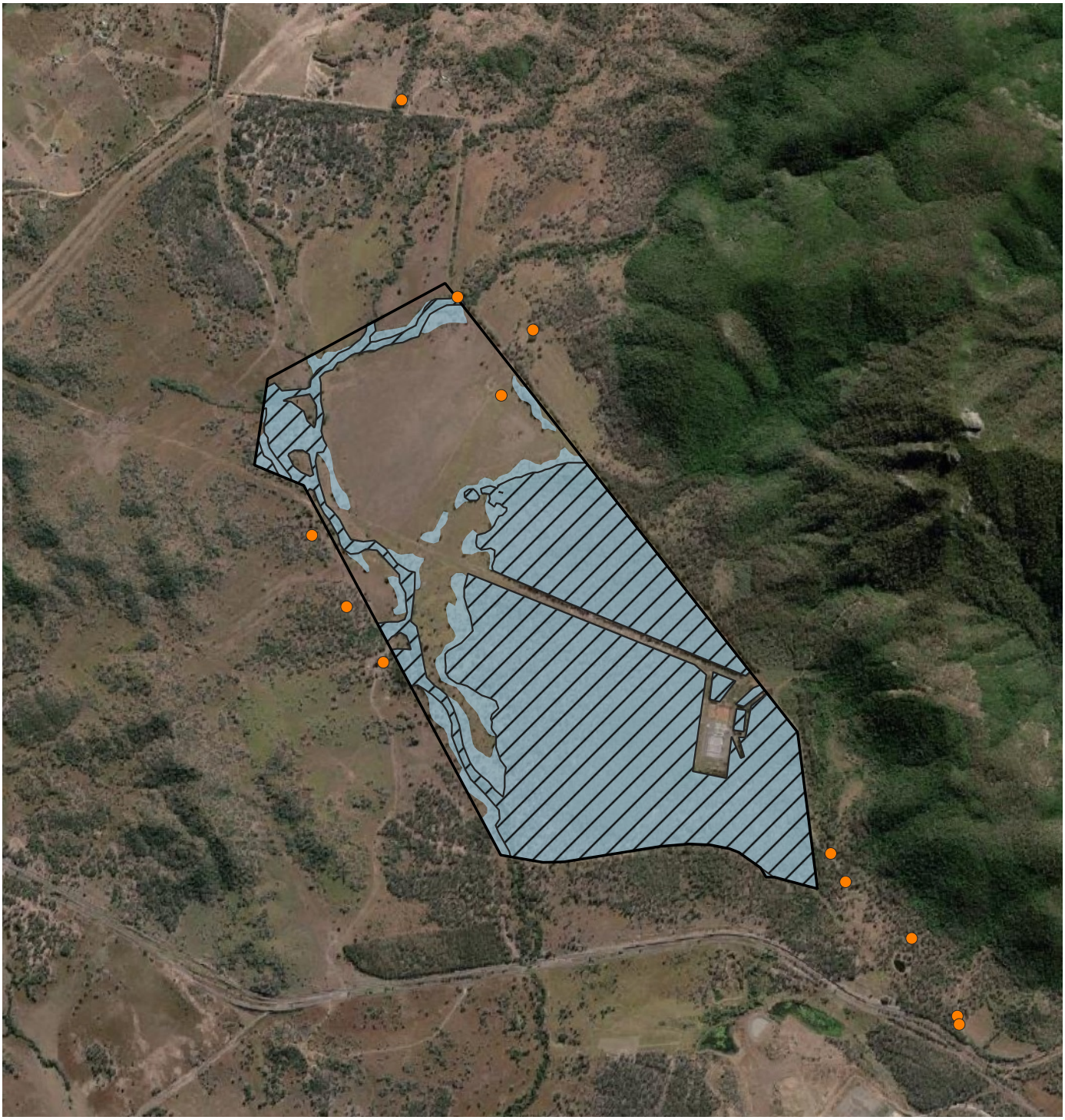
# Appendix A MNES habitat and records

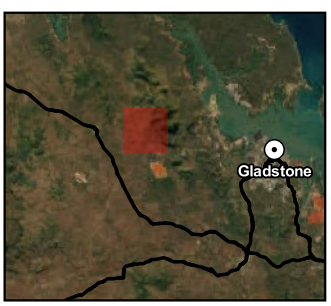
## A.1 MNES fauna habitat and records



## MNES Fauna Habitat and Records

- Project Area
- Squatter Pigeon records
- Squatter Pigeon habitat
- Koala and Greater Glider habitat

0 0.5 1 km

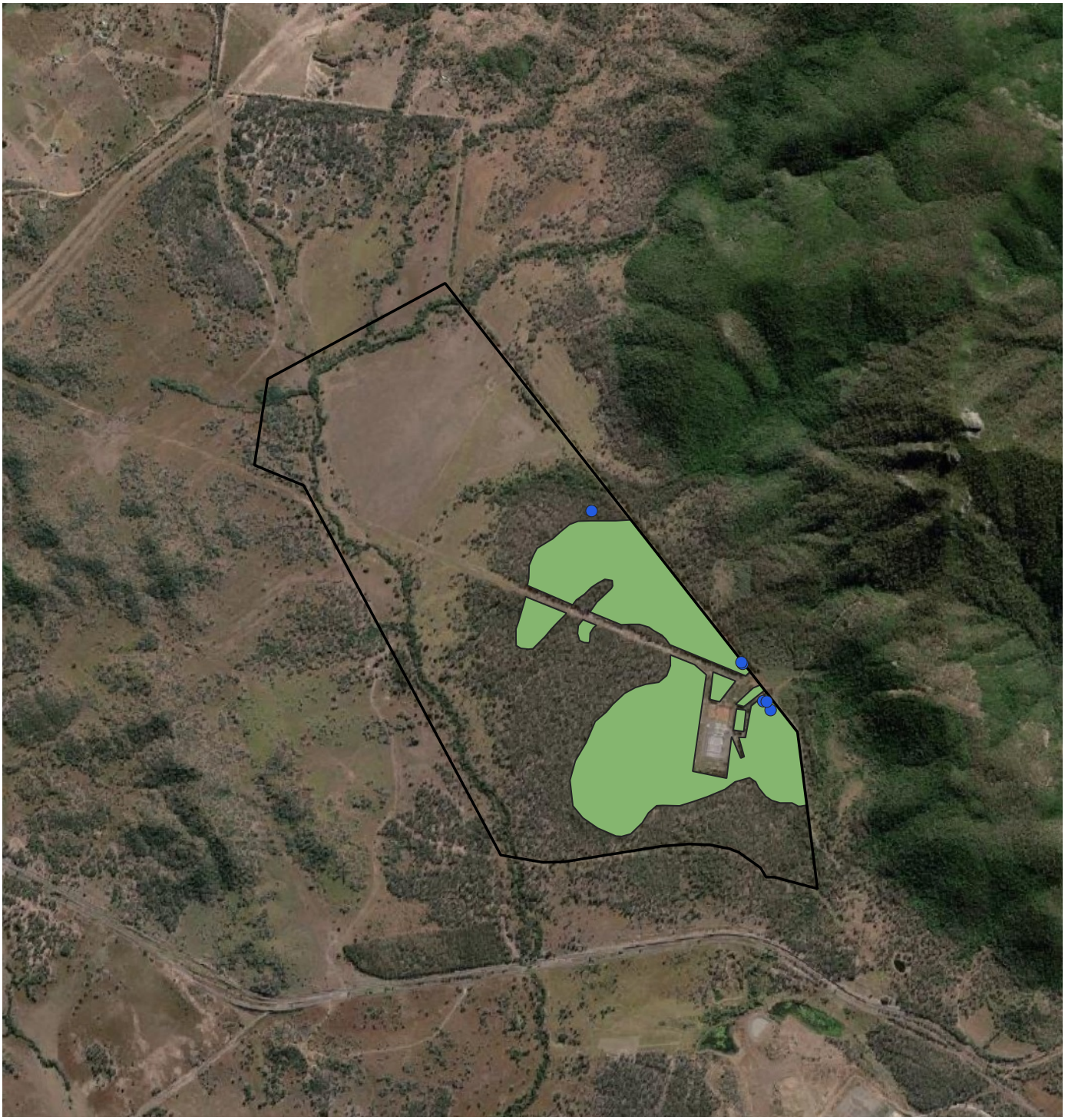





Ref: MNES Fauna Habitat and Records
Author: jaimee.j
Date created: 14.04.2023
Datum: GDA94 / MGA zone 56

NGH

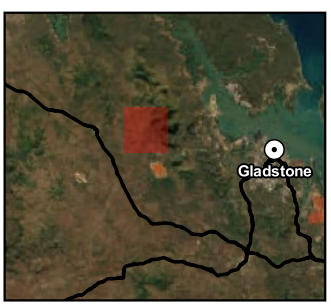
## A.2 MNES flora habitat and records



## MNES Flora Habitat and Records

- Project Area
- Cycas megacarpa
- Cycas megacarpa habitat

0 0.5 1 km






Ref: MNES Flora Habitat and Records
Author: jaimee.j
Date created: 14.04.2023
Datum: GDA94 / MGA zone 56

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# Appendix B Weed and Pest Management Plan

## B.1 Purpose

The purpose of this Weed and Pest Management Plan is to describe how significant weed and pest species present at the Site will be controlled throughout pre-construction, construction and operation of the Project. The objective and performance criteria for weeds and pest animals are presented in Table B-1.

Table B-1 Weed and pest management objectives and performance criteria

| Objective | Performance criteria |
|---|---|
| Pest animal activity will not increase as a result of the Project. | Pest animal presence is at the same (or reduced) level as during pre-approval ecological surveys. |
| No new restricted weed species introduced as a result of the Project.<br>No new outbreaks of restricted weeds within the Project Area. | Weed species diversity and location of infestations is at the same (or reduced level) as during pre-construction surveys. |

## B.2 Existing environment

### B.2.1 Significant weed species

Significant weed species present at the Site include Weeds of National Significance (WoNS), restricted invasive plants listed under the *Biosecurity Act 2014*, and other environmental weed species. Landowners and land managers are responsible for managing WoNS. Under the Biosecurity Act, a General Biosecurity Obligation requires all reasonable and practical steps be taken to minimise the risks associated with restricted invasive plant species. Restrictions specific to Category 3 restricted invasive plants are that they must not be given away, sold or released into the environment without a permit. Table B-2 lists the significant weed species identified on Site.

Table B-2 Significant weed species recorded within the broader Project Area to date (during ecological surveys and/or reported by landowners)

| Scientific name | Common name | WoNS status | Status under Biosecurity Act 2014 (Qld) |
|---|---|---|---|
| *Cryptostegia grandiflora* | Rubber Vine | ✓ | Restricted invasive plant – Category 3 |
| *Lantana camara* | Lantana | ✓ | Restricted invasive plant |
| *Opuntia tomentosa* | Velvety Tree Pear | ✓ | Restricted invasive plant – Category 3 |
| *Sporobolus natalensis* | Giant Rats Tail Grass | - | Restricted invasive plant – Category 3 |

### B.2.2 Pest animal species

Three invasive animal species were recorded on Site. These are identified in Table B-3, including notation of their pest status under the Biosecurity Act.

Table B-3 Pest animal species recorded on Site

| Scientific name | Common name | Status under *Biosecurity Act 2014* (Qld) |
|---|---|---|
| *Oryctolagus cuniculus* | Rabbit | Restricted invasive animal |
| *Rhinella marina* | Cane Toad | None (introduced) |
| *Sus scrofa* | Pig | Restricted invasive animal |

## B.3 Construction impacts and risks

Key aspects of the Project that could result in the introduction of weeds to the Site, spread of weeds within the Site, or transportation of weeds from the Site, include:

- Movement of vehicles, plant, equipment and personnel on, off and around the Project Area.
- Movement and stockpiling of weed infested topsoil.
- Clearing, grubbing and stockpiling of weed infested mulch.
- Inappropriate disposal of weeds.
- Potential impacts associated with weeds at the Project Area include:
- Spread of weeds into previously non-infested areas (both inside and outside the Project Area).
- Degradation of native flora and fauna habitat, including remnant vegetation and TECs.
- Introduction of new weeds to Project Area.

Potential impacts associated with pest animals in the Project Area include:

- Consumption of native plants by herbivorous pests.
- Trampling of native flora and fauna habitat, such as leaf litter mats.
- Predation of native fauna.

## B.4 Mitigation measures

Mitigation measures to manage weeds and pests include:

- Recording incidental weed infestations and pest animal observations
- Weed management and disposal
- Implementing weed hygiene protocols
- Ongoing weed control and monitoring including weed monitoring points
- Implementing, on an annual basis, pest animal control mechanisms consistent with best practice guidelines in response to the detection of pest animals in the Project Area. Relevant guidelines include:
    - Australian Pest Animal Strategy 2017–2027, Invasive Plants and Animals Committee, Cwth Department of Agriculture and Water Resources, 2017

- Principles of pest management, Queensland Department of Agriculture and Fisheries http://www.agriculture.gov.au/SiteCollectionDocuments/pests-diseases-weeds/consultation/apas-final.pdf
- Controlling pest animals on your property, Business Queensland https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/pests/controlling/chemical.

### B.4.1 Management of pest animal species

Mitigation measures to manage pest animal species at the Site may include those listed in Table B-4. Additional measures will be determined by a specialist pest animal control contractor.

Implementation of control measures will depend on results of regular monitoring within the Project Area. Pest animal numbers will be kept at or below baseline levels throughout construction and operation of the solar farm. Monitoring will be undertaken by a licenced and qualified pest control contractor or ecologist. Monitoring will be undertaken using methods such as:

- camera monitoring
- baited plots
- trapping
- surveys of indirect signs such as warrens, wallows, damage to infrastructure and vegetation.

Table B-4 Control measures for pest animal species known to be within the Project Area.

| Pest animal | Key control measures* |
|---|---|
| *Oryctolagus cuniculus*<br>Rabbit | Warren ripping or harbour destruction (most-effect method for long-term control).<br>Integrated approach combines destroying warrens, baiting, rabbit-proof fencing, fumigation, trapping and shooting. |
| *Sus scrofa*<br>Feral Pig | Poisoning (the most efficient and effective way to reduce pig population). |
| *Queensland Government, Business Queensland, Restricted invasive animals - Control | |

### B.4.2 Management of existing weeds

Environmental mitigation measures to manage existing weeds at the Site will include:

- Identification and mapping of significant weeds occurring in construction areas prior to disturbance; with monitoring occurring as part of the pre-clearance surveys. Log GPS point/tracks, species, and extent of infestation. This will support a clear determination of ‘clean’ and ‘infested’ construction zones to assist in weed management.
- Where significant weeds are recorded within the disturbance footprint (including topsoil stockpile locations); treat or remove weeds progressively prior to construction commencing in each area. Key control measures for the significant weeds present at the Site are outlined in the table below.

Table B-5 Control measures for pest animal species

| Scientific name | Common name | WoNS status | Status under Biosecurity Act 2014 (Qld) |
|---|---|---|---|
| *Cryptostegia grandiflora* | Rubber Vine | ✓ | Restricted invasive plant – Category 3 |
| *Lantana camara* | Lantana | ✓ | Restricted invasive plant |
| *Opuntia tomentosa* | Velvety Tree Pear | ✓ | Restricted invasive plant – Category 3 |
| *Sporobolus natalensis* | Giant Rats Tail Grass | - | Restricted invasive plant – Category 3 |

| **Significant Weed** | **Key Control Measures (Reference)** |
|---|---|
| *Cryptostegia grandiflora* Rubber Vine | Slashing, stick raking, and then fire for two successive years.<br>https://www.daf.qld.gov.au/__data/assets/pdf_file/0020/52544/rubber-vine.pdf |
| *Lantana camara* Lantana | Integrated approach including herbicides, mechanical removal, fire, biological control and revegetation. Long-term follow up control is required after initial attempts.<br>Weeds of national significance Weed Management Guide, Lantana – *Lantana camera* |
| *Opuntia tomentosa* Velvety Tree Pear | Herbicide and biological control<br>https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-nagement/health-pests-weeds-diseases/weeds-diseases/invasive-plants/prohibited/prickly-pear |
| *Sporobolus natalensis* Giant Rats Tail Grass | Foliar spray during summer for three years, planting competitive improved crop and pasture<br>https://www.daf.qld.gov.au/__data/assets/pdf_file/0010/69616/rats-tail-grasses.pdf |

### B.4.3 Weed hygiene protocols

All plant and machinery that enters the Site must be cleaned and inspected as free from mud and weed seed. The wheels of all machinery and equipment will be washed down before transportation to the Site, to avoid the risk of importation of root-rot fungus, other pathogens or weeds into the local area. Plant and equipment will be inspected and cleaned before leaving a worksite that is infested with weeds, to remove any soil and vegetation. This will occur in dedicated washdown areas.

Imported materials such as sand and gravel will be sourced from sites which have been declared free of noxious weeds or Phytophthora infection by a suitably qualified person.

### B.4.4 Weed stockpiling, transportation, and disposal

All Category 3 restricted invasive plant species on Site are not to be distributed (i.e., within mulch or stockpiled soil). If they are to be disturbed all material will be disposed of in accordance with legislative requirements:

- Burying the matter in the ground at a depth that ensures any seeds or vegetative material cannot grow; or
- Transporting the matter directly to a waste facility if the matter is –
  - In a sealed container or a covered vehicle; or
  - Covered in a way that prevents the restricted matter from being lost or released during transport; or
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

Under no circumstances are weeds or exotic species to be used for mulch.

## B.5 Ongoing control and monitoring

Regular monitoring throughout construction is required to determine the success of weed and pest control treatments. An ongoing monitoring and management regime will involve monitoring of:

- The presence of pest animals. This monitoring will be undertaken during environmental audits, with the first within 3 months of construction commencing and bi-annually thereafter during construction (wet season and dry season) and annually during operation using camera traps and incidental records. Additional monitoring will be undertaken if the trigger outlined in the risk assessment is met (i.e., if the project has resulted in an increase of pest animals in the Project Area, or there is observable impact from these animals, e.g., feral pig damage to translocated cycads). To measure this, camera traps will be setup at representative sites (i.e., near water, site compound, along tracks and in MNES (*Cycas megacarpa*, Koala, Greater Glider and Squatter Pigeon) habitat to monitor the movement and abundance of pests. This monitoring will be repeated bi-annually (wet season and dry season) from the time the corrective action is triggered. Records of incidental pest animal sightings will also be kept. Active pest animal control will commence and continue under the instruction of a specialist feral animal control contractor.
- Weed monitoring in accordance with environmental audits, with the first within 3 months of construction commencing and bi-annually thereafter during construction (wet season and dry season) and annually during operation. Weeds will also be recorded during Environmental inspections and incidentally. If a corrective action is triggered (i.e. a new weed species, weed presence in new area, weed coverage above baseline levels) then active weed control measures will commence under the instruction of a specialist weed control contractor.
- Weed infested areas to determine effectiveness of weed control measures until weed densities are less or equal to the pre-disturbance density, similar densities to surrounding areas not subject to project activities, or new species infestations are eradicated. If previous weed treatments are found to have been ineffective, a review of the weed management activities will be undertaken and treatments modified as necessary.
- Weed monitoring points will be established at the exit of the Project Area, and at locations along main access roads adjacent to the Site, to establish that no weed infestation has occurred in adjoining state forest or private lands due to the development of this project

# Appendix C Rehabilitation protocol

## C.1 Objectives of rehabilitation

The objective of rehabilitation is to re-establish stable ground surfaces, resistant to erosion and weed ingress, and to maximise the potential for colonisation by native ground cover. This section applies to the construction phase however monitoring and maintenance will be required to varying levels throughout the life of the Project.

## C.2 Rehabilitation methods

The key to effective rehabilitation will be using strategies appropriate to the location and condition of the area disturbed. Ideally, rehabilitation will be achieved with vegetative cover. However, this will not be achievable where there is insufficient topsoil to support vegetative growth. These include:

- Areas which are geologically stable and resistant to erosion, e.g., Rocky outcrops (where seeding would be ineffective)
- Large cuts where weathered rock is present and where plants are not able to establish.

In lieu of seeding in these areas, catch drains or raised berms will be constructed to minimise the erosion of rock faces and to re-direct water flows away from exposed and stable earth surfaces.

## C.3 Areas to be rehabilitated

Areas disturbed during construction will be stabilised progressively during construction. Rehabilitation of temporary infrastructure areas must be undertaken within two months after clearing and after these areas are no longer required for the Project. Rehabilitation measures will ensure that rehabilitated areas are returned to a self-sustaining ecosystem that meet the criteria of remnant under the VM Act.. Land under all solar panels will be revegetated with locally occurring grass species that are not invasive weeds or species that are identified as threats to protected matters.

Roads will be maintained and will remain passable for over- size over-mass vehicle loads in the event of a blade replacement during operation, or other maintenance. Therefore, no trees that could grow to become future obstructions will be allowed to grow where large oversailing blades could be transport in. This also applies over underground cable routes where roots from large trees could over time damage the underground cable.

Pre-approval documentation (NGH et al. 2022) proposed that Koala habitat would be reinstated around infrastructure, roads and hardstand. As Project design has progressed, it is apparent that there are challenges to effectively revegetating with Koala trees. For example, cleared areas will need to be maintained as bushfire buffers, and/or to allow for oversized loads to be brought on Site throughout operation. To compensate for this, the entirety of vegetation clearing associated with Koala habitat will be addressed through the Offset Area Management Plan.

## C.4 Stockpiling, mulching, and reuse of organic waste

- Topsoil will be stripped and set aside for use in progressive Site rehabilitation, close to the point of origin. Relevant areas which are no longer influenced by traffic/machinery will have topsoil reinstated, thereby creating a soil bedding layer for the natural and assisted germination of vegetation.
- Cleared vegetation will be stockpiled or mulched for use in erosion and sediment control and rehabilitation works.
- Stockpiles will be located in areas that are cleared or disturbed prior the Project commencing.
- Stockpiling of felled vegetation and soil from earthworks activities is to remain within the Development Footprint. Stockpiles must not be placed within 50 m of a waterway.
- Stockpiles will have erosion and sediment controls in place to ensure stockpiled material is contained.

## C.5 Specific measures for rehabilitation of MNES habitat

- Rehabilitated areas in Koala and Greater Glider habitat will be planted to incorporate local preferred food trees for both species and denning trees for Greater Glider.
- Rehabilitated areas in Squatter Pigeon habitat will incorporate native perennial seeding grasses local to the area, with vegetated ground cover between 30-50%
- A predator and pest species monitoring plan, including camera trap surveys, may be incorporated into the rehabilitation program, and may include pest animal control measures depending on those species' populations and utilisation within these areas.
- Rehabilitated areas in threatened fauna habitat will incorporate designated corridors for connectivity within the landscape, increasing viability of populations and decreasing stagnation of genetics.

## C.6 General measures for rehabilitation

- Where appropriate, plantings and/or seeding within rehabilitated areas will incorporate local indigenous species, with the primary objective of addressing erosion and sedimentation issues, but also to be consistent with the biodiversity values of the existing surrounding vegetation (e.g., species selections are to be consistent with the surrounding vegetation community composition).
- Appropriate planting and/or seeding techniques to be specified by the Contractor for the different areas of the Site, in consideration of climatic conditions (e.g. sterile cover crops or soil tacifier) will be required as an intermediate step to ensure early stabilisation of disturbed areas.
- Include monitoring to demonstrate whether ground cover establishment targets have been met (see Section 6.1).
- Land under all solar panels will be revegetated with locally occurring grass species that are not invasive weeds or species that are identified as threats to protected matters (e.g. Squatter Pigeon).

## C.7 Rehabilitation benchmarks and indicators

Areas disturbed during construction will be stabilised progressively during and following construction. Areas to be revegetated must achieve remnant status according to the definition under the VM Act.

Before and after records are required for areas requiring treatment, including Site notes and photographs. Rehabilitation objectives (i.e. stabilisation, revegetation) will differ depending on Site characteristics.

Generally, the objective will be to:

- Stabilise soils.
- Restore vegetation cover through a mixture of natural and assisted regeneration.
- Restore vegetation to a self-sustaining state.
- Revegetate areas under all solar panels with locally occurring grass species that are not invasive weeds or species that are identified as threats to protected matters

## C.8 Timing of rehabilitation

Rehabilitation will be undertaken progressively as the works are completed. Rehabilitation of temporary construction areas will occur within two months of those areas no longer being in use. Disturbed areas planned for rehabilitation will be rehabilitated as soon as practicable following completion of works in each disturbance area. Temporary stabilisation methods during construction will likely be required to minimise the risk of erosion and the transport of sediment (e.g. hydroseeding of sterile cover crop/seed mix or soil tacifier on bare batters and stockpiles).

# Appendix D Fauna spotting and vegetation clearing procedure

## D.1 Suitably qualified fauna spotter

A suitably qualified fauna spotter is one who (from Hangar and Nottidge 2009):

- Holds current relevant permits and licences
- Is competent in survey techniques and identification of fauna, including legislatively significant species
- Is competent in humane capture, trapping, and handling of fauna
- Is competent in humane techniques for emergency euthanasia
- Is suitably equipped to capture a range of fauna species (different size and weight)
- Is appropriately vaccinated (i.e., for bat handling).

## D.2 Fauna spotter activities

In accordance with DES requirements for tampering with breeding animal places (DEHP 2010), the approved fauna spotter must:

- Contribute to implementing this plan to ensure protected wildlife and their respective breeding places are appropriately managed during clearing operations;
- Work with the Construction Contractor to achieve procedural uniformity in terms of understanding and implementing this plan;
- Assist the Construction Contractor to incorporate this plan into contract documentation;
- Use their discretion to inform DES where they identify unusual incidents (i.e. critically endangered species, multiple individuals, unexpected species/out of range)
- Any injuries or deaths of threatened fauna species must be reported immediately to the Site Environmental Coordinator. Any death will be reported to DES within 48 hours (best practice, timeframe not legislated) on 1300 130 372. Any death of a threatened fauna species listed under the EPBC Act will be reported to DAWE within 10 business days.
- Consultation with the project Principal's Representative will occur prior to consultation or reporting to external regulatory authorities.

Construction procedures will (see also Section 5.6.1):

- Provide for fauna movement where exclusion fencing or footprint demarcation is necessary, as well as clearing and worker safety requirements.
- include mechanisms to facilitate fauna movement away from clearing activities.

The fauna spotter will educate staff as well as the Construction Contractor regarding the potential risks of fauna injury and deaths and how to best manage animals that may become injured or displaced, including those species listed as threatened and/or migratory under the NC Act and/or EPBC Act.

Where actual or potential animal breeding places are identified, the fauna spotter will comply with the actions identified within Table D-1 below and details of the breeding place/s will be recorded.

Table D-1 details relevant species management practices to be implemented, and where practicable be applied to all fauna spotter activities to minimise disturbance to breeding animals and/or their young. Where the removal of eggs/animals is required, the fauna spotter will engage a suitably qualified and licensed wildlife carer/facility to incubate all viable (undamaged) eggs removed and to raise young animals, and will adequately store the eggs/animals until they are supplied to the wildlife carer.

Table D-1 Authorised species management actions with respect to animal breeding places

| Species group | Breeding place status | Management action |
|---|---|---|
| Least concern – special least concern or colonial breeding | All | Implementation of mitigations measures outlined in the Project's high-risk species management program. |
| Other least concern species | Contains young or eggs | Avoid unnecessary disturbance. Breeding place will be removed, and eggs/young handed over to a licensed wildlife carer/facility. It is preferable to allow eggs to hatch and/or young to mature before moving them away from a breeding place. As a last resort, eggs may be destroyed [1]. |
| Other least concern species | No eggs or young | Proceed with caution. Remove breeding place if applicable. |

Source: (DEHP, 2010)

[1] Where the removal or translocation of wildlife is required, the 'take' must be facilitated by a suitably licensed and experienced person. There are two acceptable methods for destroying or terminating eggs: quickly breaking and crushing its contents; or reducing the temperature of the egg to less than 4 degrees Celsius for at least 4 hours.

Fauna spotters will direct the salvage of relevant hollows and relocate these to nearby habitat that will be retained.

The decision to rehabilitate an animal must consider the ability for it to be successfully released and availability of appropriate natural habitat within the vicinity of where the animal was found. Where the removal of eggs/animals is required, the fauna spotter must engage a suitably qualified and licensed wildlife carer/facility to incubate all eggs removed and to raise young animals, and adequately store the eggs/animals until the wildlife carer's arrival.

The fauna spotter must maintain a register to document any tampering with animal breeding places (checklist). The checklist must record the number of obvious animal breeding places destroyed and/or relocated and a description of each. Where the SMP does not apply, DES's authority is required for tampering with breeding places of species. Furthermore, the register must be made available to DES upon their request.

## D.3 Prior to undertaking fauna spotting

- The area proposed to be cleared will be surveyed by a competent surveyor and delineated on the ground using pickets, markers or equivalent.
- A pre-clearance habitat survey will be undertaken by an Ecologist or suitably qualified FSC.
- Pre-clearance habitat surveys will consist of:

  - Traversing the area marked to be cleared no more than a month before clearing is to take place.
  - Physically marking HBTs or other habitat features (e.g., Using flagging tape or spray paint).
  - Breeding habitat sites will be recorded and documented in the breeding habitat survey report.
  - Searching for and identifying fauna habitat/s that have the potential to be used by threatened fauna and other fauna (e.g. Fresh tracks outside of burrows, latent trees with hollows etc.). This will involve inspecting bark from trees, turning rocks and logs and inspecting hollows where feasible within the area of disturbance. Active (and likely) breeding places will be marked.
  - Potential habitat includes burrows, loose bark, rocks and rock piles, logs, dead and live trees with hollows, bird and possum nests and cracking clay soil.
- Just before clearing, the fauna spotter will traverse the area again to ensure all habitat marking remains and search for additional fauna and specifically search for Koalas.

A two-staged clearing process will be used, with ground, understory and shrub layers removed a minimum of 48 hours prior to tree felling. This prompts fauna to vacate habitat trees. Trees will be progressively cleared to enable fauna residing in  or near the clearing site the opportunity to vacate the clearing area and move into adjacent woodland without assistance.

### D.3.1 Specific to Koala

If a Koala is found during the pre-clearance assessment, they must be managed in accordance with the following:

- Leaving a 30m buffer of vegetation around the Koala tree in addition to a corridor of vegetation to the nearest vegetated area.
- Not felling any tree that has the potential to fall on or near the tree the Koala is residing in.
- Monitoring the Koala location and its visible stress levels. If the Koala is appearing visibly stressed and agitated, move the clearing front further from the Koala until they appear calm.
- Allow the Koala to self-relocate of its own volition.
- Koalas are not to be interfered with unless they have been injured. Injured Koalas are to be handled by experienced personnel, stored in a large carry crate suitable for Koalas and immediately transported to the nearest vet with wildlife capabilities or to an experienced Koala carer. If a Koala is injured on Site, follow steps outlined in Appendix D.5.

### D.3.2 Specific to Greater Glider

See Section 5.7.5 for details about installing nest boxes where HBTs in use by Greater Glider are going to be cleared.

## D.4 During vegetation clearing

- At least one fauna spotter on Site will have training and experience in basic wildlife first aid and wildlife health assessments.

- During clearing works, the fauna spotter and plant operator must maintain positive two-way radio contact.
- The fauna spotter has authority to halt clearing if there is a threat to a protected matter or if the fauna spotter needs to temporarily leave the clearing to relocate captured fauna.
- The fauna spotter will supervise vegetation clearing and the removal of habitat features. This includes the removal of trees and understory, grass and soil stripping and any dewatering.
- The fauna spotter will follow the bulldozer or grader during soil and grass stripping.
- For safety purpose, the fauna spotter will maintain a distance of at least 1.5x the tree height (in the opposite direction of the tree fall) during the felling of a tree.

### D.4.1 Sensitive clearing technique

In addition to the vegetation clearing steps outlined above, sensitive clearing techniques will be implemented to fell hollow bearing trees, particularly in areas of mapped Greater Glider habitat.

- The fauna spotter will communicate to the machine operator when they are approaching a HBT and will advise on the clearing procedure that is to be undertaken.
- Excavators or equivalent machinery will be used to fell HBTs. If the habitat is a tree hollow, the fauna spotter will instruct the machine operator by two-way radio if it is suitable to gently tap/nudge the tree with the ripper or bucket (to encourage fauna inside the hollow to move out of the hollow).
- Limbs containing hollows should be removed separately and lowered to the ground.
- Once the tree has been tapped and if no fauna is detected, the fauna spotter will give positive communication that the tree can be felled. If fauna is seen, the fauna spotter will use their discretion to as whether to continue the tree felling or to let the tree remain overnight to encourage self-relocation.
- The excavator or equivalent machinery operator will slowly lower HBT trees. HBTs will not be pushed and left to fall under their own weight as this can cause direct injury or death to animals.
- The fauna spotter will approach the tree to check the hollow/s and remove any fauna into a handling bag. The fauna spotter will release the fauna into the designated release area (a distance of ~50m outside the Development Footprint).
- If the hollow is in good condition and the fauna is not injured, the fallen tree will be marked and left in situ over night to allow the fauna to self-relocate.

### D.4.2 Other fauna habitat

- Any area of water must to be inspected by a fauna spotter before it is disturbed. For larger areas of water, dewatering will need to be undertaken where the water is pumped out while the fauna spotter supervises. For smaller areas of ephemeral water, the fauna spotter will request the plant operator to use their bucket to dig around the water to recover frogs and turtles.
- Stockpiled areas of vegetation left for longer than 48 hours are considered habitat and a fauna spotter will need to be present to supervise any impacts to these stockpiles.

- If a threatened species is identified, the processes outlined above in D3.1 and D3.2 will be followed.

### D.4.3 Threatened fauna – unexpected finds

- If a new threatened species is encountered on Site (species that has not being recorded during previous fauna searches), vegetation clearing in that area must cease, and the fauna spotter must contact their supervisor and the Principal's Representative. The Principal's Representative will facilitate contact with the appropriate State or Federal Department in relation to an appropriate course of action.
- Changes to the clearing methodology in response to new threatened species will be included in a revised MNES Plan.
- Clearing of the specific area of concern will not recommence until approval has been granted by the relevant agency.

## D.5 Injured fauna

- All animals recovered during clearing must be thoroughly checked for injuries. If the fauna spotter who captured the animal is not experienced in health assessments, the animals will be transported to an experienced fauna spotter with experience assessing injuries and viability for that animal. The fauna spotter will in contact their supervisor or an experienced wildlife carer or vet for advice on viability. If an injury is deemed unviable see 'Euthanasia' below.
- All animal care and transport must be undertaken in line with the Care of Sick, Injured or Orphaned Protected Animals in Queensland Code of Practice (DES 2013).
- Preferably the fauna spotter will have wildlife caring experience and be able to hydrate and care for fauna in the short term until transport can be arranged. This can include the ability to give pain medication, keep an animal comfortable and ensure animals are kept at an appropriate temperature.
- Injured animals need to be transported to a suitably experienced wildlife carer or vet as soon as possible. If pain relief can be given and the animal kept comfortable in a suitable enclosure, this can be within 24 hours. If the animal cannot be subcutaneously hydrated, they need to be transported within 12 hours.
- The capture coordinates of the animal need to be provided to the vet or wildlife carer at time of drop off.
- Captured animals will be handled in a way that minimizes the risk of injury or stress-induced disease. This can be best achieved by:
    - Firm and quiet handling
    - Keeping handling and restraint time to the minimum needed
    - Using techniques and timing appropriate to the species.
- Housed animals will be kept in a way appropriate to their biology and in circumstances that ensure they are safe from harm, environmental stresses and other adverse conditions. Mammals and reptiles can be held in cloth bags and frogs in plastic bags with some water for short term storage. For longer term storage plastic terrariums, large cat carry cages or

secure dog crates will be used. Animals will not be housed with other animals that may eat or injure them.

- When transported in vehicles, cloth or plastic bags will be kept within hard plastic containers to prevent animals from being inadvertently squashed. Containers will be cleaned / disinfected frequently to minimise chances of spread of parasites and disease.
- Animals will be transported in a suitable secure container protected by a blanket or other material to provide darkened conditions. Transportation will be by air-conditioned vehicle and will aim to ensure the trip is as brief and comfortable as possible.

Vet and wildlife carer details for the local region are identified in Table D-2 below.

Table D-2 Vet and wildlife carer details for the local region

| Name | Phone | Location/Address | Bats (Y/N?) |
|---|---|---|---|
| Gladstone & District Wildlife Carers Association | 0427 106 803 | PO Box 7009, Kin Kora Qld 4680 | Yes |
| RSPCA | 1300 ANIMAL (1300 264 625) | 391 Yaamba Rd, North Rockhampton QLD 4701 | Yes |
| Harbour City Veterinary Clinic | 07 4972 5100 | 23 Dawson Highway, Gladstone QLD 4680 | Yes |
| Gladstone Veterinary Hospital | (07) 4979 3444 | 80 Phillip Street, Gladstone QLD 4680 | No |

## D.6 Euthanasia

Euthanasia will be conducted using blunt force trauma in accordance with the Animal Care guidelines (DES 2013). Blunt force trauma is mainly recommended to humanely kill reptiles, amphibians and small to medium sized mammals but can be used on larger mammals. This is a hard, sharp blow to the base of the back of the skull with a blunt metal or heavy wooden bar. This method will be utilised where the person has some experience in the practice of blunt trauma, feels comfortable in carrying out the technique and will be followed by a secondary method of euthanasia where appropriate (e.g., cervical dislocation, decapitation) if there is uncertainty as to final death.

The anatomy of the skull varies greatly between species and some will require more force than others.

A second fauna spotter will be required to assist with larger animals. Appropriate tools to undertake blunt trauma are to be carried by all suitably experienced spotters. Larger tools (e.g., large crowbars or sledge hammers) are to be available in each car.

## D.7 Designated release area

- Release areas are located outside of the disturbance footprint and a distance of at least 50 metres from the boundary of the clearing area.

- Fauna must be released into adjacent area of vegetation allowing fauna to stay within their home range.
- When releasing the animal, the spotter must check for predation and release the animals in a safe spot.
- Nocturnal fauna (e.g., microbat) must be kept in a bag during the day and must be released at dusk.

## D.8 Field data recording and photographs

- The fauna spotter will maintain a record of all fauna encountered and the action taken to relocate, euthanise or rehabilitate the animal/s. The app 'Sightings' (or a similar system) will be used to record the location of all fauna.
- Photo of the vegetation/habitat must be taken when dealing with threatened species.

## D.9 Safety requirements

- The plant operator and fauna spotter must maintain positive radio communication at all times.
- The fauna spotter must wear Personal Protective Equipment (PPE) consistent with site requirements and additional PPE including snake gaiters (optional), gloves etc. GLOVES MUST BE WORN AT ALL TIME WHEN RESCUING / HANDLING BATS.
- The fauna spotter must carry with them a snake bite kit on them at all times and enough water for the period that the fauna spotter will be in the field.
- Regular breaks must be taken so that the fauna spotters can ensure that they remain hydrated.
- Fauna spotters will seek appropriate shelter if lightning is around.

## D.10 References

DES (2013). Code of Practice - Care of Sick, Injured or Orphaned Protected Animals in Queensland - Nature Conservation Act 1992. D. o. E. a. S. Conservation and Biodiversity Operations Branch. Brisbane.

# Appendix E MNES profiles

## E.1 Threatened fauna species

### E.1.1 Koala

**Koala - *Phascolarctos cinereus***

Photo: Jasmine Vink

**Listing Status:**

- EPBC Act: Endangered
- NC Act: Endangered

Description

Medium-sized marsupial, mostly grey fur, stocky body and large round ears.

Ecology

- Female Koalas able to produce one offspring each year. Births occur between October and May. Young are independent from 12 months old.
- Habitat: Occurs in Eucalypt woodlands and forests throughout eastern Australia and may prefer certain Eucalypt species within any local or regional area.
- Confirmed to occur at the Site in north, central and southern areas.

**Impacts**

- A maximum of 269.72ha of suitable habitat for Koala will require removal for the project.
- Potential project-related impacts include fragmentation of habitat, vehicle / plant strike and disease.
- Preparation of this Plan, including pre-clearance surveys, combined with mobile nature of species means that direct impacts during construction are unlikely.
- Fragmentation of habitat likely to be minor given lack of evidence of this species on Site, suggesting Project Area used on a very infrequent basis. No concerns over ongoing operational impacts.

**Management Approach**

- The project's environmental objective is *to protect EPBC (and NC) Act threatened fauna species.*
- Management measures which will benefit Koala within the Project Area, and which have regard for conservation priorities suggested in DoEE (2012) and Natural Resource Management Ministerial Council (2009) include:
  - Mitigating the risk of vehicle strike by educating on-site contractors, and by enforcing strict speed limits (Section 5.9.1).
  - Koalas identified through pre-clearance surveys (Section 5.6.2) and avoided during clearing.
  - Bushfires can be a threat to the conservation of this species (through loss of habitat and direct mortality). Appropriate burning practices and other procedures to minimise fire threat at the Project Area include maintained separation distances between infrastructure and vegetation, commitment to mowing and slashing to reduce fuel load, fire-fighting equipment and water on Site (Section 5.9.1).
  - Pest animal management which will reduce threat of predation (Appendix B).
  - Condition and extent of Koala habitat will be further enhanced through actions under the Aldoga

**Koala - *Phascolarctos cinereus***

Solar Farm Offset Area Management Plan.

**References**


- Conservation Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE 2022).
- NGH Consulting *et al.* (2022), *Preliminary Documentation 2020/8773: Aldoga Solar Farm*, produced for ACCIONA Pty. Ltd.
- A review of Koala habitat assessment criteria and methods (Youngentob, Marsh, and Skewes 2021).
- Threatened Species Scientific Committee, DoEE (2012), *Approved Conservation Advice for Phascolarctos cinereus*. http://www.environment.gov.au/biodiversity/threatened/species/pubs/197-conservation-advice.pdf
- DCCEEW, SPRAT Profile: *Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) – Koala* http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104
- EPBC Act Referral Guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory), Commonwealth of Australia, 2014. http://www.environment.gov.au/system/files/resources/dc2ae592-ff25-4e2c-ada3-843e4dea1dae/files/koala-referral-guidelines.pdf
- National Recovery Plan for the Koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DCCEEW 2022b).
- Nature Conservation (Koala) Conservation Plan 2017 (Nature Conservation Act 1992 2021).
- Natural Resource Management Ministerial Council (2009), *National Koala Conservation and Management Strategy 2009-2014*, report to the Department of the Environment, Water, Heritage and the Arts, Canberra.
- Revegetating Koala habitat (Beale, Marsh, and Youngentob 2022).

## E.1.2 Greater Glider

**Greater Glider - *Petauroides Volans***

Photo: Eamon O'Meara

**Listing Status:**

- EPBC Act: Endangered
- NC Act: Endangered

**Description**

Largest gliding possum in Australia, with a head and body length of 35−46cm and a non-prehensile furry tail measuring 45−60cm. Has thick fur, colour is white or cream below and varies from dark grey, dusky brown through to light mottled grey and cream above. It has large furry ears and a short snout.

**Ecology**

- Diet mostly comprises eucalypt leaves and occasionally flowers.
- Females birth single offspring between March and June. Sexual maturity reached in the second year.
- Occurs in open woodlands and open forests in eastern Australia. Shelters in large tree hollows during the day, active at night. Home ranges typically 1–4ha with home ranges overlapping between individuals. Individuals will also share the same hollows at different times.
- Sensitive to forest clearance, logging and wildfire. Slow to recover after major disturbance due to their reliance on large hollows.
- Confirmed to occur on Project Area in north, central and southern areas in riparian vegetation.

**Impacts**

- A maximum of 258.77ha of suitable habitat for Greater Glider will require removal for the project.
- Potential project-related impacts include habitat loss through clearing.
- Direct impacts during tree clearing are possible.
- Fragmentation of habitat likely to be minor given narrow corridors of suitable habitat restricted mostly to riparian vegetation, and potential foraging habitat within the Development Footprint used on a very infrequent basis.
- No concerns with regards to ongoing operational impacts.
- Preparation of this Plan, including pre-clearance surveys, combined with mobile nature of species means that direct impacts during construction are unlikely.

**Management Approach**

- The project's environmental objective is *to protect EPBC (and NC) Act threatened fauna species.*
- Management measures which will benefit Greater Glider within the Project Area, and which have regard for conservation priorities suggested in TSSC (2016) include:
  - Active hollows identified through pre-clearance surveys (Section 5.6.2).
  - Sensitive clearing techniques in Greater Glider habitat areas (Section 5.7.4).
  - Provision of alternative hollows (nest boxes) where hollow bearing trees showing signs of Greater Glider use are to be removed (Section 5.7.5), including ongoing monitoring (Section 6.1).
  - Bushfires are a threat to the conservation of this species (through loss of habitat and direct

**Greater Glider - *Petauroides Volans***

mortality). Appropriate burning practices and other procedures to minimise fire threat at the Project Area include maintained separation distances between infrastructure and vegetation, commitment to mowing and slashing to reduce fuel load, fire-fighting equipment and water on Site (Section 5.9.1).

- Condition and extent of Greater Glider habitat will be further enhanced through actions under the Aldoga Solar Farm Offset Area Management Plan.

**References**


- Can Road-Crossing Structures Improve Population Viability of an Urban Gliding Mammal? (Taylor and Goldingay 2009).
- Fauna Sensitive Road Design Volume 2 (DTMR 2010).
- Guide to Greater Glider habitat in Queensland (Eyre et al. 2022).
- NGH Consulting *et al.* (2022), *Preliminary Documentation 2020/8773: Aldoga Solar Farm*, produced for ACCIONA Pty. Ltd.
- Regional habitat selection of large gliding possums at forest stand and landscape scales in southern Queensland, Australia: I. Greater glider (*Petauroides volans*) (Eyre 2006).
- Threatened Species Scientific Committee, DoEE (2016), *Conservation Advice, Petauroides volans*. conservation advice
- DCCEEW, SPRAT Profile: *Petauroides Volans* – Greater Glider http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=254
- Threatened Species Scientific Committee (2016). Conservation Advice *Petauriodes volans*. http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice-20160525.pdf

## E.1.3 Squatter Pigeon

**Squatter Pigeon (Southern) - *Geophaps scripta scripta***

Photo: Eamon O'Meara

**Listing Status:**

- EPBC Act: Vulnerable
- NC Act: Vulnerable

Description

Medium sized (30cm) ground dwelling pigeon. They have black and white stripes on face and throat, black beaks, dark-brown irises, and dull purple legs and feet. Blue-grey skin around the eye is a distinguishing feature of the southern subspecies.

**Ecology**

- Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within 1km of a suitable, permanent waterbody.
- Ground covering vegetation layer in foraging and breeding habitat is considerably patchy consisting of native, perennial tussock grasses or a mix of perennial tussock grasses and low shrubs or forbs.
- In QLD, foraging and breeding habitat is known to occur on well-draining, sandy or loamy soils on low, gently sloping, flat to undulating plains and foothills and lateritic (duplex) soils on low 'jump-ups' and escarpments.
- Occurs mostly in grassy woodlands and open forests dominated by eucalypts, usually with ready access to water.
- Habitat occurs on Project Area in northern, central, and southern sections, however only likely to be impacted on project works occurring in central and southern section

During Site surveys, were observed in proximity to water bodies throughout Project Area. Population is low throughout the Site; higher populations occur outside the Project Area.

**Impacts**

- A maximum of 258.45ha of suitable habitat for Squatter Pigeon will be impacted by the Project.
- Project noise and vibration has the potential to disturb nesting individuals, though no nests were found during Site surveys.
- Ecological assessment determined the project would have low impact on Squatter Pigeons, particularly when incorporating mitigation measures. Taking a precautionary approach, removal of Squatter Pigeon habitat is considered to be a significant impact.

**Management Approach**

- The project's environmental objective is *to protect EPBC (and NC) Act threatened fauna species.*
- Management measures which will benefit Squatter Pigeon within the Project Area, and which have regard for conservation priorities suggested in TSSC (2015) include:
  - Nests identified through pre-clearance surveys (Section 5.6.2).
  - Habitat enhanced and increased through the offset provided for Greater Glider (Aldoga Solar Farm Offset Area Management Plan).

**Squatter Pigeon (Southern) - *Geophaps scripta scripta***

**References**


- DCCEEW, SPRAT Profile: *Squatter Pigeon (Southern)* http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64440
- Marine and Freshwater Species Conservation (2015). Consultation Documentation on Listing Eligibility and Conservation Actions, *Geophaps scripta scripta* (squatter pigeon (southern)). http://www.environment.gov.au/system/files/pages/8fa30240-7787-49eb-a987-d18300b21c3d/files/squatter-pigeon-south-consultation.pdf
- Threatened Species Scientific Committee (2015). Conservation Advice *Geophaps scripta scripta* squatter pigeon (southern). http://www.environment.gov.au/biodiversity/threatened/species/pubs/64440-conservation-advice-31102015.pdf
- NGH Consulting *et al.* (2022), *Preliminary Documentation 2020/8773: Aldoga Solar Farm*, produced for ACCIONA Pty. Ltd.

# E.2 Threatened flora

## E.2.1 Cycas megacarpa

**Large-seeded Sago– *Cycas megacarpa***

Photo: J. Davis

**Listing Status:**

- **EPBC Act: Endangered**
- **NC Act: Endangered**

**Description:**

- The cycads are woody gymnosperms of the families Cycadaceae and Zamiaceae (Hill et al. 2003).
- They have a perennial trunk, either above or below ground, and leaves that are shed and renewed over a period of several years. Individual plants are either male or female (Norstog and Nicholls 1997).
- Grow to 8m tall and between 8–14cm in diameter.
- Dense and round crown of leaves. Juvenile leaves are a blue-green colour and mature leaves are mid to dark green and between 40–110 long (DES, 2019).

**Distribution:**

- All species of Cycas are endemic to Queensland.
- Cycas megacarpa are specifically endemic to central Queensland, occurring from Bouldercombe in the north, to near Woolooga in the south (Foster and Ailsa, 2007).
- There are 6 significant populations of *C. megacarpa* within State Forest and Free hold title. None of these significant populations are located with the Project Area.

**Habitat:**

- *Cycas megacarpa* occur in woodland, open woodland, and open forests dominated by *Eucalyptus crebra* and *Corymbia citriodora*, *Corymbia erythrophloia*, *Eucalyptus melanophloia* and *Lophostemon confertus* (DAWE, 2021).
- Usually grows in hill tops and steep slopes (DES, 2019).
- Often occurs in areas with a grassy understorey (DAWE, 2021)

**Known Records:**

- GHD recorded two individuals adjacent to Cullen Rd in the Development Footprint in 2018. These were the only two individuals found at the location and no other individuals were found during subsequent surveys.
- There are a total of 6 records located with 30km of the Project Area between 2004 and 2008.
- The closest records are located at approximately 4.5km east and west of the Project Area.
- The latest record in 2008 is located 4.5km east of the Project Area (ALA, 2021).
- The closest record to the east of the Project Area is within an area mapped as 11.12.1 on a slope.

**Habitat within the Development Footprint:**

This species prefers hilly or undulating terrain with rocky soil dominated by *Eucalyptus crebra* and *Corymbia citriodora, Corymbia erythrophloia, Eucalyptus melanophloia* and *Lophostemon confertus.*

**Large-seeded Sago– *Cycas megacarpa***

*Corymbia citriodora* woodlands (RE 11.7.6) do occur in the Project Area but these are flat and have a very sparse understorey. The majority of the Project Area has alluvial soils which are not preferred by the species. It is unlikely that the majority of the habitat in the Project Area is the preferred habitat for this species due to the terrain, soils and geology. It is likely that the individuals found were lone individuals on the edge of the population that likely occurs on Mt Larcom.

**Impacts:**

Two individuals are likely to be impacted by the Development Footprint. Impacts could include:

- Direct mortality of individuals
- Changes in hydrology and water runoff (if the individuals remain but are avoided)
- Dust created during construction and maintenance works
- Changes in soil structure during construction through earth works and trampling (if the individuals remain but are avoided)

**Management Approach:**

- The project's environmental objective is to protect EPBC and NC Act protected plant species
- Pre-clearance surveys would be undertaken to ensure no additional individuals are located within the Development Footprint.
- Management measures which will assist to protect *Cycas megacarpa* include (management including the monitoring and mitigation measures of Cycad plants are detailed in a separate Cycad Translocations Plan):
    - Project design has been altered to avoid clearing *C. megacarpa*.
    - Where unavoidable plants are to be marked and a translocation plan will be implemented (which satisfies DES 2021)
    - Translocated plants will be monitored as per the Cycad Translocation Plan.

**References:**


- Atlas Living Australia (ALA), accessed 2021. https://www.ala.org.au/
- DAWE, 2021. EPBC Protected Matters Search Tool. Department of Agriculture, Water and the Environment. Australian Government, Canberra, [Online] Available: http://www.environment.gov.au/webgis-framework/apps/pmst/pmst-coordinate.jsf.
- Department of Environment and Science (DES), 2019. Species profile- Cycas megacarpa. https://apps.des.qld.gov.au/species-search/details/?id=8445#:~:text=Cycas%20megacarpa%20is%20a%20small%20to%20medium%20sized,to%20dark%20green%2C%20and%20keeled%20%28V-shaped%29%20in%20cross-section.
- Foster, P and Holland, A (2007). National Multi-species Recovery Plan for the cycads, *Cycas megacarpa*, *Cycas ophiolitica*, *Macrozamia cranei*, *Macrozamia lomandroides*, *Macrozamia pauli-guilielmi* and *Macrozamia platyrhachis*. Queensland Herbarium, Environmental Protection Agency. Queensland Government.
- Hill, K.D., Chase, M.W., Stevenson, D.W., Hills, H.G. and Schutzman, B. 2003. The families and genera of cycads: a molecular phylogenetic analysis of Cycadophyta based on nuclear and plastid DNA sequences. International Journal of Plant Sciences 164, 933-948.
- Norstog, K.J. and Nicholls, T.J. 1997. The Biology of the Cycads. Cornell University Press, Ithaca and London.

# Appendix F EPBC conditions of approval

Australian Government

Department of Climate Change, Energy, the Environment and Water

**APPROVAL**

**Aldoga Solar Farm Project, near Gladstone, QLD (EPBC 2020/8773)**

This decision is made under section 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). Note that section 134(1A) of the EPBC Act applies to this approval. That provision provides, in general terms, that if the approval holder authorises another person to undertake any part of the Action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such conditions.

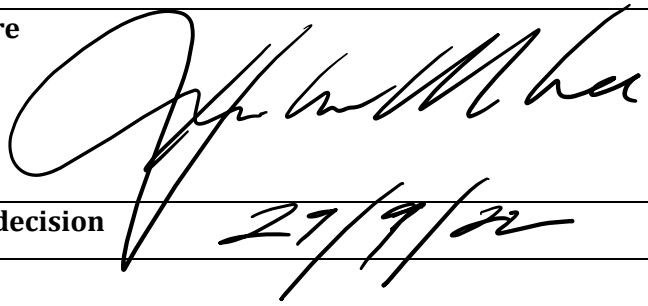
***Proposed Action***

| | |
|---|---|
| **Person to whom the approval is granted (approval holder)** | ACCIONA Energy Australia Global Pty Ltd |
| **ACN of approval holder** | 600 910 647 |
| **Action** | To construct and operate a solar farm comprising up to 500,000 PhotoVoltaic modules located approximately 20 km northwest of Gladstone, Queensland (see EPBC Act referral 2020/8773). |

***Approval Decision***

| | | |
|---|---|---|
| **Decision** | My decision on whether or not to approve the taking of the Action for the purposes of the controlling provision for the Action is as follows. | |
| | **Controlling Provision** | **Decision** |
| | Listed threatened species and communities (section 18 and section 18A) | Approve |
| **Period for which the approval has effect** | This approval has effect until 31 December 2080 | |
| **Conditions of approval** | The approval is subject to conditions under the EPBC Act as set out in **Annexure A**. | |

***Person authorised to make decision***

| | |
|---|---|
| **Name and Position** | Andrew McNee<br>Assistant Secretary<br>Environment Assessments Queensland and Sea Dumping Branch |
| **Signature** |  |
| **Date of decision** | 27/9/22 |

**ANNEXURE A**

**Note**: Words appearing in **bold** have the meaning assigned to them at PART C – DEFINITIONS.

**Part A – Conditions specific to the Action**

1. The approval holder must not **clear** or undertake any **construction** activities outside the **project area.**

2. To minimise **impacts** on **protected matters**, the approval holder must not **clear**:

   a. more than 269.72 ha of **Koala habitat**,

   b. more than 259.20 ha **Squatter Pigeon habitat**; or

   c. more than 258.77 ha of **Greater Glider habitat**.

3. To minimise **impacts** on **Cycas megacarpa** the approval holder must:

   a. conduct pre-clearance surveys to verify there are no more than the four ***Cycas megacarpa*** individuals already identified within the project area.

   b. If more than four ***Cycas megacarpa*** individuals are identified within the **project area**, then no ***Cycas megacarpa*** individuals are permitted to be **translocated, cleared** or **impacted** without the written approval of the **Minister**.

4. The approval holder must only install solar PV modules and **associated infrastructure** within the **project footprint**.

**Environmental offsets**

*Offset Area Management Plan*

5. The approval holder must, prior to **commencement of the Action**, submit to the **department** for the written approval of the **Minister** an Offset Area Management **Plan** (OAMP).

6. The OAMP must specify how the approval holder will compensate for **impacts** of the Action to **Koala habitat, Squatter Pigeon habitat** and **Greater Glider habitat** in accordance with the **EPBC Act Environmental Offsets Policy** to the satisfaction of the **Minister**.

7. The OAMP must be prepared by a **suitably qualified ecologist**.

8. To ensure that the offsets required for **Koala habitat**, **Squatter Pigeon habitat** and **Greater Glider habitat** provide a conservation gain in accordance with the **EPBC Act Environmental Offsets Policy**, the **completion criteria** specified in the approved OAMP must be achieved within 20 years of the **commencement of the Action** and then be maintained or improved for the duration of the approval.

9. The approval holder must not **commence the Action** until the OAMP has been approved in writing by the **Minister**.

10. The approval holder must implement the OAMP approved by the **Minister** prior to the **commencement of the Action** and for the remainder of the approval.

11. The OAMP must include:

a. a summary of the residual **impacts** of the Action on **Koala habitat**, **Squatter Pigeon habitat** and **Greater Glider habitat** (including **impacts** on **habitat quality**) which will be offset. This summary must include the area of habitat, condition and **habitat quality** of **Koala habitat**, **Squatter Pigeon habitat** and **Greater Glider habitat** at all **impact** sites which each particular offset site/s is to address;

b. a description of the proposed offset site/s, including location, size, condition, current **habitat quality** of habitat of the relevant **protected matters**, environmental values present and surrounding land uses;

c. a table of commitments made in the OAMP to achieve the ecological benefits for **Koala habitat, Squatter Pigeon habitat** and **Greater Glider habitat**, and a reference to where these commitments are detailed in the OAMP;

d. the mechanism by which and the timing by when (being no later that 24 months after the **commencement of the Action**) the offset site/s will be **secured** in perpetuity;

e. the approval holder must notify the **department** within 5 **business days** of the mechanism to **secure** the offset site/s having been executed, and provide documentary evidence to demonstrate the **securement** of the offset site/s;

f. baseline data of the offset site/s, including results from field validated surveys, and quantifiable ecological data on **habitat quality** for **Koala habitat**, **Greater Glider habitat** and **Squatter Pigeon habitat** and other supporting evidence that documents the presence of **Squatter Pigeon** and potential presence of **Koala** and **Greater Glider**;

g. details of how the offset/s will provide connectivity with other habitats, populations and biodiversity corridors and/or will contribute to a larger strategic offset for **Koala**, **Squatter Pigeon** and **Greater Glider**;

h. maps and **shapefiles** to clearly define the location and boundaries of the offset site/s, accompanied by **offset attributes**; and

i. specific offset **completion criteria** derived from the **site habitat quality** to demonstrate the improvement in the quality of **Koala habitat**, **Squatter Pigeon habitat** and **Greater Glider habitat** within the environmental offset sites over the period of life of this approval required to meet the requirements of the **EPBC Act Environmental Offsets Policy**.

12. The OAMP must contain details of the management Actions, and timeframes for implementation, to be undertaken to achieve the offset **completion criteria** specified in the OAMP including but not limited to:

a. Weed and feral animal control;

b. interim milestones that set targets at 5-yearly intervals for progress towards achieving the offset **completion criteria**;

c. the nature, timing and frequency of monitoring to inform progress against achieving the 5-yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the environmental offset is likely to achieve those milestones in time to implement any necessary corrective Actions);

    i. timing for the submission of monitoring reports which provide evidence demonstrating whether the interim milestones and offset **completion criteria** are

likely to be, and/or have been, achieved, including a firm commitment to notify the **department** in writing 1 year in advance of the end of the approval if the **completion criteria** will not be achieved within 20 years of the **commencement of the Action**; and

ii. timing for the implementation of corrective Actions if monitoring activities indicate the interim milestones will not be, or have not been, achieved.

d. a risk analysis and a risk assessment and mitigation strategy for all risks to the successful implementation of the OAMP and timely achievement of the offset **completion criteria**, including a rating of all initial and post-mitigation residual risks in accordance with the **risk assessment matrix;** and

e. evidence of how the management Actions and corrective Actions take into account relevant **approved conservation advices** and are consistent with any relevant **recovery plans** and **threat abatement plans**.

*OAMP completion criteria*

13. To ensure that the offsets required for **Koala habitat, Squatter Pigeon habitat** and **Greater Glider habitat** provide a conservation gain in accordance with the **EPBC Act Environmental Offsets Policy**, the **completion criteria** specified in the approved OAMP:

a. must be achieved within 20 years of the **commencement of the Action**; and

b. once achieved, must be maintained or improved for the remaining duration of the approval.

14. The approval holder must, within 20 **business days** of the 20th anniversary of the **commencement of the Action:**

a. submit to the **department** a report detailing the area and condition of **Koala habitat, Squatter Pigeon habitat** and **Greater Glider habitat** in all offset area(s) specified in the approved OAMP; and

b. notify the **department** in writing of any **completion criteria** at any offset area(s) specified in the approved OAMP that have not been achieved and the likely reasons that these **completion criteria** have not been met.

**Matters of National Environmental Significance (MNES) Management Plan**

15. To avoid, mitigate and manage **impacts** of the Action on **EPBC Act** listed threatened species and their habitat, the approval holder must submit a MNES Management **Plan** to the **department** for the **Minister's** approval prior to the **commencement of the Action**.

16. The MNES Management **Plan** must be prepared by a **suitably qualified ecologist** and in accordance with the **department's Environmental Management Plan Guidelines.**

17. The approval holder must not **commence the Action** until the **Minister** has approved the MNES Management **Plan** in writing.

18. The approval holder must commence implementing the approved MNES Management **Plan** and continue to implement it for the duration of the approval.

19. The environmental outcomes that must be achieved by implementing the MNES Management **Plan** are:

a. to ensure that **impacts** to **protected matters** do not exceed the **clearance** limits specified in condition 1 and 2;

b. to ensure that no **Koala** or **Greater Glider** or **Squatter Pigeon** individuals are injured or killed as a result of the Action;

c. to ensure no net loss of ***Cycas megacarpa*** individuals as a result of the Action;

d. to ensure there is no **clearance** in **riparian zones**; and

e. to **maintain** wildlife corridors, **habitat quality** and habitat connectedness within the **project area** and Mount Larcom by maintaining the **habitat quality** of the proposed functional wildlife corridor within the **project area** connecting Larcom Creek and Mount Larcom.

20. The MNES Management **Plan** must:

a. commit to undertake pre-**clearance** surveys to identify any **protected matter**s within the **vicinity** of the **clearing** within the **project area** to inform predicted **impacts;**

b. detail the predicted **impacts** to **protected matters** and their habitat from the **clearing**, **construction**, **operation** and **decommissioning**, phases of the Action;

c. detail the measures that will be undertaken in the **project area** to avoid, mitigate and limit **impacts** on **protected matters** and their habitat during **clearing**, **construction**, **operation** and **decommissioning**;

d. detail the specific timing of implementation, frequency and duration of the measures to be implemented;

e. provide evidence of how the measures are based on best available practices, appropriate standards, and supported by scientific evidence;

f. detail how the measures have been developed with consideration of the **S.M.A.R.T principle**;

g. include a risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the MNES Management **Plan** and timely achievement of the environmental outcomes, including a rating of all initial and post-mitigation residual risks in accordance with the **risk assessment matrix**;

h. provide evidence of how the measures and corrective Actions take into account relevant **approved conservation advice** and are consistent with relevant **recovery plans** and **threat abatement plans**;

i. include links to relevant management **plans** or conditions of approval (including State approval conditions);

j. commit to ensuring that **a fauna spotter-catcher** will be present during all **clearance** activities, with the authority to cease **clearance** for an appropriate timeframe where one or more **protected matters** could be **impacted** and relocate any fauna captured during **clearing** to an appropriate nearby habitat area to be undertaken by a **fauna spotter-catcher**;

k. limit construction laydown areas and stockpiles to areas **cleared** or disturbed prior to the Action;

l. ensure no **Koala habitat** tree in which a **Koala** is present, and no **Koala habitat** tree with a crown overlapping a tree in which a **Koala** is present, is **cleared** until the **Koala** leaves of its own accord;

m. commit to ensure the **clearing** width for all new and existing road and track widths within the **project area** do not exceed 15 metres;

n. commit to install glider poles if the distance between trees at the road crossings in the **riparian zone** are greater than 15 m, to mitigate fragmentation of **Greater Glider habitat**;

o. include a commitment to install cameras facing the glider poles to monitor use of glider poles;

p. include a commitment to mitigate **Greater Glider habitat** loss by ensuring all potential **Greater Glider hollows** to be **cleared** as a result of the Action are re-located to **Greater Glider habitat** in areas of retained vegetation, or the **Greater Glider** offset site to provide additional habitat. The approval holder must undertake the salvage and relocation of **Greater Glider hollows** according to the conditions detailed in Attachment H;

q. include a commitment to reduce loss or injury of **protected matters** from barbed wire fencing through ensuring that barbed wire fencing is only used where it is required to meet the Australian safety standards or necessary for insurance. Where barbed wire is used, fence visibility to **protected matters** must be increased by affixing durable visibility tags, or tape, at every 30cm interval along top of barbed wire fencing for the duration of the approval;

r. ensure areas of habitat for the **Squatter Pigeon** are flushed for **Squatter Pigeon** individuals immediately prior to **clearing**;

s. require the placement of legible warning signs on all tracks that intersect locations in which **Squatter Pigeon** has been identified within the **project area** to inform all persons on site of areas that have a higher risk of vehicle collision and the need to be alert to risk of vehicle collision with **Squatter Pigeon** and drive slowly to prevent vehicle collision with **Squatter Pigeon**;

t. ensure land under all solar panels is revegetated with locally occurring grass species not considered to be invasive weeds or in contradiction to Condition 20y;

u. ensure a maximum speed of 50 km/hr for all vehicles within the **project area**;

v. restrict vehicle access to within the **project footprint** and existing access routes;

w. keep artificial site lighting to the minimum required for safety. Lighting beams must be directed downwards and use shields and baffles to limit light spill beyond the area that requires lighting;

x. ensure refuelling is not undertaken within 50 metres of any waterway, retained habitat or **riparian zone/s**. Storage of fuels, chemicals, wastes and other potentially environmentally hazardous substances must be bunded or otherwise contained in areas away from waterways, retained habitat or **riparian zone/s**; and

y. ensure the prevalence of weeds and feral animals identified as threats to **protected matters** are kept at less than the prevalence of weeds and feral animals prior to **commencement of the Action**.

21. The MNES Management **Plan** at Condition 20 must include a monitoring program to ensure the environmental outcomes at Condition 19 are achieved. The monitoring program must:

a. include measurable performance indicators;

b. monitor use of **Greater Glider** poles through the installed cameras and report use of **Greater Glider** poles (by **Greater Glider**s or other animals) in the annual **compliance records** under condition 25;

c. maintain a register of **Squatter Pigeon** sightings and use it to identify and inform all persons on site of areas that have a higher risk of vehicle collision and the need to be alert to risk of vehicle collision with **Squatter Pigeon** and drive slowly to prevent vehicle collision with **Squatter Pigeon**;

d. trigger values for corrective Actions;

e. the timing and frequency of monitoring to detect trigger values and changes in the performance indicators;

f. proposed corrective Actions, if trigger values are reached.

22. Rehabilitation of **temporary infrastructure** areas must be undertaken within two months after **clearing** and after these areas are no longer required for the Action. Rehabilitation must ensure the area is returned to a self-sustaining ecosystem similar to that which previously existed before **clearing** and **construction**.

## Part B – Standard administrative conditions

### Notification of date of commencement of the Action

23. The approval holder must notify the **department** in writing of the date of **commencement of the Action** within 10 **business days** after the date of **commencement of the Action.**

24. If the **commencement of the Action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the Action** without the prior written agreement of the **Minister**.

### Compliance records

25. The approval holder must maintain accurate and complete **compliance records**.

26. If the **department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **department** within the timeframe specified in the request.

**Note**: **Compliance records** may be subject to audit by the **department** or an independent auditor in accordance with section 458 of the **EPBC Act**, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the **department**'s website or through the general media.

### Submission and publication of plans

27. The approval holder must:

a. submit **plans** electronically to the **department**

b. unless otherwise agreed to in writing by the **Minister** publish each **plan** on the **website** within 20 **business days** of the date:

i. the **plan** is approved by the **Minister** in writing, if the **plan** requires the approval of the **Minister,** or

ii. the **plan** is submitted to the **Minister** or the **department** in accordance with a requirement of these conditions, if the **plan** does not require the approval of the **Minister**, or

iii. the **plan** is approved by a state/territory government official as required under a state/territory government condition which must be complied with in accordance with these **EPBC Act** conditions

c. exclude or redact **sensitive ecological data** from **plans** published on the **website** or provided to a member of the public

d. keep **plans** published on the **website** until the end date of this approval.

28. The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), surveys, maps, and other spatial and metadata required under conditions of this approval, is prepared in accordance with the **department's** *Guidelines for biological survey and mapped data* (2018) and submitted electronically to the **department** in accordance with the requirements of the **plan** and published on the approved holder's **website** (excluding **sensitive ecological data**)

**Annual compliance reporting**

29. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the Action**, or otherwise in accordance with an annual date that has been agreed to in writing by the **Minister**. The approval holder must:

a. publish each **compliance report** on the approval holder's **website** within 60 **business days** following the relevant 12 month period

b. notify the **department** by email that a **compliance report** has been published on the **website** and provide the weblink for the **compliance report** within 5 **business days** of the date of publication

c. keep all **compliance reports** publicly available on the approval holder's **website** until this approval expires

d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**

e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **department** within 5 **business days** of publication.

**Note**: **Compliance reports** may be published on the **department**'s website.

**Reporting non-compliance**

30. The approval holder must notify the **department** in writing of any: **incident**; non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than 2 **business days** after becoming aware of the **incident** or non-compliance. The notification must specify:

a. any condition which is or may be in breach

b. a short description of the **incident** and/or non-compliance

c. the location (including co-ordinates), date, and time of the **incident** and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.

31. The approval holder must provide to the **department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days** after becoming aware of the **incident** or non-compliance, specifying:

a. any corrective Action or investigation which the approval holder has already taken or intends to take in the immediate future

b. the potential **impacts** of the **incident** or non-compliance

c. the method and timing of any remedial Action that will be undertaken by the approval holder.

**Independent audit**

32. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted for the 12 month period from the date of the **commencement of the Action** and for every subsequent 12 month period, or as otherwise requested in writing by the **Minister**.

33. For each **independent audit**, the approval holder must:

a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **department**

b. only commence the **independent audit** once the audit criteria have been approved in writing by the **department**

c. submit an audit report to the **department** within the timeframe specified in the approved audit criteria.

34. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.

**Revision of Action management plans**

35. The approval holder may, at any time, apply to the **Minister** for a variation to an Action management **plan** approved by the **Minister**, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the **EPBC Act**. If the **Minister** approves a revised Action management **plan** (RAMP) then, from the date specified, the approval holder must implement the RAMP in place of the previous Action management plan.

36. The approval holder may choose to revise an Action management **plan** approved by the **Minister** under condition 15 or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the **EPBC Act**, if the taking of the Action in accordance with the RAMP would not be likely to have a **new or increased impact**.

37. If the approval holder makes the choice under condition 36 to revise an Action management **plan** without submitting it for approval, the approval holder must:

a. notify the **department** in writing that the approved Action management **plan** has been revised and provide the **department** with:

i. an electronic copy of the RAMP

ii. an electronic copy of the RAMP marked up with track changes to show the differences between the approved Action management **plan** and the RAMP

iii. an explanation of the differences between the approved Action management **plan** and the RAMP

iv. the reasons the approval holder considers that taking the Action in accordance with the RAMP would not be likely to have a **new or increased impact**

v. written notice of the date on which the approval holder will implement the RAMP (RAMP implementation date), being at least 20 **business days** after the date of

providing notice of the revision of the Action management **plan**, or a date agreed to in writing with the **department**.

b. subject to condition 39, implement the RAMP from the RAMP implementation date.

38. The approval holder may revoke their choice to implement a RAMP under condition 36 at any time by giving written notice to the **department**. If the approval holder revokes the choice under condition 36 the approval holder must implement the Action management **plan** in force immediately prior to the revision undertaken under condition 36.

39. If the **Minister** gives a notice to the approval holder that the **Minister** is satisfied that the taking of the Action in accordance with the RAMP would be likely to have a **new or increased impact**, then:

a. condition 36 does not apply, or ceases to apply, in relation to the RAMP

b. the approval holder must implement the Action management **plan** specified by the **Minister** in the notice.

40. At the time of giving the notice under condition 39 the **Minister** may also notify that for a specified period of time, condition 36 does not apply for one or more specified Action management **plans**.

**Note:** conditions 36, 37, 38 and 39, are not intended to limit the operation of section 143A of the **EPBC Act** which allows the approval holder to submit a revised Action management **plan**, at any time, to the **Minister** for approval.

**Completion of the Action**

41. The approval holder must notify the **department** electronically 60 **business days** prior to the expiry date of this approval, that the approval is due to expire.

42. Within 20 **business days** after the **completion of the Action**, and, in any event, before this approval expires, the approval holder must notify the **department** electronically of the date of **completion of the Action** and provide **completion data**.

## Part C - Definitions

In these conditions, except where contrary intention is expressed, the following definitions are used:

**Approved conservation advice** means a conservation advice approved by the **Minister** under the **EPBC Act**.

**Associated infrastructure** means **temporary infrastructure** and infrastructure **constructed** during the length of the approval required for the Action. These are limited to access tracks, solar infrastructure, transmission lines, stockpile sites and compound sites, substation equipment, battery, laydowns, operations facilities and temporary fencing.

**Business day** means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the Action.

**Clear/Clearance/Clearing** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation.

**Commencement of the Action/commence the Action** means the first instance of any specified activity associated with the Action including **clearing** and **construction**. **Commencement of the Action** does not include minor physical disturbance necessary to**:**

i. undertake pre-**clearance** surveys or monitoring programs

ii. install signage and /or temporary fencing to prevent unapproved use of the **project area**

iii. protect environmental and property assets from fire, weeds and pests, including installation of temporary fencing, and maintenance of existing surface access tracks

iv. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no **impact** on the **protected matters**

**Completion criteria** means the increase in **habitat quality** score to be achieved at the offset site/s within 20 years of the **commencement of the Action.**

**Completion data** means an environmental report and spatial data clearly detailing how the conditions of this approval have been met. The **department**'s preferred spatial data format is **shapefile**.

**Completion of the Action** means the date on which all specified activities associated with the Action have permanently ceased.

**Compliance records** means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.

**Compliance reports** means written reports:

i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans;**

ii. consistent with the **department's** *Annual Compliance Report Guidelines* (2014) or subsequent revision versions;

iii. include a **shapefile** of any **clearance** of any **protected matters**, or their habitat, undertaken within the relevant 12 month period;

iv. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

**Construction / constructed** means the erection of a building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work;

**Cycas megacarpa** means the **EPBC Act listed threatened species *Cycas megacarpa*.**

**Decommissioning** means the period during which the solar PV modules and **associated infrastructure** are de-**constructed** and removed from, the **project area**.

**Department** means the Australian Government agency responsible for administering the **EPBC Act**.

**Environmental Management Plan Guidelines** means the *Environmental Management Plan Guidelines* (2014) produced by the Department of the Environment, Commonwealth of Australia available at: https://www.awe.gov.au/sites/default/files/documents/environmental-management-plan-guidelines.pdf and any subsequent official revision version produced by the **department.**

**EPBC Act** means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

**EPBC Act Environmental Offsets Policy** means the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Commonwealth of Australia (2012), and any subsequent official revision version produced by the **department.**

**EPBC Act listed threatened species** means the threatened flora and fauna species listed under the **EPBC Act** for which this approval has effect.

**Evidence of Greater Glider** use includes, but is not limited to, observing **Greater Glider** using the hollow, presence of scats within the hollow or around the tree, presence of **Greater Glider** fur within or around the **Greater Glider hollow** entrance.

**Fauna spotter-catcher** means a person licenced under the Queensland *Nature Conservation Act* 1992 to detect, capture, care for, assess, and release wildlife disturbed by vegetation **clearance** activities.

**Greater Glider** means the **EPBC Act listed threatened species** *Petauroides volans***.**

**Greater Glider habitat** means all areas of eucalypt forests or woodlands that contain hollow-bearing trees and any areas within the **project area** depicted by the colour teal labelled 'potential greater glider habitat' and by the colour light orange areas labelled 'Eucalypt woodland with less than 1 live hollow-bearing tree per ha' in Attachment D.

**Greater Glider hollow/s** are hollows with openings larger than 8cm diameter that are known to have **evidence of Greater Glider** use and are in trees with a diameter at breast height >30 cm.

**Habitat quality** is the measure of the overall capacity and ongoing viability of a site to support the relevant **protected matter/s**, determined with respect to site condition, site context and species stocking rate and/or composition.

**Impacted / Impact/s** (verb) means to cause any measurable direct, indirect or facilitated disturbance or harmful change as a result of any activity associated with the Action.

**Impact** (noun) means any measurable direct, indirect or facilitated disturbance or harmful change as a result of any activity associated with the Action.

**Incident/s** means any event which has the potential to, or does, **impact** on one or more **protected matter/s**.

**Independent audit** means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines*, Commonwealth of Australia (2019).

**Koala** means the **EPBC Act listed threatened species** *Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT).

**Koala habitat** means any forest or woodland containing **Koala** food trees (i.e. Eucalyptus and Corymbia tree species) and any areas in the **project area** depicted by the colour teal labelled 'potential koala habitat' as shown in Attachment B.

**Monitoring data** means the data required to be recorded under the conditions of this approval.

**Minister** means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

**New or increased impact** means a new or increased environmental **impact** or risk relating to any **protected matter**, when compared to the likely **impact** of implementing the Action management **plan** that has been approved by the **Minister** under condition 23 & 30 including any subsequent revisions approved by the **Minister,** as outlined in the *Guidance on 'New or Increased Impact' relating to changes to approved management plans under EPBC Act environmental approvals (2017)* currently available from: https://www.awe.gov.au/sites/default/files/documents/new-increased-impact-guidance.pdf

**Offset attributes** means, but not limited to, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the **protected matters** that the offset compensates for, habitat characteristics, **habitat quality** and and the size of the offset in hectares.

**Operation** means all activities that are part of the Action from when electricity is first exported commercially from the solar farm until the commencement of **decommissioning**.

**Plan/s** means any of the documents required to be prepared, approved by the **Minister**, implemented by the approval holder and published on the **website** in accordance with these conditions (includes Action management plans and/or strategies).

**Project area** means the location of the Action, represented by the area enclosed by the red line labelled 'project area' in Attachment A including the **project footprint**.

**Project footprint** means the area where **construction**, **operation** and **decommissioning** will occur within the **project area**, represented by the area enclosed by the hatched polygons labelled 'project footprint' in Attachment A.

**Protected matter/s** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

**Protected Plants Assessment Guidelines** means the *Nature Conservation (Plants) Regulation 2020: Protected Plants Assessment Guidelines*, Queensland Government (2021) or subsequent revisions.

**Recovery plan** means a recovery plan made or adopted by the **Minister** under the **EPBC Act**.

**Retained/retain** means ***Cycas megacarpa*** individuals that are kept within the **project area** and are not subject to **translocation** during the life of the approval.

**Riparian zone/s** means the area within a minimum of 25 metres of the defining bank for all watercourses with **stream orders** above 1 as depicted in Attachment A as 'watercourses' in the colour blue with their respective **stream order** in brackets.

**Risk assessment matrix** means the risk assessment matrix at Attachment F

**Secure/secured/securing/securement** means to execute a legal agreement or legally binding mechanism under relevant Queensland legislation, in relation to an offset site, to provide enduring protection for the offset site against development incompatible with conservation.

**Sensitive ecological data** means data as defined in the *Sensitive Ecological Data – Access and Management Policy V1.0*, Commonwealth of Australia (2016).

**Shapefile/s** means location and attribute information of the Action provided in an Esri shapefile format. **Shapefiles** must contain '.shp', '.shx', '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. **Shapefiles** must also include an '.xml' metadata file that describes the **shapefile** for discovery and identification purposes**.**

**Site habitat quality** is a score on a scale of 0 to 10 representing a site's utility for each **EPBC Act** listed threatened species, where zero ('0') represents a site of no value to the species, and '10' represents ideal habitat. Unless agreed otherwise by the **department**, site quality must be comprised of 3 points for site condition, 3 points for site context, and 4 points for species stocking rate. These scores must be derived in accordance with the Queensland *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensl*and *Environmental Offsets Policy* (Version 1.2, April 2017), or subsequent published revision.

**S.M.A.R.T principles** means the criteria guide for setting management measures that are specific, measurable, achievable, relevant and time-based.

**Stream order** means a numerical ordering classification of each stream segment according to its position within a catchment, as depicted in Attachment A as a watercourse with a number in brackets.

**Suitably qualified ecologist** means a person who has relevant professional qualifications and at least three years experience designing and implementing management plans for the **protected matters** and can give authoritative independent assessment, advice and analysis on the management requirements of the **protected matters** and their habitat using the relevant protocols, standards, methods and/or literature.

**Suitably qualified person** means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

**Squatter Pigeon** means the species *Geophaps scripta scripta* listed as threatened under the **EPBC Act** and subsequent listing statuses under the **EPBC Act.**

**Squatter Pigeon habitat** means any grassy woodlands dominated by Eucalyptus, Corymbia, Acacia or Callitris tree species, on sandy or gravelly soils (including but not limited to areas mapped as Queensland land zones 3, 5 or 7) within 3 kilometres of a waterbody, and any area in the **project area** depicted by the colour light orange labelled 'Foraging habitat' and the by the colour dark brown labelled 'breeding habitat' as shown in Attachment C.

**Temporary infrastructure** means any infrastructure (including, but not limited to roads, tracks, bridges, culverts, bores, buildings, fixed machinery, hardstand areas, helipads) which will be removed after the installation of the solar panels.

**Threat abatement plan** means a threat abatement plan made or adopted by the **Minister** under the **EPBC Act.**

**Translocation/ translocations /translocated** means the human-mediated movement of living organisms from one area with release in another, either to sites where the particular species may already be present, to new sites, or to sites where the animal or plant has become locally extinct. The intention of **translocation** must be to keep the translocated individuals alive and protected in the long term.

**Vicinity** means within 350 metres of the **project footprint.**

**Website** means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

**ATTACHMENTS**

**Attachment A: Map of project area and project footprint**

**Attachment B: Map of Koala habitat within project area**

**Attachment C: Map of Squatter Pigeon habitat and records within project area**

**Attachment D: Map of Greater Glider habitat within project area**

**Attachment E: Map of *Cycas megacarpa* habitat and records within the project area**

**Attachment F: Risk assessment matrix**

**Attachment G: Salvaging Greater Glider hollows**

**Attachment A: Map of project area and project footprint.**

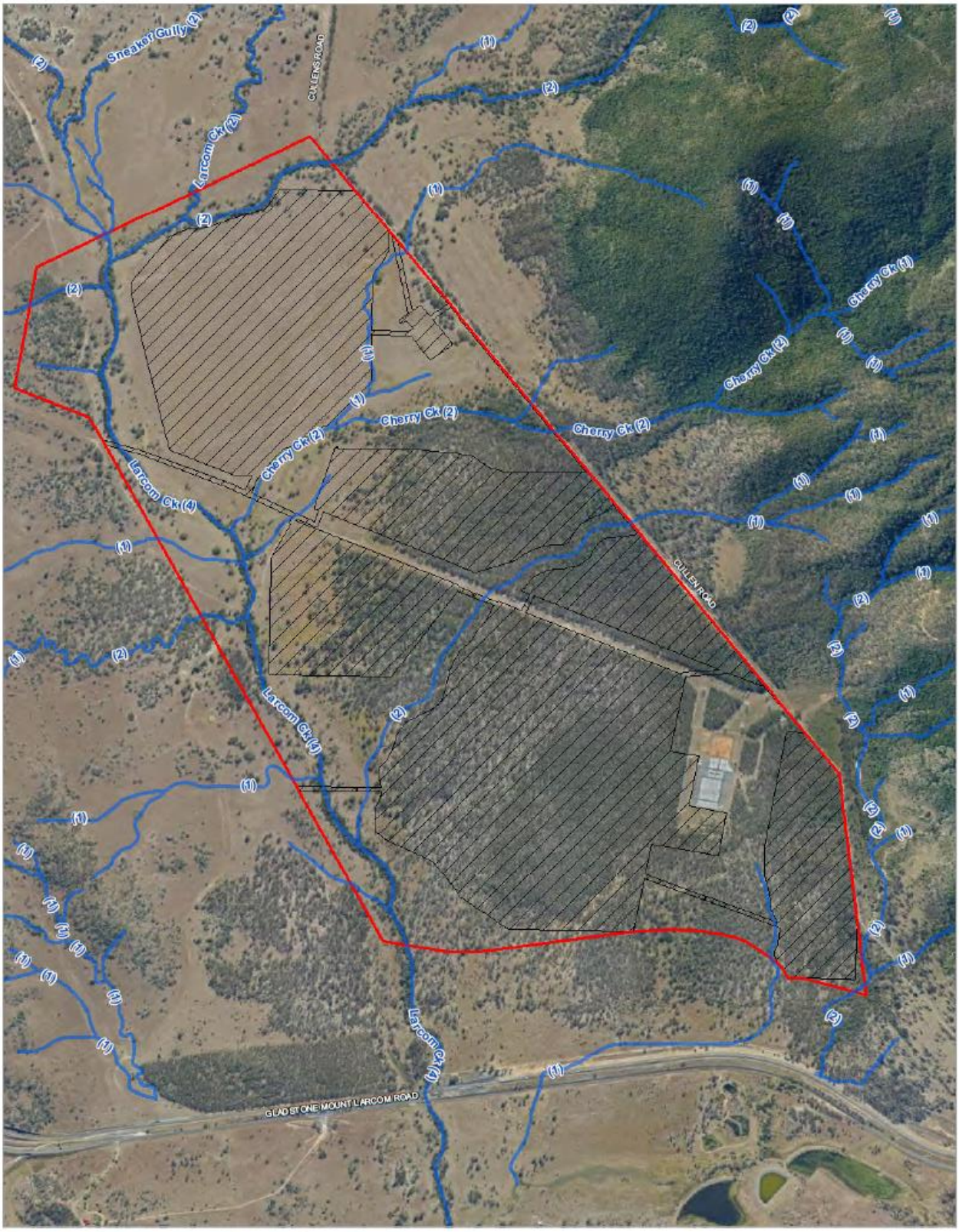
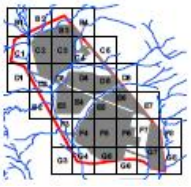



**Figure 1-2 Project Area and Project Footprint (map overview)**

- Project area
- Project footprint
- Current map view
- Watercourse (stream order)



Ref: MP1_2_Project
Author: Deanna Bayliss
Date: 12/08/2022
Datum: GDA94

NGH

**Attachment B: Koala habitat within project area**

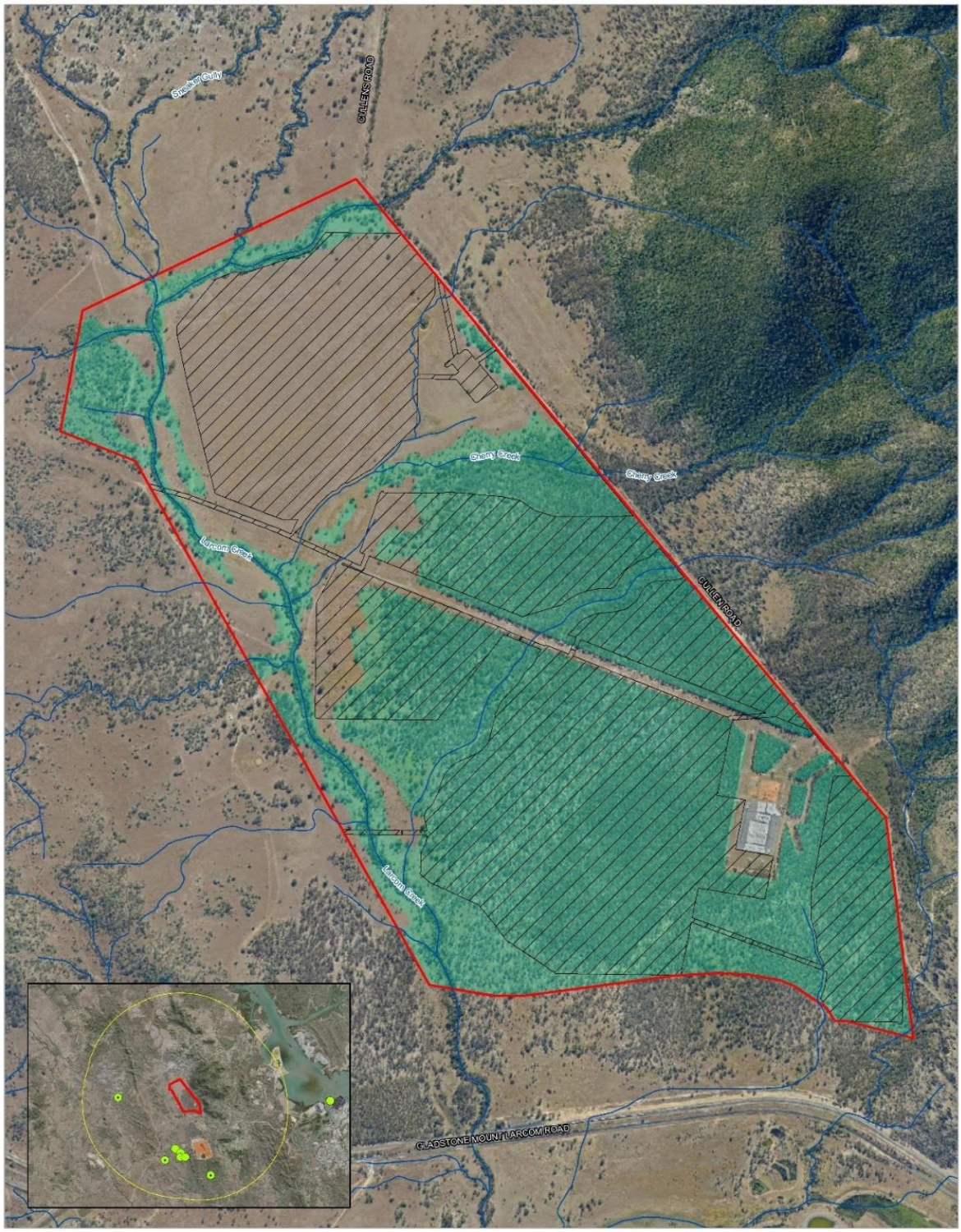



**Figure 3-6 Potential Koala Habitat**

- Project area
- Project footprint
- 10 km from Project area
- Watercourses
- Potential koala habitat
- Koala record
- Koala utilisation (scat)

Ref: MP3_6_Koala
Author: Deanna Bayliss
Date: 03/11/2021
Datum: GDA94

Meters
0 400 800

NGH

**Attachment C: Squatter Pigeon habitat within project area**

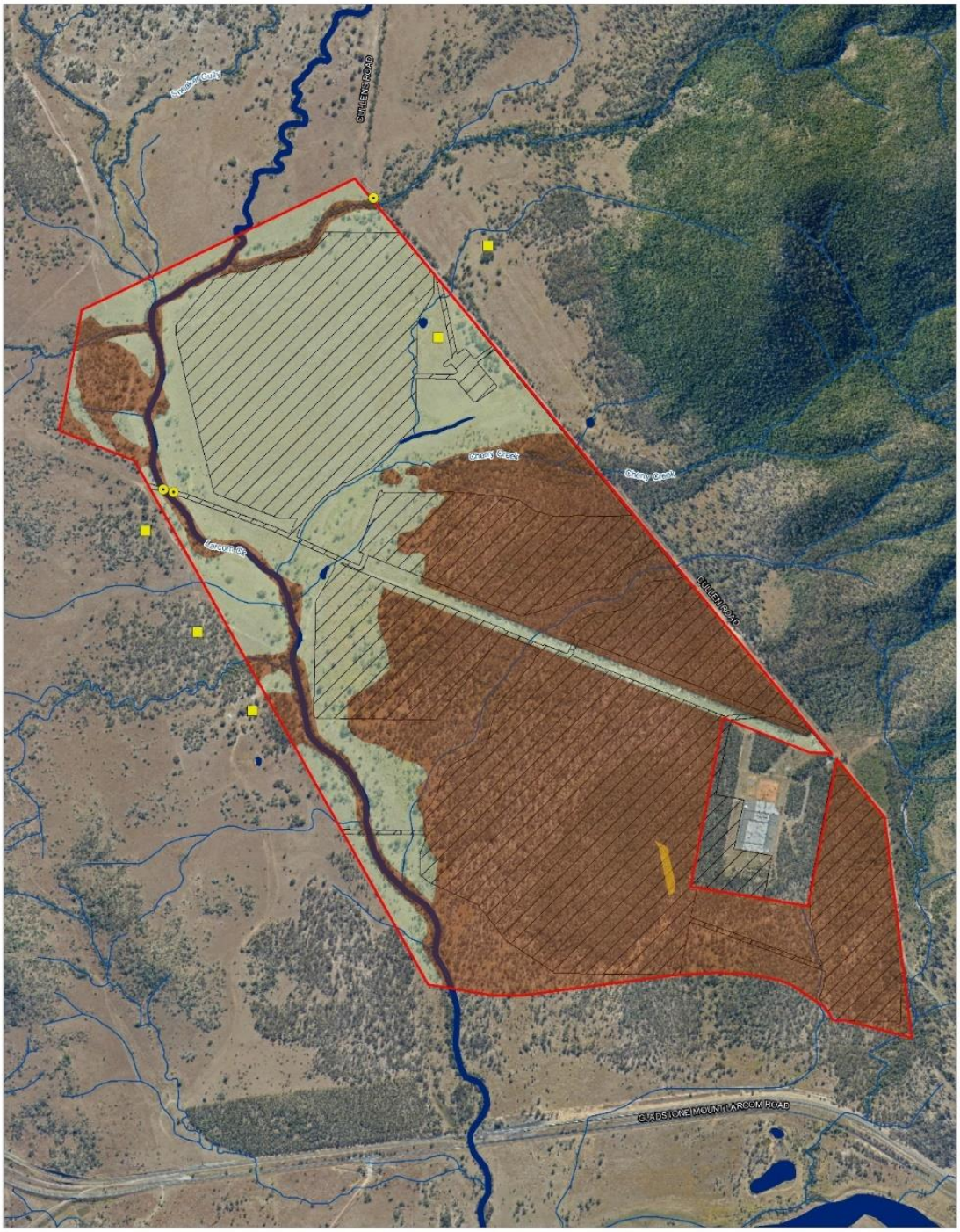



**Figure 3-5 Squatter Pigeon Habitat**

- Project area
- Project footprint
- Watercourses
- Waterbody / sources
- Non-remnant areas dominated by Giant Rats Tail Grass that are unsuitable for Squatter Pigeon

**Squatter pigeon records**

- NGH 2020 / 2021
- GHD 2018

**Potential squatter pigeon habitat**

- Breeding habitat
- Foraging habitat

Ref: MP3_5_SPigeon
Author: Deanna Bayliss
Date: 14/02/2022
Datum: GDA94

Meters
0 400 800

NGH

Data attribution:
The State of Queensland 2020; Aconex 2020. Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from Planet and Geoplex, all rights reserved, 2021

**Attachment D: Greater Glider habitat within project area**

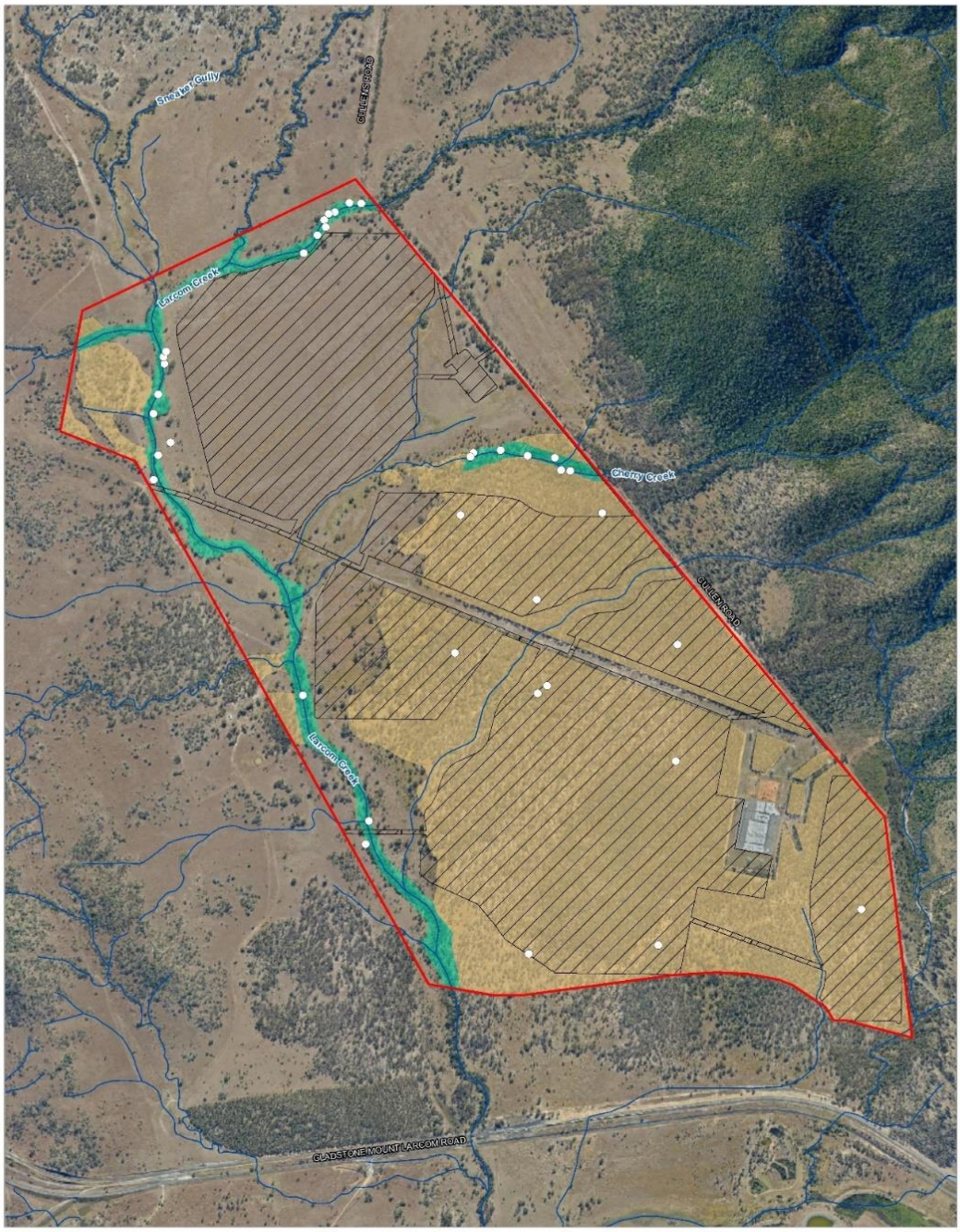



**Figure 3-7 Potential Greater Glider Habitat**

- Project area
- Project footprint
- Watercourse
- Hollow bearing tree
- Potential greater glider habitat
- Eucalypt woodland with less than 1 live hollow-bearing tree per ha

Ref: MP3_7_Glider
Author: Deanna Bayliss
Date: 03/11/2021
Datum: GDA94

Meters
0 400 800



NGH

**Attachment E: *Cycas megacarpa* habitat and records within the project area**

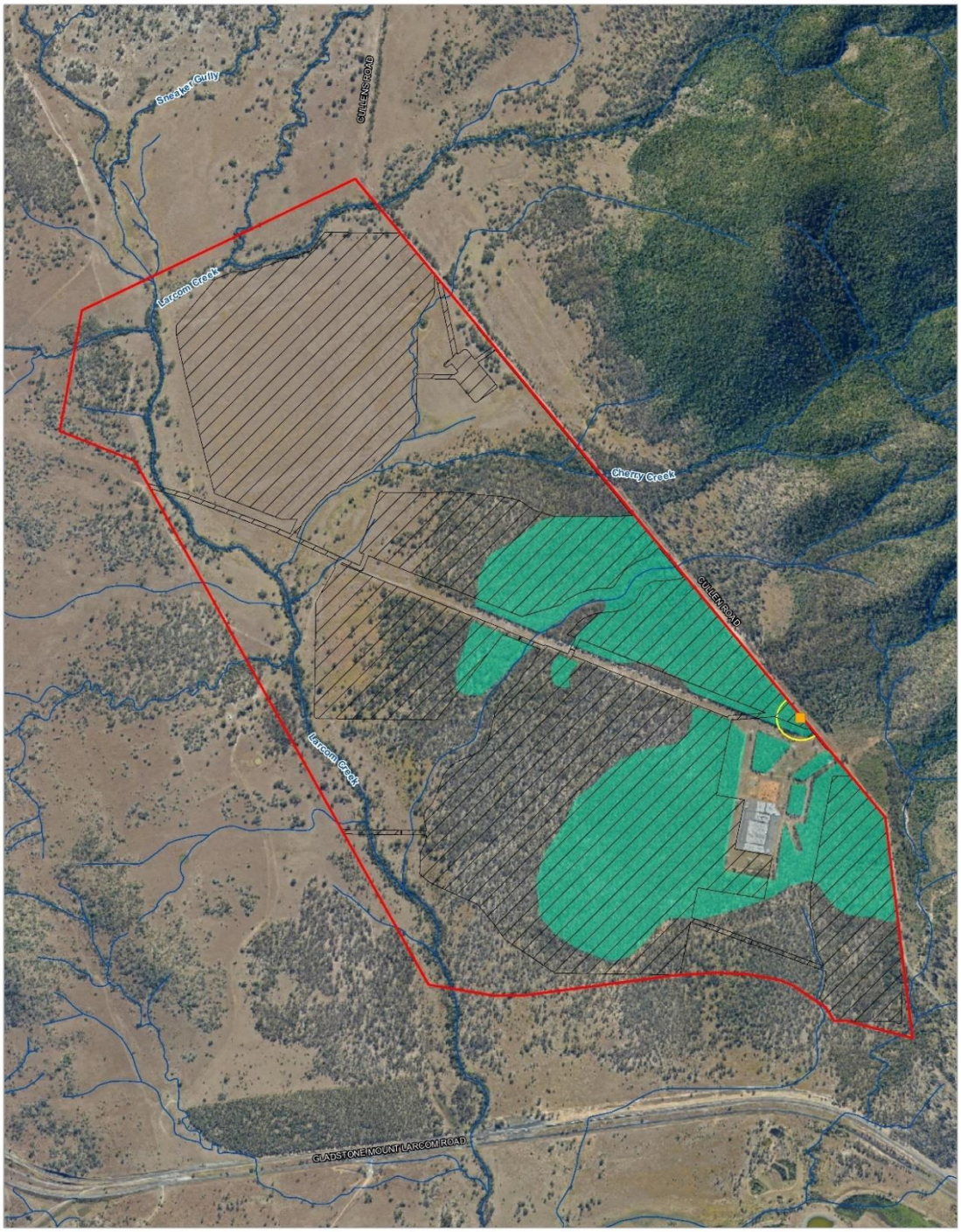



**Figure 3-10 Possible habitat for *Cycas megacarpa***

Project area
Project footprint
Watercourse
*Cycas megacarpa* record (GHD, 2018)
Possible *Cycas megacarpa* habitat
100m from *Cycas megacarpa* record

Ref: MP3_10_Cycas
Author: Deanna Bayliss
Date: 09/02/2022
Datum: GDA94

Meters
0 400 800



NGH

**Attachment F: Risk assessment matrix**

| RISK MATRIX | |
|---|---|
| **Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management activities are implemented)** | |
| Highly likely | Is expected to occur in most circumstances |
| Likely | Will probably occur during the life of the project |
| Possible | Might occur during the life of the project |
| Unlikely | Could occur but considered unlikely or doubtful |
| Rare | May occur in exceptional circumstances |
| **Qualitative measure of consequences (what will be the consequence/result if the issue does occur)** | |
| Minor | Minor **incident** of environmental damage that can be reversed<br>(*e.g. short-term delays to achieving plan objectives, implementing low-cost, well-characterised corrective Actions*) |
| Moderate | Isolated but substantial instances of environmental damage that could be reversed with intensive efforts<br>(*e.g. short term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective Actions*) |
| High | Substantial instances of environmental damage that could be reversed with intensive efforts<br>(*e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective Actions*) |
| Major | Major loss of environmental amenity and real danger of continuing<br>(*e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies*) |
| Critical | Severe widespread loss of environmental amenity and irrecoverable environmental damage<br>(*e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies*) |

| 43. | | Consequence | | | | |
|---|---|---|---|---|---|---|
| | | Minor | Moderate | High | Major | Critical |
| Likelihood<br>44. | 45. Highly Likely | Medium | High | High | Severe | Severe |
| | 46. Likely | Low | Medium | High | High | Severe |
| | 47. Possible | Low | Medium | Medium | High | Severe |
| | 48. Unlikely | Low | Low | Medium | High | High |
| | 49. Rare | Low | Low | Low | Medium | High |

## Attachment G: Salvaging Greater Glider hollows

The approval holder must undertake the salvage and relocation of **Greater Glider hollows** according to the following conditions.

Prior to **clearing** the approval holder must:

a. ensure all **Greater Glider hollows** to be **cleared** as a result of the Action are inspected for **protected matters**;

b. ensure the use of techniques to encourage **Greater Gliders** to leave their hollows prior to removal of any tree, including tapping trees and using spotlights. If **Greater Gliders** are potentially present, trees must be dismantled in sections;

c. the height and orientation of the **Greater Glider hollow** and the species of tree it is derived from must be recorded prior to the salvaging of the hollows;

d. **Greater Glider hollows** must be installed in the relocation site at a similar orientation, height and tree species as recorded in the above condition;

e. depth and height of the **Greater Glider hollows** must be determined prior to salvage operation and retained in the salvage operation;

f. after harvesting, top and bottom of the **Greater Glider hollows** must be sealed to weather-proof the hollow;

g. ensure the excised hollows are deep enough to enable the addition of insulation material and **Greater Gliders**;

h. sawdust from the harvesting of the tree hollow should be retained and used as insulation in the base of the hollow. Insulation material at the base of the hollow must be at least as deep as the thickness of the sides of the hollow. Additional insulation may be required;

i. **Greater Glider hollow** removal and installation must be undertaken by trained arborists;

j. ensure host tree, where **Greater Glider hollow** is to be installed, is protected from ring-barking;

k. installed **Greater Glider hollows** are to be monitored to detect **evidence of Greater Glider** use and monitoring results are to be included in the annual compliance report under condition 36.

# Appendix G Coordinated general conditions of approval

# SDA approval - conditions

| **Condition 1 - approved plans and documents** | | **Timing** |
|---|---|---|
| 1.1 | Carry out the approved development generally in accordance with the approved plans and documents as referenced in Table 1 (including any amendments marked in red), except insofar as modified by any of the conditions of this approval. | To be maintained at all times |

**Table 1 – approved plans and documents**

| Title | Prepared By | Document No | Date |
|---|---|---|---|
| Proposed site infrastructure | Aecom | 60578707-SK-101 | 20/03/19 |
| Proposed site access | Aecom | 60578707-SK-102 | 20/03/19 |
| Potential staging plan | Aecom | 60578707-SK-103 | 20/03/19 |
| Indicative site compound layout plan | Aecom | 60578707-SK-104 | 12/11/18 |
| Indicative O&M Compound refuelling and washdown layout plan | Aecom | 50678707-SK-105 | 12/11/18 |
| Bushfire management plan | Land and environment consultants | 18055 | 4/10/18 |
| Aldoga solar farm: Ecological Assessment Report – Final Report | GHD | | September 2018 |
| Aldoga Solar Farm Landscape and visual impact assessment | Lat27 Pty Ltd | 181003 | 3/10/18 |
| Surface water assessment | Aecom | 60678707 | 3/10/18 |
| Traffic Impact assessment | Access traffic | AEC0118-003 | 4/10/18 |

| **Condition 2 - commencement of the development** | | **Timing** |
|---|---|---|
| 2.1 | Notify the Coordinator-General and Gladstone Regional Council in writing of the date of commencement of:<br>(a) site works,<br>(b) construction, and<br>(c) occupation and use. | *Within 10 business days of commencement of the relevant stage* |

| **Condition 3 - auditing** | | **Timing** |
|---|---|---|
| 3.1 | Prepare and submit relevant audit reports to the Coordinator-General within 30 business days of the following:<br>(a) commencement of site works for Stage 1<br>(b) completion of Stage 1 construction confirming all conditions have been complied with.<br>(c) commencement of site works for Stage 2<br>(d) completion of Stage 2 confirming all conditions of this approval have been complied with.<br><br>Each audit report must include the information requested in **Enclosure 1.**<br><br>*Note:* if development is not staged an audit report is required within 30 business days of commencement of site works and completion | *As indicated* |

| | | |
|---|---|---|
| | of the total development confirming all conditions of this approval have been complied with. | |

| **Condition 4 – inspection** | | **Timing** |
|---|---|---|
| 4.1 | Permit the Coordinator-General, or any person authorised by the Coordinator-General, to inspect any aspect of the development or use.<br>Note: Where practicable, at least forty-eight (48) hours' notice will be provided. | *At all times* |

| **Condition 5 – complaints** | | **Timing** |
|---|---|---|
| 5.1 | Record all complaints received relating to the development / use in a register that includes, as a minimum:<br>(a) date and time when complaint was received;<br>(b) complainant's details including name and contact information;<br>(c) reasons for the complaint;<br>(d) investigations undertaken and conclusions formed;<br>(e) actions taken to resolve this complaint, including the time taken to implement these actions;<br>(f) include a notation in the register as to the satisfaction (or dissatisfaction) of the complainant with the outcome. | *At all times* |
| | Prepare and provide a response to the complainant within 48 hours of receipt of the complaint. | *As indicated* |
| | Provide an up to date copy of the register to the Coordinator-General with each audit report required under Condition 3 – Auditing. | *As indicated* |
| | Provide an up to date copy of the register if requested by the Coordinator-General. | *As indicated* |

| **Condition 6 – fencing** | | **Timing** |
|---|---|---|
| 6.1 | Install adequate security fencing generally in accordance with the approved plans and documents outlined in Condition 1. | *Prior to commencement of the use for the relevant stage and to be maintained* |

| **Condition 7 – services and utilities** | | **Timing** |
|---|---|---|
| 7.1 | Provide and maintain to the relevant standards all services and utilities (power, potable water, sewer, communications, etc) necessary for the use. | *At all times* |

| **Condition 8 – State-controlled road** | | **Timing** |
|---|---|---|
| 8.1 | Submit to the satisfaction of the Coordinator-General a Road Use Management Plan (RUMP) identifying how traffic associated with the movement of construction workers between the city of Gladstone and the surrounding areas and the worksite is to be managed. At a minimum the RUMP must address the following matters:<br>(a) proposed pick-up and drop-off points in Gladstone and surrounding areas; | *At least three months prior to commencement of construction* |

| | | |
|---|---|---|
| | (b) frequency of service, number and capacity of buses to match any shift change times; and<br>(c) adequate availability of car parking spaces at the pick-up and drop-off points.<br>*Note: the RUMP will be submitted to Department of Transport and Main Roads for review.* | |
| 8.2 | Erect temporary "Trucks (crossing or entering)" (T2-25) signs on both Gladstone – Mt Larcom Road approaches to the Flynn Road intersection and on both Bruce Highway approaches to the Narrows Road intersection during the construction period. These signs must be removed at the completion of the construction period. | *For the full duration of the construction period* |

| **Condition 9 - vehicle parking** | | **Timing** |
|---|---|---|
| 9.1 | All parking is to occur on site. | *At all times* |
| 9.2 | Design and construct vehicle access, parking, internal roadways and manoeuvring for vehicles on site in accordance with AS2890.1: 2004 Parking facilities: Part 1 and AS2890.2:2002: Part 2. | *Prior to commencement of the use and to be maintained at all times* |

| **Condition 10 - construction management plan** | | **Timing** |
|---|---|---|
| 10.1 | Submit to the satisfaction of the Coordinator-General a construction management plan (which includes a Traffic Management Plan) prepared by a RPEQ that includes, but is not limited to, the following:<br>(a) management of noise and dust generated from the site during and outside construction work hours<br>(b) erosion and sediment control provisions<br>(c) management of stormwater flows and quality around and through the site without increasing the concentration of total suspended solids or Prescribed Water Contaminants (as defined in the *Environmental Protection Act 1994*), creating any ponding and causing any actionable nuisance to upstream or downstream properties<br>(d) demonstration that there will be no disruption to the safety (including short stacking) and efficiency of The Narrows Road railway level crossing (ID:927 at 564.865km) of the North Coast Line during construction<br>(e) a monitoring program to identify issues of non-compliance, actions for correcting any non-compliance and who is responsible for undertaking those actions<br>(f) measures to mitigate risks to the local environment as per section 5 of the Aldoga solar farm: Ecological Assessment Report – Final Report in Table 1<br>(g) management of potential and identified cultural heritage values on the site<br>(h) a timetable and process for review of the construction management plan to assess its effectiveness and to implement amendments as required.<br><br>*Note: the construction management plan will be submitted to Department of Transport and Main Roads for review.* | *Prior to obtaining approval for Building Works or Operational Works (whichever occurs first)* |

| | | |
|---|---|---|
| 10.2 | Undertake all works generally in accordance with the construction management plan which must always be current and available on site during the construction period. | *At all times during construction* |

| **Condition 11 – roads and access** | | |
|---|---|---|
| 11.1 | The condition of Narrows Road, Flynn Road and Cullen Road that will be impacted by the construction of the use must be maintained to a sufficient standard such that the roads are safe and trafficable, and that nuisance impacts such as dust, are appropriately mitigated. | *At all times during construction* |
| 11.2 | A pre-construction dilapidation inspection and report must be undertaken and approved by Gladstone Regional Council's Development Services on the sealed and unsealed sections of Narrows Road, Flynn Road and Cullen Road that will be impacted by the construction of the use. | *Prior to commencement of construction* |
| 11.3 | Once construction works have ceased, a post construction dilapidation inspection and report must be undertaken and approved by Gladstone Regional Council's Development Services on the sealed and unsealed sections of Narrows Road, Flynn Road and Cullen Road that will be impacted by the construction of the use. Where the condition of any of the aforementioned roads has decreased during construction, prior to commencing the use, the Applicant must reinstate the road(s) to the condition of the road(s) as identified in the pre-construction dilapidation report.<br>*Note: the road is to be maintained to Gladstone Regional Council's appropriate Road level of Service at all times during construction.* | *As indicated* |
| 11.4 | Provide adequate and safe access for firefighting/other emergency vehicles and for safe evacuation. | *At all times* |

| **Condition 12 – site based management plan** | | **Timing** |
|---|---|---|
| 12.1 | Submit to the satisfaction of the Coordinator-General a Site Based Management Plan (SBMP) certified by an independent suitably qualified third party that:<br>(a) includes both stormwater quantity and quality<br>(b) is in accordance with the Engineering Design Planning Scheme Policy under the *Our Place Our Plan Gladstone Regional Council Planning Scheme* and the State Planning Policy – July 2017.<br>*Note: the SBMP will be submitted to the Gladstone Regional Council for review.* | *Prior to the commencement of site works for the relevant stage* |
| 12.2 | Undertake all works generally in accordance with the SBMP which must always be current and available on site. | *At all times* |

| **Condition 13 – stormwater and flooding** | | **Timing** |
|---|---|---|
| 13.1 | The development is required to achieve non-worsening and no-actionable nuisance in terms of stormwater quantity and stormwater quality at both construction and operational stage. | *At all times* |
| 13.2 | Water from the rainwater tanks shall not be discharged towards the stormwater lawful point of discharge. | *At all times* |

| **Condition 14 – stormwater and flooding – railway corridor** | | **Timing** |
|---|---|---|
| 14.1 | Stormwater and flooding management of the development must ensure no worsening or actionable nuisance to the railway corridor. | *At all times* |

| | | |
|---|---|---|
| 14.2 | Any works on the subject site must not create any new discharge points for stormwater runoff onto the railway corridor including:<br>(a) interfering with and/or cause damage to the existing stormwater<br>(b) drainage on the railway corridor<br>(c) surcharge any existing culvert or drain on the railway corridor<br>(d) interfere with hydraulic conveyance and/or overland flow paths<br>(e) reduce the flood storage capacity of the site. | *At all times* |
| 14.3 | Submit to the Coordinator-General and Department of Transport and Main Roads, RPEQ certification confirming that the development has been constructed in accordance with condition 14.1 and 14.2. | *Prior to commencement of use for the relevant stage* |

| **Condition 15 – decommissioning plan** | | **Timing** |
|---|---|---|
| 15.1 | Submit to the Coordinator-General a decommissioning plan certified by an independent suitably qualified third party/ies that includes the following:<br>(a) plans showing full or partial decommissioning;<br>(b) plans showing "make safe" decommissioning to leave a structure/s in place for use by others (to be named);<br>(c) timeframe required for decommissioning project including operating hours of work;<br>(d) management of noise and dust generated from the site during decommissioning work hours;<br>(e) site clearance and remediation plans detailing the proposed works and timing to restore the site;<br>(f) a monitoring program to identify issues of non-compliance, actions for correcting any non-compliance and who is responsible for undertaking those actions;<br>(g) a timetable and process for review of the decommissioning plan to assess its effectiveness and to implement amendments as required.<br><br>Undertake all works generally in accordance with the decommissioning plan which must always be current and available on site during the decommissioning period. | *Submit six (6) months prior to the commencement date of all decommissioning activities.*<br><br>*As indicated* |
| 15.2 | Provide notification and photographic evidence to the Coordinator-General that the construction site has been decommissioned and the site rehabilitated. | *Within 30 business days of the completion of all decommissioning activities.* |

| **Condition 16 – bushfire hazard** | | **Timing** |
|---|---|---|
| 16.1 | During construction, all internal roads shall be constructed with a minimum formed width of 4m and 1m wide buffer either side with a maximum grade of 12.5%. | *As indicated* |
| 16.2 | Provide an easily accessible concrete water storage tank or dam on site. The water storage infrastructure is to:<br>(a) be constructed with fire brigade fittings<br>(b) have a minimum capacity of 5,000 litres<br>(c) be readily identifiable with clear signage. | *Prior to commencement of the use for the relevant stage* |

| | | |
|---|---|---|
| 16.3 | Submit fire management plans to the Coordinator-General for each of the construction and operational phases of the development as per the recommendations contained in the Bushfire Management Plan in condition 1 Table 1. | *Prior to construction of the relevant stage* |

| **Condition 17 – landscaping** | | **Timing** |
|---|---|---|
| 17.1 | Submit to the satisfaction of the Coordinator-General, a Landscaping Plan prepared in accordance with Table 9.3.5.3.2 – Plant Species List of the Landscaping Code of the *Our Place Our Plan Gladstone Regional Council Planning Scheme* and the Capricorn Municipal Development Guidelines – Landscaping C273 Construction Specification.<br>The Landscape Plan must:<br>(a) demonstrate how areas will be adequately screened to protect local views, vistas and sightlines as well as its visibility from roads and other public viewpoints impacted by the development in accordance with the recommendations of the Visual Impact Assessment in Table 1<br>(b) incorporate all recommendations outlined within the Visual Impact Assessment and be certified by a Landscape Architect<br>(c) indicate appropriate ground cover to be established between the rows of solar panels and underneath the panels. The proposed ground cover must be maintained at all times during the use<br>*Note: Gladstone Regional Council's construction specification is located within Capricorn Municipal Development Guidelines – Drawings and Specifications at http://www.cmdg.com.au/index.htm.*<br>*The Landscaping Plan will be submitted to Gladstone Regional Council for review.* | *Prior to commencement of use for the relevant stage* |
| 17.2 | Landscaping areas are to be constructed with an appropriate irrigation system if required. Details of any irrigation system or appropriate watering plan (as determined by reference to the plant species to be used) are to be provided as part of the Landscaping Plan. If it is determined an irrigation system is not required supporting information is required to be submitted in this regard. | *Prior to commencement of use for the relevant stage* |
| 17.3 | Landscaping areas identified in the Landscaping Plan that require irrigation or a Water Management Plan must be constructed prior to the commencement of the use. | *Prior to commencement of the use* |
| 17.4 | Implement the works in the landscape plan. | *Within six (6) months of the commencement of use for the relevant stage* |
| 17.5 | Maintain landscaping including ground cover and irrigation systems and replace any failed or failing trees or shrubs. | *At all times* |

| **Condition 18 – weed management** | | **Timing** |
|---|---|---|
| 18.1 | Submit to the satisfaction of the Coordinator-General a Weed Management Plan prepared by a suitably qualified person as per the mitigation measures in the Aldoga solar farm: Ecological Assessment Report – Final Report in Table 1 for both the construction and operation phase of the development. Among other things, the plan is to detail: | *Prior to commencement of use for the relevant stage* |

| | | |
|---|---|---|
| | (a) hygiene protocols restricting the movement of vegetation and soil between impacted areas and areas of significantly lower weed infestation<br>(b) protocols for monitoring and management of weeds to identify and appropriately respond to significant changes in weed distribution and density.<br><br>*Note: the Weed Management Plan will be submitted to Gladstone Regional Council for review.* | |

| **Condition 19 - repair of damage** | | **Timing** |
|---|---|---|
| 19.1 | Repair any property fencing, roads, service infrastructure and re-instate existing signage and pavement markings that have been removed or damaged during any works carried out in association with the approved development. | *Prior to commencement of use and ongoing* |

| **Condition 20 – waste management** | | **Timing** |
|---|---|---|
| 20.1 | Submit to the Coordinator-General a Waste Management Plan prepared in accordance with the Waste Management Planning Scheme Policy of the *Our Place Our Plan Gladstone Regional Council Planning Scheme.* | *Prior to commencement of use for the relevant stage* |
| 20.2 | The waste storage area/s are to be sufficient in size to house all waste collection containers including recycling waste containers. The waste storage area/s must be suitably enclosed and imperviously paved, with a hose cock and hose fitted in close proximity to the enclosure to ensure the area can be easily and effectively cleaned. | *Prior to commencement of use for the relevant stage* |
| 20.3 | All permanent open storage areas shall be adequately screened to ensure it does not detract from the visual amenity of the area. | *Prior to commencement of use for the relevant stage* |

| **Condition 21 – lighting** | | **Timing** |
|---|---|---|
| 21.1 | Ensure outdoor lighting installed within the development minimises light spill in the adjacent properties and sensitive receptors in accordance with AS4282:1997 Control of obtrusive effects of outdoor lighting. | *To be maintained* |
| 21.2 | Ensure all lighting at ground level and associated ground level areas are focused downwards and provided with hoods, shades or other permanent devices to direct illumination downwards. | *Prior to the commencement of the use for the relevant stage and to be maintained* |

| **Condition 22 – 'As Constructed' plans** | | **Timing** |
|---|---|---|
| 22.1 | Submit to the Coordinator-General 'As Constructed' detailed plans certified by an RPEQ or other independent suitably qualified person.<br><br>The plans must show all relevant elements of the development. Plans must be submitted to the Coordinator-General in electronic pdf. | *Within 30 business days of the commencement of the use for the relevant stage* |

| **Condition 23 – temporary works and uses** | | **Timing** |
|---|---|---|
| 23.1 | All temporary works/uses listed below are to remain no longer than 18 months from the completion of construction of the | *As indicated* |

| | | |
|---|---|---|
| | relevant stage, unless otherwise agreed to in writing by the Coordinator-General:<br>(a) temporary laydown areas and site compound on Lot 2 SP301578 shown on plan 60578707-SK-102.<br>(b) temporary construction access over Lot 2 SP301578 (site access point D), Lot 1 on SP260750 (site access point A) and Cullens Road (site access point B) shown on plan 60578707-SK-102. | |
| 23.2 | Provide notification and photographic evidence to the Coordinator-General that the temporary laydown area and temporary construction access has been decommissioned and the site rehabilitated. | *Within 30 business days of the completion of all decommissioning activities* |

| **Condition 24 – cultural heritage** | | **Timing** |
|---|---|---|
| 24.1 | Submit to the Coordinator-General confirmation that the proponent has complied with the duty of care obligations under the *Aboriginal Cultural Heritage Act 2003 (Qld).* | *Prior to the commencement of onsite works* |

# Advice

### Currency period

This SDA approval is valid until the end of the currency period, four years after the date of approval, unless the approval states a different period. For the SDA approval to remain valid the proponent must have, before the end of the currency period:

- (if the development is reconfiguring a lot) provided the plan of subdivision to the Coordinator-General for approval in accordance with the relevant development scheme; or
- (for all other development) substantially started the development; or
- made an application to the Coordinator-General to extend the currency period.

### Other approvals

This approval relates solely to the material change of use for Renewable Energy Facility (solar farm) and Substation within the Gladstone State Development Area. All other approvals and/or permits required under local, state and/or commonwealth legislation must be obtained prior to the commencement of the use.

Approval to use the track on Lot 1 on SP260750 is required. Discussions are recommended with State Development Area Division officers in relation to this.

### Gladstone Regional Council

Other development permits to be obtained from Gladstone Regional Council for the development include:

- operational works,
- building works, and
- plumbing and drainage works.

The Applicant is required to obtain a Development Permit and Building Final for Building Works in accordance with the *Planning Act 2016* for the removal of any existing structures. The removal of the structures is to occur prior to any Building Works for the approved Development.

The applicant is required to obtain a Development Permit for Plumbing and Drainage Works and Plumbing and Drainage Final in accordance with the Planning Act 2016 and construction is to comply with the Plumbing and Drainage Act 2002 and the requirements of other relevant authorities.

As part of any Development Application for Building Works, a water tank is to be constructed in association with the ancillary proposed Control Building for on-site water.

As part of any Development Application for Plumbing and Drainage works, any on-site effluent disposal systems are to be sited above 1% of the Defined Flood Event flood level in accordance with State Planning Policy Mapping – Flood Hazard Area – level 1 – Qld Floodplain Assessment Overlay.

### Department of Transport and Main Roads

The applicant should consult with the railway manager (Aurizon) regarding the requirement for a Construction Management Plan. Please contact Mariese Murphy of Aurizon on telephone number (07) 3019 1171 or at Mariese.Murphy@aurizon.com.au in relation to this matter.

Under the *Transport Infrastructure (Rail) Regulation 2006* permission from the Railway Manager (Aurizon) is required to take over dimensional road loads across Aurizon Infrastructure (e.g. rail level crossings). Further information can be obtained from Aurizon's website at: http://www.aurizon.com.au/network/overdimensional-loads.

Should the provision of a RUMP not be agreed to, there will likely be significant traffic impacts on the State-controlled Road network due to the movement of approximately 500 construction workers at peak times between their domiciles and the worksite. In this instance, a revised Traffic Impact Assessment must be provided a minimum of three (3) months prior to commencement of construction activities to assess the impacts of these additional traffic movements and suitable mitigation measures must be provided to ensure no significant impacts result to the SCR network.

In relation to the condition for the provision of temporary "Trucks (crossing or entering)" signs (T2-25), the applicant must obtain a Road Corridor Permit approval pursuant to section 50 of the *Transport Infrastructure Act 1994* prior to erection of the required road signs or commencement of any construction works that utilise the Gladstone – Mt Larcom Road / Flynn Road or the Bruce Highway / The Narrows Road / King George Street intersections.

**Department of Agriculture and Fisheries**

Where possible, all waterways mapped as waterways for waterway barrier works are to be avoided. Where avoidance is not possible works must comply with the *Accepted Development Requirement for Operational Work that is Constructing or Raising Waterway Barrier Works*. Where works cannot meet the accepted development requirements development approval is to be obtained via the State Assessment Referral Agency (SARA).

**Powerlink**

All works near Powerlink infrastructure must be compliant with Annexure A – generic requirements of the Management of Easement Co-Use Request Guidelines. The guideline is available at:
https://www.powerlink.com.au/sites/default/files/2018-01/Management%20of%20Easement%20Co-Use%20Requests%20Guideline.pdf.

Maintain compliance with the terms and conditions of the easement dealing number 703107431.

Compliance with the *Electrical Safety Act 2002* including any Code of Practice under the Act and the *Electrical Safety Regulation 2013* including any safety exclusion zones defined in the Regulation. In respect to this application the exclusion zone for untrained persons and for operating plant operated by untrained persons is **six (6) meters from the 275 000-volt** wires and exposed electrical parts. Should any doubt exist in maintaining the prescribed clearance to the conductors and electrical infrastructure, then the applicant is obliged under this Act to seek advice from Powerlink.

The SDA approval does not constitute an approval to commence any works within the easement. Prior written approval is required from Powerlink Queensland before any work is undertaken within the easement areas. All works on easement (including but not limited to earthworks, drainage and detention basins; road construction; underground and overhead service installation) require detailed submissions, assessments and consent (or otherwise) by Powerlink.

**Cultural heritage – duty of care**

Where items of archaeological importance are identified during construction of the project, the proponent must comply with its duty of care under the *Aboriginal Cultural Heritage Act 2003* and the Department of Environment and Heritage Protection 2014 guideline: archaeological investigations. All work must cease and the relevant State agency must be notified. Work can resume only after State agency clearance is obtained.

**Enclosure 1**

The following information will be required in an audit report:

- Details of the development approval, including the SDA approval number, the date of approval and a summary of the audit reporting requirements. This should include a schedule of the dates by which audit reporting is to be provided to the Coordinator-General.

- Details of the independent, suitably qualified person(s) (the auditor) responsible for preparing the audit report, including the auditor(s):

    - name, position, company and contact details

    - qualifications and experience

    - proof that the auditor is an independent third party unaffiliated with the proponent.

- Details of any external suitably qualified person(s) used to supplement reports/plans outside of the auditor's expertise.

- An audit evaluation matrix including but not limited to:

    - each condition of the SDA approval, and the status of the condition at the end of the relevant audit period

    - where a condition is current or complete, (to be activated, activated, complete), whether compliance has been achieved (compliant, non-compliant or not applicable), how compliance has been achieved (description of works, tasks or actions undertaken) and how the evaluation of the audit has been undertaken

    - a full description of the relevant standards, practices etc. against which works have been assessed together with evidence (reports, site photographs, certification documentation) to support the evaluation of the works against the compliance standards

    - the title, date, location and holder of any documentation referred to in the compliance evaluation matrix but not provided with the audit to allow the Coordinator-General to call upon these documents as required

    - details of any non-compliances identified by any party during the current audit period and a methodology specifying how compliance has been/will be achieved and by when it will be achieved, and

    - details of previous audit reports (if relevant) with an update on any non-compliance, corrective actions and revised practices (as relevant) undertaken and the current status of any corrective actions.

- Additional evidence to support the compliance evaluation, including the date and locations of any site inspection/s conducted during the preparation of the audit report and details of any employees of the proponent interviewed for the audit.

- The auditor's declaration whereby the auditor:

    - certifies the conditions contained in the SDA approval have been satisfactorily complied with, subject to any qualifications which the author has outlined in the audit report

    - certifies that to the best of the auditor's knowledge, all information provided in the audit report is true, correct and complete, and

- acknowledges it is an offence under section 157O of the *State Development and Public Works Organisation Act 1971*, to give the Coordinator-General a document containing information the auditor knows is false or misleading in any material particular.

- Any further attachments the auditor considers relevant to the audit report.

An audit report guideline has been prepared to provide guidance to proponents and auditors in compiling audit reports. The guideline is available on the Department of State Development, Manufacturing, Infrastructure and Planning website at www.statedevelopment.qld.gov.au/state-development-areas/applications-and-requests.html or by contacting the SDA Division on 1800 001 048 or via sdainfo@coordinatorgeneral.qld.gov.au.

# Appendix H Suitably qualified ecologist CV

# Beth Kramer

B. Sc, M. Env. Mgt.
MEIANZ

## General Manager - Biodiversity

Beth is a principal ecologist with 17 years practical experience and a diverse skill set, providing value-adding contributions across multiple disciplines within the environmental field.

Her preferred project approach is one of collaboration, drawing on extensive industry contacts to bring together a team ideally suited to the task at hand. She adopts a pragmatic and practical approach to finding solutions, both to resolve the proponent's environmental issue as well as for internal resourcing or strategic company challenges. Risk and safety management are embedded within all facets of her professional approach. Beth has strong verbal and written communication skills which align with her passion for high quality and fit-for-purpose deliverables.

She has been the project manager and lead biodiversity report author for all phases of a project, including organising field surveys, preparing development approvals (Queensland and New South Wales), referrals under the *Environment Protection and Biodiversity Conservation Act 1999*, post approval management plans, construction management plans, and operational monitoring programs.

Her skills and expertise include:

- project management
- quality control and technical review
- professional/expert opinion
- scientific writing
- stakeholder and client liaison/consultation
- strategic conservation planning
- environmental planning
- ecological impact assessment
- project approvals
- conservation and management plans
- environmental compliance monitoring
- environmental management for construction projects
- policy development.

## Tertiary Qualification

***Griffith University (2005)***
Master of Environmental Management

***University of Tasmania (2001)***
Bachelor of Science (Zoology and Environmental Science)

## KEY PROJECTS

***Renewable energy projects***

- Ecological assessment & approvals
  - Lotus Creek Wind Farm
  - Callide Wind Farm
  - Banana Range Wind Farm
  - Two far north Qld wind farms
  - Winterbourne Wind Farm
  - Aldoga Solar Farm
  - Theodore Solar Farm
- Post approval management plans - Clarke Creek Wind Farm
- Construction phase ecology – Coopers Gap Wind Farm

***Government projects***

- Expert opinion (ecology) - Sunshine Coast Council
- Expert review of wind farm applications against Qld State Code 23 - DSDMIP
- Verifying Koala likelihood map – DPIE
- Local government offset policy development

***Strategic planning projects***

- Identifying local habitat linkages – City of Gold Coast
- Environmental network strategy - Sunshine Coast Council
- Biodiversity strategy development – Fairfield and Camden Councils
- Informing planning scheme zone changes – Sunshine Coast Council

***Development assessment projects***

- South Ripley ecological assessment for a context plan – AT&L
- Ecological assessment for water infrastructure upgrade – Stantec

***Environmental compliance projects***

- Construction environmental management plan and compliance monitoring at Gold Coast Airport

# Professional Experience

***General Manager – Biodiversity & Associate Director – NGH Pty Ltd***

March 2018 - present

- Assisting to set the strategic direction of the company and establishing and implementing strategic and business plans
- Leading strategic and operational activities across the Biodiversity service line
- Active role in the leadership of the company
- Technical input and advice for ecological projects
- Review and quality control of documentation
- Business development and marketing

***Into Nature Program Leader – City of Gold Coast***

2017- August 2018

- Stakeholder engagement and establishing partnerships (both internal and external)
- Program development
- Implementation of new initiatives (citizen science and community environmental engagement)

***SEQ/NSW Regional Manager and Senior Environmental Scientist – Ecosure***

2005 - 2017

- Led a team of professional ecological consultants and contracting wildlife officers across three regions (Brisbane, Gold Coast and Coffs Harbour)
- Project managed and prepared documentation relating to terrestrial and aquatic ecology, wildlife management, spatial modelling/GIS, bush regeneration
- Responsible for ISO9001 certified quality management system

***Senior Environmental Policy Officer – City of Gold Coast***

2010 - 2011

- 12-month role contracted through Ecosure
- Developed biodiversity offset policy and implementation framework
- Participated in the SEQ Council of Mayors offsets working group

# Training and Associations

- Member Environment Institute of Australia and New Zealand
- Member Queensland Environmental Law Association
- Senior First Aid
- WHS General Induction for Construction Work in NSW/QLD (White card)

# Presentations and Publications

- Kramer, E. and Noel, B. 2019. *Can intensive management of solar panel gaps generate a positive local biodiversity outcome?* Poster presented at the EIANZ National Biodiversity Offsets Conference, Canberra, ACT (Aug 26-28).
- Kramer, E. 2017. *Protecting the Environment at Leased Federally Owned Airports*, Environment Institute of Australia and New Zealand Forum – Protecting the Environment on Commonwealth Land, Canberra, ACT
- Kramer, E. and Peacock, C. 2011. *Developing a Robust Ecological Offsets Policy in a Local Government Framework*, Queensland Environmental Law Association Conference Proceedings, Sanctuary Cove, QLD

# Joanne Davis | BSc (Hons)

## Senior Ecologist

Jo is a Senior Ecologist experienced in conducting ecological surveys across Queensland for large-scale renewable and infrastructure projects. Jo has extensive experience in fauna surveys and applying relevant survey guidelines and methodologies to detect threatened species and identify threatened species habitat. Jo is skilled at identifying vegetation communities, conducting threatened ecological community assessments, threatened flora surveys and BioCondition assessments. Jo is highly experienced at translating field data into technical reports, including ecological assessment reports, significant impact assessments, constraints assessments and species management plans. Jo is also proficient in geospatial analysis.

## Focus areas

- Project Management
- Technical writing, reports, ecological assessment reports, impact statements species management plans, environmental monitoring reports
- Spatial and data analysis
- Legislation
- Field surveys and survey planning
- Data collection

## Professional associations and accreditations

- First Aid training
- Animal handling course
- Operate and Maintain a Four-Wheel Drive Vehicle
- Standard 11 Generic Coal Induction
- Certificate of Attainment Assessing Injuries and Disease in Birds
- Venomous Snake Handling Certificate
- Safe Techniques for Handling Wildlife

## Project experience

### Renewable energy

**Callide Wind Farm (DP Energy)**

The proposed Callide Wind Farm project has the potential for an installed wind turbine capacity of some 430MW, comprising both permanent and temporary elements. **Senior Ecologist.** Conducted field surveys mapping vegetation community boundaries, assessing habitat and surveying presence of threatened flora (*Cycas megacarpa*). Prepared GIS habitat layers for threatened species. Assisted with preparation of the Ecological Assessment Report.

**Boomer Green Energy Hub Wind Farm and BESS (Ark Energy)**

The proposed Boomer Green Energy Hub has the potential to generate up to 1,150MW of power to the national electricity grid. **Senior Ecologist.** Preparation of GIS habitat layers for threatened species, preparation of Ecological Assessment Report and EPBC Act referral application.

**Kidston Wind Farm (Genex Energy), Lyndhurst QLD**

When operational, the 258MW Kidston Wind Project will contribute to the Queensland renewable energy target requiring 70 per cent renewable energy by 2032 and 80 per cent by 2035. **Workstage Manager.** Preparation of the Ecological Assessment Report to support State Development Application and the Commonwealth EPBC Act referral

application. Liaising with sub-contractors and team members to manage field surveys and delivery of specialist reports.

**Sixteen Mile Solar Farm (X-Elio), Hopeland, QLD**

Proposed solar farm project in the Western Downs Region that is expected to have an installed capacity of up to 420MW power, plus storage. **Senior Ecologist**. Lead field surveys validating flora and fauna values at the site. Preparation of Ecological Assessment Reports including impact assessments to support the State Development Application and the Commonwealth EPBC Act referral application.

**Lakeland Wind Farm (Windlab), Lakeland QLD**

This approved wind energy project will provide enough clean energy for over 50,000 Queensland households. **Ecology Field Team Lead.** Leading field surveys involving mark-recapture and GPS tracking of Northern Quoll and Black-footed Tree-rat. Fauna surveys collecting baseline data for threatened birds and bats. Preparation of Ecological Assessment Report and species management plans.

**Cooper's Gap Wind Farm (CATCON), Jandowae QLD**

The project consisted of 123 3.6 MW/3.8 MW turbines and at the time of completion in 2019 was the largest wind farm in Australia. **Senior Ecologist.** Environmental monitoring in accordance with approval conditions, including bird and bat mortality monitoring.

## Linear infrastructure

**Aldoga Access Road Constraints (Acciona), QLD**

Proposed upgrade to an existing track that will provide access to the recently approved Aldoga Solar Farm. **Senior Ecologist**. Preparation of a constraints analysis based on desktop and field survey data. Prepared a risk matrix to identify portions of the proposed access road with high, moderate and low constraints, determined by potential for ecologically significant matters to be present. Prepared spatial layers to support the constraint report.

**Construction of a powerline(Glencore), Capella QLD**

Proposed powerline extension near Capella as part of an infrastructure upgrade for a proposed coal mine in the region. **Project Manager and Senior Ecologist.** Lead ecologist conducting field surveys for threatened flora and threatened ecological communities. Prepared impact assessments to support a EPBC Act referral. Managed all aspects of the project including field survey, subcontractor engagement, reporting, budgeting and invoicing.

**Inland Rail, Queensland (ARTC), Kagaru**

Proposed Inland Rail Freight Corridor, Gowrie to Kagaru section, comprising 128 km of new rail track. **Ecologist.** Undertaking flora and fauna surveys of the proposed rail alignment to assist with constraints analysis.

## Government

**Turtle hatchling monitoring, (Gladstone Port Authority), Curtis Island QLD**

Monitoring the direction of sea turtle hatchlings as they emerge from their nest to determine if lights from the Gladstone Port is interfering with hatchling's ability to navigate from the nest to the ocean. **Senior Ecologist.** Long-term monitoring of sea turtle nests for successful hatchling emergence and calculating change in the direction of hatchling dispersal over time.

**Significant Tree Identification (Brisbane City Council), Brisbane**

Surveys of Council reserves to identify presence to significant trees. **Ecologist**. Assisted with grid searches to locate 'significant trees' as defined by Brisbane City Council as large trees with diameter at breast height > 1 m, habitat (hollow-bearing) trees, scar trees and trees with significant fire scarring.

# Appendix I Construction Environmental Management Plan

# Construction Environmental Management Plan
# Aldoga Solar Farm

## CONTROL

| PREPARED BY | REVIEWED BY | APPROVED BY |
|---|---|---|
| ###Elaboradores | ###Revisores | ###Aprobadores |
| ###FechaElaboracion | ###FechaRevision | ###FechaAprobacion |
| *[SIGNATURE]* | *[SIGNATURE]* | *[SIGNATURE]* |

*The signed original is kept by **ACCIONA**.*





## DOCUMENT DEVELOPMENT

| | Author | Reviewer | Approver |
|---|---|---|---|
| **Name** | Meagan Kay | | |
| **Date** | 23/03/2023 | | |
| **Signature** | | | |

## RECORD OF CHANGES

| REV. | DATE | DESCRIPTION |
|---|---|---|
| A | 23/03/2023 | Document developed |
| B | 29/03/2023 | Minor updates made for project accuracy |

CONTENTS

# 1. PURPOSE

## 1.1. PURPOSE OF THIS DOCUMENT

This Environmental Management Plan (EMP) establishes the management procedures and controls to be implemented by Acciona Energia (AE), its employees, construction contractors and associated subcontractors during the construction phase of the project to minimise harm and mitigate environmental risk.

The objectives of this EMP are to:

- Outline Acciona Energia and its contractors' responsibilities for environmental management
- Identify the key activities that are likely to be associated with the construction of the project
- Identify potential impacts and key environmental risks that may occur due to these activities
- Detail environmental management procedures and controls to minimise or mitigate these potential impacts
- Provide an overview of the environmental regulatory requirements for the project
- Identify monitoring and reporting requirements to assess the effectiveness of the measures adopted during the construction phase

This EMP has also been prepared to support and comply with Condition 17 of the State Development Approval (SDA) AP2020/006.

This EMP is intended to be a guidance document that demonstrates how environmental risks will be managed on site. This document is to be continually developed in more detail as the project progresses into detailed design and construction. It may also be updated to reflect changes in legislation.

# 2. SCOPE

## 2.1. Project Overview

Acciona Energia will construct and operate the Aldoga Solar Farm located in Aldoga, Queensland. The project is located approximately 20 km northwest of the Gladstone Central Business District. The site extends across Lot 2 SP301578, Lot 1 SP307522 and Lot 1 SP260750 (Temporary Construction Access) which are owned by Economic Development Queensland (EDQ). The Project also proposes an Overhead Transmission Line (OHTL) connected to the Powerlink's Larcom Creek Substation on Lot 1 SP157677. This land is owned by Powerlink.

Once at full capacity, the project has the potential to provide up to 480MWn and power 234,000 homes.

Infrastructure that proposed to be constructed for this project includes:

- Solar photovoltaic (PV) blocks with perimeter fencing
- Three (3) construction site access points
- Internal access tracks
- Overhead (up to 275 kV) Transmission Line
- Underground medium voltage electrical reticulation
- A solar farm substation
- An Operations and Maintenance facility

- One (1) construction compound, including site offices, with three (3) additional laydown yards

## 2.2. Project Description

### *2.2.1. Locality*

The Aldoga Solar Farm is located approximately 20km from Gladstone in Aldoga, Queensland, as shown in Figure 2.1. The region is predominantly used for cattle grazing and contains vehicle access tracks, fencing, farm sheds, cattle yards and stock water facilities. There are also rural properties to the north of the site. The project is situated over Lot 1 SP307522, SP157677, SP260850 and Lot 2 SP301578 and the total extent of the project is an area of approximately 1,137 hectares. The surrounding land will continue to be used for grazing where possible during construction and operational phases.

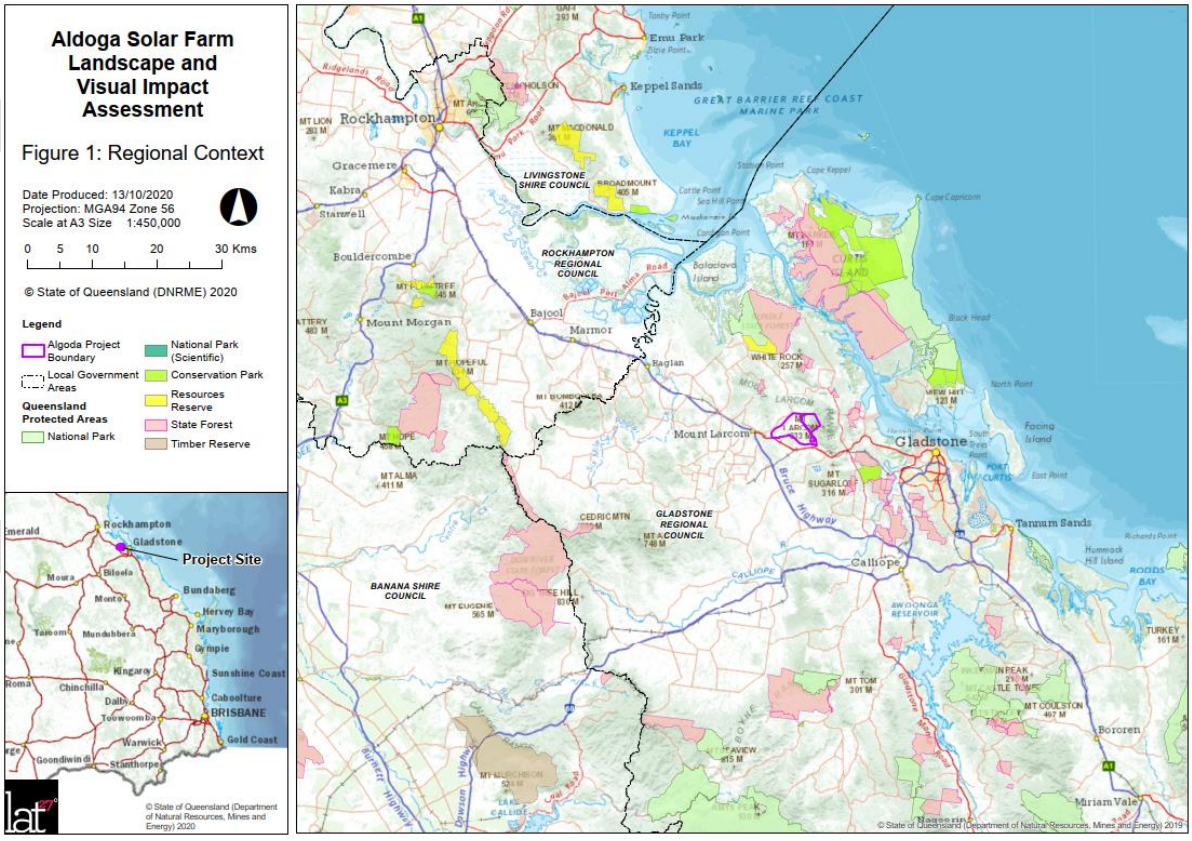



*Figure 2.1: Aldoga Solar Farm site locality plan*

### *2.2.2. Infrastructure*

#### *Photovoltaic Panels and Foundations*

The foundations required for panel installation (approximately 2.3m x 1.1m) will generally be inground steel mounting structures that are expected to be piled or screwed into the ground between 2.5m and 4m. Some locations may require concrete footings however, ground conditions, construction methodology and drainage design will influence the foundation type and size required.

#### *Internal access tracks*

The onsite access tracks will be constructed to allow for construction equipment and light vehicle traffic during construction and light vehicle traffic during the operation and maintenance period. The layout will be finalised during detailed design; however the following criteria and mitigation measures are generally applied to the access track layout to minimise potential impacts:

- Tracks will be no wider than 10m within a construction corridor and will generally be constructed from locally sourced crushed rock
- The number of watercourse crossings to be minimised where practicable
- Track margins will be vegetated where possible to reduce potential sediment-laden run-off.

The construction of access tracks will vary depending on localised ground conditions. Conditions impacting construction include the existing vegetation, nature of the topsoil, level of moisture in the ground, geotechnical base, and localised topography.

***Temporary concrete batching plant***

Temporary concrete batching plants will be required for the proposed development. The management requirements of a concrete batching plant have been addressed in this EMP reflect a precautionary approach.

The batching plants will be used to manufacture concrete principally for the foundations, however smaller volumes will also be manufactured for building foundations and bunding (e.g. substation facilities), culverts, etc. Batching plant operations will potentially require out of hours works and involve ongoing delivery of materials and aggregates, front end loader operations and agitator trucks.

***Electrical components***

*Underground Electrical Reticulation*

Power and communication cables will be installed between the power conversion units (PCUs) and connect back to the substation and the operational and maintenance facility. The underground power and communication cables will generally be laid in single cable trenches to a depth of approximately 1000 mm to allow for continued farming activities.

*Overhead Transmission Line*

The project will include up to a 275 kV OHTL extending from the project substation to the Larcom Creek Terminal Substation. These works may involve clearing of vegetation to maintain the necessary electrical easement.

*Substation*

The substation will be located in the centre of the solar farm, adjacent to Power Blocks A and B. The substation will include at least one transformer to convert the generated medium voltage electricity (up to 36kV) into high voltage for conveyance of electricity along the proposed OHTL to the Terminal Substation.

The proposed substation will include offices, workshops, switchyard and switch-room, a step-up transformer and high voltage equipment.

*Operational and Maintenance Facilities*

A maintenance facility will consist of two buildings. An office facility will be constructed to house instrumentation, electrical and communications equipment, an office area, and staff amenities. A warehouse building will be constructed to house spare componentry and equipment for operating the solar farm. Other permanent site facilities may include car parks and storage facilities, fuels, hazardous substances storage facilities.

It is expected that these facilities will be contained within an area approximately 20m x 60m.

# 3. DESCRIPTION

## 3.1. Environmental Compliance

### *3.1.1. Inspections*

During construction, the HSE Manager or Site Environmental Coordinator will conduct regular inspections of work sites to ensure this EMP, and other associated management plans, are being correctly implemented. Checklists will be completed, and any issues identified will be rectified where possible. Environmental checklists will be made available on request.

### *3.1.2. Audits*

#### 3.1.2.1. Internal audits

Internal audits will be completed in accordance with the Acciona Energia *Internal Audit Procedure* (PAU01_GAE07070) or as deemed necessary based on project risk assessments. Subcontractors may be subject to regular environmental audits.

#### 3.1.2.2. External audits

External audits will be conducted, as required, to maintain Company applicable certificates, such as ISO (International Organisation for Standardisation) accreditation, or to meet project specific requirements. This may include audits relating to Federal or State permits and their associated management plans.

### *3.1.3. Reporting*

#### 3.1.3.1. Internal

During construction, monthly project reporting may incorporate information contained within environmental inspections, monitoring results, training undertaken, environmental initiatives or incident records and actions.

Subcontractors will be required to provide monthly Health, Safety, Environment and Quality reports relating to their scope of works.

All environmental incidents, near misses and hazards must be reported to Acciona Energia.

#### 3.1.3.2. External

Reporting will be undertaken in accordance with the legal obligations and compliance requirements set out for the project. Acciona Energia aims to provide timely, relevant, and appropriately presented

information to government authorities, the local stakeholders, and the public on the environmental performance of the project.

Any significant environmental incidents or serious breaches of the approval conditions will be reported to the relevant authorities in a timely manner and in accordance with legislative requirements.

### *3.1.4. Incident Management*

All environmental incidents, near misses and hazards must be reported to the Site Manager immediately. Subcontractors must notify the Acciona Energia Site Manager, as soon as reasonably practicable once they become aware of an environmental incident, near miss or hazard, regardless of whether it is directly related to their scope of works. Corrective actions must be recorded within *Enablon* and tracked to completion.

For further information on event reporting requirements, refer to the *Event Reporting and Management Procedure (*PAU01_GAE07021).

#### 3.1.4.1. Notifiable Incidents

Notifiable incidents include those causing or threatening to cause pollution or adverse environmental harm as defined by the Queensland *Environmental Protection Act 1994*. Examples of actual or potential environmental harm include spills or leaks causing large scale pollution, unauthorised clearing of protected vegetation or hazardous substances entering waterways.

Appropriate emergency response should be initiated in the event of a serious environmental incident to minimise the potential severity so far as reasonably practicable.

Any notifiable incidents, including breaches to project permits, should be reported immediately to the Project Manager and the Corporate Compliance team. All environmental incidents or breaches will be reported to the relevant authorities as required, and within the applicable timeframes as determined by legislation or the project specific permits.

| Notifiable Incident Reporting | |
|---|---|
| ***Environment Protection Act 1994 – notification of environmental harm*** | |
| Regulatory Authority | Department of Environment and Science |
| Submission Contact Details | Email: pollutionhotline@des.qld.gov.au<br>Phone: 24/7 Pollution Hotline—1300 130 372 |
| Notification Timeframe | Within 24 hours of pollution incidents and activities (not authorised under the Act) that cause or threaten to cause serious environmental harm or material environmental harm. |
| ***Environment Protection and Biodiversity Conservation – notification of incident, breach of permit conditions or breach of associated management plans*** | |
| Regulatory Authority | Department of Climate Change, Energy, the Environment and Water (DCCEEW) |
| Submission Contact Details | Email: environment.compliance@dcceew.gov.au<br>Phone: +61 1800 110 395 |

| | |
|---|---|
| Notification Timeframe | Within 2 business days after becoming aware of the incident or non-compliance. |

## 3.2. Training and Induction

Acciona Energia will ensure that all employees and subcontractors involved with the project receive environmental training appropriate to their role. The provision of training will be in accordance with the training and competency HSE management measures developed for the project.

An environmental awareness induction will be provided when personnel commence on the project. Environmental topics will also be included in toolbox talks during construction and other ongoing environmental training is to be provided as appropriate.

Items that may be incorporated into environmental inductions and toolboxes include:

- Guidance on the significance and sensitivity of environmental features on the project site
- Individual and organisational environmental obligations under relevant environmental legislation
- Vegetation clearing demarcations and requirements
- Vehicle speed limits and refuelling of plant and machinery
- Precautions to prevent sediment-laden run-off entering watercourses
- Waste management (including re-use, recycling, segregation, storage, and disposal)
- Noise management measures
- Dust control
- Precautions for protected flora and fauna
- Wildlife care
- Aboriginal and historic heritage
- Prevailing and forecast weather conditions
- Hazardous chemical and hydrocarbon management

For further information regarding Acciona Energia inductions, training, and competency requirements, refer to the *Competency, Training, and Induction Procedure* (PAU01_GAE03004).

## 3.3. Key Regulatory Approvals

The key environmental approvals for this project include:

- EPBC Approval 2020/8773 under the *Environment Protection and Biodiversity Conservation Act 1999*
- State Development Approval AP2020/006 for a Material Change of Use (MCU)

## 3.4. Relevant Stakeholders

| Contact Details for External Stakeholders | |
|---|---|
| Department of Climate Change, Energy, the Environment and Water (DCCEEW) | Phone: 1800 920 528<br>Mail: GPO Box 3090, Canberra ACT 2601, Australia |

| | |
|---|---|
| Department of Agriculture and Fisheries (QLD) | Phone: 13 25 23<br>Email: info@daf.qld.gov.au |
| Department of Environment and Science (DES) | Phone: 13 74 68<br>Mail: GPO Box 2454, Brisbane, Queensland, Australia, 4001 |
| Queensland Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) | Phone: 1300 378 401<br>Email: cultural.heritage@dsdsatsip.qld.gov.au |
| Gladstone Regional Council | Phone: (07) 4970 0700<br>Mail: PO Box 29, Gladstone Qld 4680 |
| Rural Fire Service (Gladstone Branch) | Phone (07) 4899 2200<br>Email: rfsq.gladstone@qfes.qld.gov.au |
| Local Veterinarian | *TBC* |
| Project Wildlife Carer | *TBC* |

## 3.5. Mitigation Measures

The information below has been provided to give guidance to site personnel for measures that can be implemented to minimise the potential environmental impact caused by the Aldoga Solar Farm. The mitigation measures and controls included within specific management plans established for the project will take preference. The project should ensure that, where able, best practice measures are incorporated into site activities.

### *3.5.1. Air Quality and Emissions*

The current air quality of the area is typical of rural farming areas. However, the project has the potential to impact air quality through the release of emissions and generation of dust. Additionally, existing conditions which may further impact air quality include prevailing dry and windy weather.

| Mitigation Measures |
|---|
| • Consider weather conditions and prevailing winds when conducting construction activities that may result in air emissions<br>• Dust suppression (i.e. water truck) can be utilised on internal unsealed access roads during drier months to limit generation of dust<br>• Set appropriate maximum speed limits for access roads and tracks to minimise the potential for dust generation<br>• Where possible, temporary construction areas will be rehabilitated as soon as practicable after the completion of construction works<br>• All trucks shall utilise their tarps, where fitted, whilst travelling on public roads to minimise impact from transporting loose material loads (i.e. sand, crushed rock)<br>• Minimise land disturbance through staged clearing and progressive rehabilitation |

| |
|---|
| • When not in use, vehicles and machinery should be turned off<br>• Vehicles, plant and equipment will be regularly serviced and comply with Australian Design Standards |

### *3.5.2. Bushfire*

Grassfires and bushfires both pose an environmental and safety threat to the project and landholders. The below mitigation measures are included to reduce the likelihood of a fire being caused from onsite activities and to ensure that appropriate resources are available if required. These measures should be read in conjunction with the project Bushfire Management Plan (developed by *Land and Environment Consultants*, *Version 2* dated *23 February 2021*) and the Emergency Response Plan (*TBC*).

| Mitigation Measures |
|---|
| • Ensure all site personnel are familiar with fire prevention and emergency response actions<br>• Provision of appropriate fire-fighting equipment on site, such as fire extinguishers, firefighting water supply, or other suitable equipment for initial response<br>• Ensure local firefighting services have access to the site and are familiar with site layout, access points, static water supply locations etc.<br>• 20,000L bulk static water supply to be provided at specific site access points<br>• Construction activities shall adhere to regulatory and local fire authorities and comply with fire restrictions (e.g. high fire danger and total fire ban days)<br>• Spark-arrestors that are installed and maintained on vehicles, plant and equipment should not be removed<br>• Vehicles and plant should be equipped with firefighting capabilities such as fire extinguishers, rakes and basic first aid equipment<br>• Ensure a hot works permit is obtained from Acciona Energia prior to commencing works, and only those with the permit undertake activity<br>  ○ Hot works to be undertaken away from flammable material<br>  ○ Ensure that additional permit specific conditions are complied with<br>• Burning of waste and cleared vegetation is prohibited on site<br>• Fire breaks around infrastructure, such as the substation or overhead transmission line, are to be implemented and maintained as required<br>• Smoking is to be in designated areas only and cigarette butts to be appropriately and safely disposed of<br>• Ensure that flammable chemicals are appropriately stored as per their Safety Data Sheet (SDS)<br>• Ensure that vehicles and machinery remain on designated access tracks as much as possible |

### *3.5.3. Cultural Heritage*

The Project area is not listed on the National, State or local heritage registers. The nearest heritage site is the Mount Larcom (Larcombe) Station Original Homestead (local heritage site) which is located approximately 6.4 km south of the Project area. However, the project will adhere to a Cultural Heritage Management Agreement (CHMA) that will be agreed between First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda People Aboriginal Corporation RNTBC ICN 8650. Cultural heritage values or

features of either an Aboriginal or historic nature should be protected or conserved so far is as reasonably practicable when undertaking construction activities. Where works may result in impact to heritage features, the below mitigation measures and those listed in the CHMA will assist in minimising potential impact. The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) and the Traditional Owners of the area should be consulted prior to and during construction activities as required.

| Mitigation Measures |
| --- |
| • All works are to be undertaken in accordance with the mitigation measures outlined in the developed CHMA, *Cultural Heritage Duty of Care Guidelines* and the *Aboriginal Cultural Heritage Act 2003*<br>• Cultural heritage training should be conducted as part of the site induction process<br>• An Unexpected Finds Procedure or Contingency plan should be developed, and personnel educated on the procedure in the event that a heritage site or artefact is identified during construction activities<br>• Vehicles and machinery should be restricted to within the Project Footprint and existing access routes, where practicable<br>• Known locations should be captured on engineering or construction drawings where appropriate |

### *3.5.4. Erosion, Sediment and Water Quality*

The Project area occurs within the Calliope Drainage Basin and Sub-basin. The Calliope Drainage Basin and Sub-basin both incorporate areas from the east of Callide to the north of Mount Larcom in coastal south-central Queensland. Several ephemeral waterways occur within the Project area. These are all mapped as first, second, third and fourth-order streams in the Queensland Stream Order Mapping. All first and second order streams are ephemeral in nature, completely drying during periods of low rainfall (typically during the winter months). The third and fourth order stream is likely to be semi-permanent, contracting to a series of isolated pools during periods of low rainfall.

The Project area has gently undulating topography with a series of low rocky rounded rises, predominantly in the west of the Project area.

Rehabilitation and installation of permanent scour protection will ideally occur progressively, however the below measures will assist in minimising the potential impact caused during construction works to nearby sensitive receivers. The projects Sediment, Erosion and Water Quality Management Plan (*TBC)* should be consulted for further mitigation measures and details.

| Mitigation Measures |
| --- |
| • Batching plants are to be located at least 100m from designated waterways where possible and not within flood prone land<br>• Any temporary batching plant, laydown area or hardstand is removed and rehabilitated as soon as practicable unless requested to remain by the landowner<br>• Chemicals, waste materials or any other source of pollution is appropriately stored to minimise likelihood of impact to surrounding land, flora, fauna or waterways |

- Ensure that disturbance is confined to a minimum practical working area and minimise vegetation clearing as far as reasonably practicable
- Waterway crossing to utilise existing crossings where practicable, and follow the requirements as outlined within the SDAP Guideline 18 – Waterway Barrier Works. Duration of instream works will be minimised and conducted during periods of dry weather where possible
- Applicable working on waterway permits are to be obtained and specific conditions met prior to commencing works in the vicinity
- Micrositing of infrastructure should consider environmentally sensitive areas such as native vegetation, areas of high erosion or waterways
- Retain natural drainage systems where possible and avoid compaction of batters and drainage lines to encourage establishment of vegetation cover
- Appropriate temporary erosion and sediment controls to be implemented in targeted locations, such as clean water diversion drains, rock lined or geofabric lined turn outs, sediment fencing or coir logs, or sedimentation basins
- Ensure implemented controls are inspected regularly, especially prior to or during rain events (e.g. >20mm in 24 hour period) and maintenance is undertaken as required
- Inspect entry/exit points for migration of material (e.g. mud) beyond the project boundary and implement measures as necessary to minimise movement (e.g. rumble strips, crushed rock)
- Topsoil and subsoil should be stockpiled separately to assist with rehabilitation
- Stockpiles remaining onsite for long-term periods should be adequately protected with mulch, seeding, polymer stabilization or geotextile fabric
- Stockpiles should be at least 50m from any designated waterway with appropriate controls installed to minimise run-off potential

### *3.5.5. Flora and Fauna*

The project is located over 1,137 hectares, and as a result, the risk of impact to flora and fauna due to noise, lighting, vibration, and land disturbance is high. The following species have been identified during ecological assessments to potentially occur within or adjacent to the project site:

- Koala (*Phascolarctos cinereus*)
- Squatter Pigeon (*Geophaps scripta scripta*)
- Greater Glider (*Petauroides Volans*)
- Powerful Owl (*Ninox strenua*)
- Short-beaked Echidna (*Tachyglossus aculeatus*)
- Rufous Fantail (*Rhipidura rufifrons*)
- Satin Flycatcher (*Myagra cyanoleuca*)
- Rainbow Bee-eater (*Merops ornatus*)
- Remnant and regrowth regional ecosystems 11.3.25, 11.3.4, 11.3.26, 11.11.4, 11.11.15 and grasslands/cleared paddock areas
- Three-leaved Bosistoa (*Bosistoa transversa*)
- *Cycas megacarpa*

It is expected that the impact on matters of national and state environmental significance will be minimal with the implementation of the mitigation measures listed within this EMP.

The EPBC approval 2020/8773 includes limits for clearing of the following habitat types.

- Koala habitat (269.72 ha),
- Squatter Pigeon habitat (259.20 ha)
- Greater Glider habitat (258.77 ha).

Additionally, the project must also minimise impacts on *Cycas megacarpa.* Species specific controls for Matters of National Environmental Significance (MNES) will be captured within the projects MNES Management Plan.

Landowners should be updated on the staging of construction activities to minimise disruption to normal farming regimes.

| Mitigation Measures |
|---|
| Flora<br>• All works to occur within the approved project footprint and vegetation clearing to be kept to a minimum practical working area<br>• Clearing of High Value Regrowth vegetation should be supervised by a qualified fauna spotter catcher where the potential to cause harm to protected wildlife may occur, including within habitat features (i.e. hollow bearing trees)<br>• Minimising stockpiling within areas of protected vegetation where possible<br>• Pre-clearance surveys to be conducted where necessary with consideration made to associated recommendations<br>• Clearing within 100m of a confirmed protected plant location (e.g. *Cycas megacarpa*) to require a Protected Plant permit and management plan<br>• Delineation (e.g. flagging, GPS) of clearing limits or boundaries implemented as required to reduce likelihood of inadvertent clearing occurring<br>• All vehicles should remain on formed roads or access tracks where possible<br>• Plant and equipment to be clean prior to transport onto and off the project site<br>• Materials (e.g. fill material, gravel etc.) should be declared as weed and seed free by the supplier<br>• Monitoring of weeds to occur within construction disturbed areas and spraying undertaken in areas of infestations as required in accordance with landowner requirements, specialist recommendations and the *Biosecurity Act 2014.*<br>• Rehabilitation to occur progressively and as soon as possible to encourage establishment of the natural seed bank<br>• Suitably qualified arborists to be utilised for vegetation removal/pruning as necessary and for removal and relocation of salvageable hollows from felled trees |
| Fauna<br>• Training and awareness should be provided on fauna related risks (e.g. snakes, protected species)<br>• Limit works during high fauna activity periods (e.g dawn and dusk) where possible<br>• Minimise noise impacts e.g. by turning off machinery not in use, minimising reversing (beepers), avoid dropping loads from height<br>• Consider design and micrositing to limit habitat fragmentation<br>• Open excavations to be appropriately managed to reduce likelihood of fauna or livestock becoming trapped e.g. barricading, exit ramps<br>• Fauna relocation to be completed by a suitably competent person |

| |
|---|
| • Site Environmental Coordinator to be notified of any injured fauna or livestock<br>• Waste to be appropriately stored and disposed of to discourage pest animals<br>• Adhere to biosecurity measures to minimise potential of introducing pest species to the project area |

### *3.5.6. Hydrocarbons and Hazardous Substances*

Hazardous chemicals and hydrocarbons have the potential to adversely impact vegetation and fauna, soils, waterways, and groundwater in extreme cases. Storage, transport, use and disposal of all chemicals must be as per their specific SDS requirements and any other applicable standards. For further information refer to the *Dangerous Goods Hazardous Substances* procedure (PAU01_GAE07007). If a spill does occur, control measures should be implemented as soon as possible to minimise the extent of impact.

| Mitigation Measures |
|---|
| • A register of all chemicals used on site should be developed and maintained throughout the project<br>• A risk assessment should be completed for each dangerous good and hazardous substance<br>• A copy of the current (within 5 years) SDS for each chemical should be available onsite. SDSs should ideally be kept at the relevant storage location<br>• Chemicals and fuels must be stored and handled as per the requirements of the SDS<br>• Dangerous goods to be stored in a designated, bunded area away from watercourses to minimise the potential for spill<br>• Refuelling and transfer operations should be done at least 50m from waterways and drainage features with contingency spill kits available<br>• Spill kits are to be located on site and positioned ideally in close proximity of locations containing dangerous goods<br>• All spills must be reported to a Acciona Energia as soon as reasonably practicable<br>• Daily prestarts and maintenance to be undertaken on machinery and vehicles, with focus on hoses and fittings<br>• Training should be provided to site personnel on correct spill response, spill kit uses and safe handling and use of chemicals<br>• Correct Personal Protective Equipment (PPE) to be available onsite as required when handling chemicals<br>• Contaminated soils to be stored and disposed of in accordance with applicable legislation and guidelines |

### *3.5.7. Noise and Vibration*

The current noise levels are consistent with rural and agricultural regions and as such, the project has the potential to temporarily increase local noise levels. However, the likelihood of causing adverse impact to residents or structures through vibration is minimal.

| Mitigation Measures |
| --- |
| • Ensure all construction equipment is in good working order, is well-maintained and has up to date service records<br>• Equipment fitted with manufacturer installed noise control devices must not be altered<br>• Vehicles and machinery should be switched off when not in use<br>• Materials dropped from heights and into or out of trucks will be minimised as much as possible<br>• Works to occur within approved working hours and in accordance with permit specific conditions and State guidelines<br>• Notification to surrounding landowners of specific activities that may increase noise and/or vibration<br>• An Out of Hours Work (OOHW) protocol is to be developed by the construction contractor and implemented where required. Where out of hours work are needed for the safe and efficient implementation of the project, such as to align with favourable weather, the level of impact of OOHW will be considered and consultation with landowners should be undertaken<br>• Conduct construction noise monitoring as required |

### *3.5.8. Social and Visual Amenity*

Construction activities may be visible to some degree by people in the region, particularly residents and workers. The measures below will assist in minimising the temporary visual impact of construction activities.

| Mitigation Measures |
| --- |
| • Provide notification to surrounding properties of upcoming works<br>• Maintain a high level of housekeeping across site<br>• Construction equipment, materials, parking, long-term stockpiles, or other visible elements to be ideally located away from sensitive receptors<br>• Removal of all construction associated equipment, materials, waste, offices, and vehicles upon project completion |

### *3.5.9. Waste Management*

Poorly managed and disposed of waste can potentially cause both short- and long-term environmental harm. The project will endeavour to minimise waste generation and employ best practice methods for reuse and recycling of materials. For further information, refer to the project Waste Management Plan (*TBC*).

| Mitigation Measures |
| --- |
| • All construction waste left on site will be kept in an appropriately secured receptors or locations<br>• Project personnel should be educated in applicable waste management practices as a part of the induction process |

- Visual inspections of waste storage and good housekeeping practices to be completed across site
- All general refuse and food wastes to be collected and transported to a local government approved disposal site and suitable bins and skips to be provided for each waste stream (general, recyclable, metal, regulated etc.)
- Bins are to be regularly emptied to prevent overfilling
- Contaminated waste will be stored separately and disposed of in accordance with State guidelines and requirements
- Excavated material will be reused on site where possible
- Temporary concrete batching plants to reuse wash-out water where possible
- No on-site burial or burning of waste material

### *3.5.10. Weeds and Pests*

Environmental surveys have identified the following restricted invasive plant and animal species to be located within the project boundary:

- Rubber Vine (*Cryptostegia grandiflora*)
- Lantana (*Lantana camara*)
- Velvet Tree Pear (*Opuntia tomentosa*)
- Giant Rats Tail Grass (*Sporobolus natalensis*)
- Cane Toad (*Rhinella marina*)
- Cat (*Felis catus*)
- Fox (*Vulpes vulpes*)
- Rabbit (*Oryctolagus cuniculus*)
- Pig (*Sus scrofa*)

The distribution of and frequency of these species has been captured and mapped within the associated ecological assessment reports conducted by GHD and NGH. Construction activities have the potential to spread existing weeds and pathogens, and to introduce new species to the area. These measures will minimise likelihood of this occurring and aim to not increase the frequency pest species across the project area. For further information refer to the projects Weed and Pest Management Plan (*TBC*).

| Mitigation Measures |
|---|
| • Site personnel to be educated on biosecurity risks and management measures<br>• Vehicles to remain on formed roads or access tracks where possible<br>• Plant and equipment to be clean prior to transport onto and off the project site<br>• Materials (e.g. fill material, gravel etc.) should be declared as weed and seed free by the supplier<br>• Pre-construction mapping of weed infestations<br>• Ongoing monitoring of disturbed areas throughout construction for infestations<br>• Rehabilitation to occur progressively and as soon as possible to encourage establishment of natural seed bank<br>• Wash-down facilities to be implemented and utilised as required<br>• Weed control to be completed as required in consultation with the landowner and as per the manufacturing specifications |

- Food scraps and waste to be stored in appropriate receptors to discourage pest animals

## 4. DEFINITIONS

| TERM | DEFINITION |
|---|---|
| AE | Acciona Energia |
| BMP | Bushfire Mitigation Plan |
| CHMA | Cultural Heritage Management Agreement |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DES | Department of Environment and Science |
| EPBC Act | Environment Protection and Biodiversity Conservation Act |
| ERP | Emergency Response Plan |
| GSDA | Gladstone State Development Area |
| Ha | Hectare |
| HSEQ | Health, Safety, Environment and Quality |
| ISO | International Organisation for Standardisation |
| MCU | Material Change of Use |
| MNES | Matters of National Environmental Significance |
| OHTL | Overhead Transmission Line |
| PCU | Power Conversion Unit |
| PV | Photovoltaic |
| SDA | State Development Approval |

## 5. RESPONSIBILITIES

### *5.1.1. Acciona Energia Responsibilities*

Table 5.1 outlines the responsibilities of Acciona Energia personnel during construction. Acciona Energia will be responsible for the implementation of environmental commitments however, the engaged Contractors performing works on the Project are responsible for and shall comply with all proposed mitigation and management measures as far as they relate to the Contractor's works.

*Table 5.1: Primary roles and responsibilities relating to environmental management*

| POSITION | RESPONSIBILITIES |
|---|---|
| Project Director | • Handover of design and Planning Permit requirements to the Project Manager prior to the commencement of the project<br>• Ongoing oversight and accountability throughout project life<br>• Responsible for managing construction schedule in consultation with project personnel |
| Project Manager | • Responsible for the overall management of the construction works associated with the project |

| POSITION | RESPONSIBILITIES |
|---|---|
| | • Ensuring design changes during construction are managed through the correct approval process<br>• Obtaining all necessary approvals, licenses and/or permits prior to commencing the associated works<br>• Final review and approval of AE Environmental Management Plans<br>• Responsible for the overall environmental performance during construction, including the effective implementation of HSEQ management measures<br>• Managing community complaints with respect to environmental matters<br>• Responding and reporting on incidents and ensuring they are adequately investigated<br>• Ensuring adequate resources are available to effectively manage HSEQ risks |
| HSE Manager | • Reviewing EMPs to support the Project Manager<br>• Undertaking daily and weekly inspections and management alongside Environment Coordinator<br>• Providing guidance, support and advice regarding environmental legislation and management<br>• Delivery of site inductions and other training and ensuring all persons on site are familiar with the EMP, and their environmental obligations<br>• Assisting in obtaining any licenses and permits required to undertake construction activities<br>• Conducting environmental audits/reviews during all stages to ensure implementation and compliance to the necessary project requirements<br>• Following up on audit findings and recommendations to ensure any remedial actions required are closed out<br>• Monitoring implementation of environmental controls and procedures and ensure they are maintained during all phases of the construction<br>• Reviewing of contractor HSE documentation to ensure applicable standards are met<br>• Reporting any malfunctions, incidents, emergencies, or other environmental incidents to the Project Manager |
| Environment Coordinator | • Delivering site inductions and ensuring all staff/contractors are aware of and understand their responsibilities under the EMP and applicable legislation<br>• Assisting the HSE Manager with internal audits<br>• Undertaking daily and weekly inspections and management alongside HSE Manager<br>• Monitoring implementation of environmental controls and procedures and ensure they are maintained during all phases of the construction<br>• Reporting any malfunctions, incidents, emergencies, or other environmental incidents to the Project Manager<br>• Review of Contractor environmental documentation to ensure it meets all applicable standards and requirements<br>• Ensuring that this EMP is maintained and updated as required<br>• Reporting of environmental incidents through to Corporate Compliance Team<br>• Assisting with and developing environmental communications and learnings for distribution within the business<br>• Provide guidance and support to project personnel<br>• Conduct thorough incident investigations and ensure actions are close out<br>• Engagement and management of environmental specialists and contractors<br>• Undertake environmental monitoring where required |
| Site Personnel | • Ensure they understand their environmental obligations and implement the necessary controls as required<br>• Report any environmental incidents, near misses or hazards to their Supervisor or Environment Coordinator<br>• Comply with reasonable instructions or requests given by Managers/Supervisors and applicable policies, codes of conduct and legislation<br>• Work in accordance with information and training provided |

| POSITION | RESPONSIBILITIES |
|---|---|
| Corporate Compliance Team | • Participate in internal and external audits of the project as required<br>• Provide environmental technical support to the project team as requested<br>• Reporting of environmental breaches and other permit requirements through to government authorities within appropriate timeframes<br>• Providing updates to changes of legislation as necessary |

### *5.1.2. Legal Obligations and Compliance*

Acciona Energia will ensure that the project obtains all relevant licenses, permits and approvals prior to commencing the associated work and ensure that they are kept up to date. Acciona Energia, and its subcontractors, must ensure compliance of the project with the conditions contained within these licenses, permits and approvals.

## 6. RELATED DOCUMENTATION



| CODE | TITLE |
|---|---|
| PROJECT SPECIFIC PLANS | |
| *TBC* | Bushfire Management Plan |
| *TBC* | Complaints and Community Response Plan |
| *TBC* | Cultural Heritage Management Agreement |
| *TBC* | Emergency Response Plan |
| *TBC* | Erosion, Sediment and Water Quality Management Plan |
| *TBC* | Health, Safety, Environment and Quality Plan |
| *TBC* | Noise and Vibration Management Plan |
| *TBC* | Waste Management Plan |
| *TBC* | Weed and Pest Management Plan |
| ACCIONA ENERGIA INTERNAL DOCUMENTS | |
| PAU01_GAE03004 | Competency, Training and Induction Procedure |
| PAU07035 | Contractor HSE Requirements Procedure |
| PAU01_GAE07007 | Dangerous Goods Hazardous Substances |
| F01_PAU01_GAE07007 | Dangerous Goods & Hazardous Substances Register |
| PAU01_GAE07019 | Document Control Procedure |
| PAU01_GAE07006 | Emergency Management Procedure |
| PAU01_GAE07021 | Event Reporting and Management Procedure |
| F07_PAU01_GAE07022 | HSE Chemical Risk Assessment Form |
| PAU01_GAE07022 | HSE Risk Management Procedure |
| PAU01_GAE07070 | Internal Audit Procedure |

| | |
|---|---|
| GAE07018 | Outdoor Noise Control |
| F01_I01_PAU01_GAE07008 | Spill Kit Monthly Inspection Checklist Form |
| I01_PAU01_GAE07008 | Spill Prevention and Response Instruction |
| GAE07008 | Waste Handling |
| PAU01_GAE07008 | Waste Minimisation and Management Procedure |
| F04_PAU07103 | Weed Hygiene Declaration Form |
| F04_GAE07019 | Wildfire Prevention Measures |
| EXTERNAL DOCUMENTS | |
| | Aboriginal Heritage |
| | Biosecurity Act 2014 |
| | Biosecurity Regulations 16 |
| | Environment Protection and Biodiversity Conservation Act 1999 |
| | Environment Protection Act 1994 |
| | Native Title Act 1993 |
| | Waste Reduction and Recycling Act 2011 |
| | Water Management Act 2000 |