OFFSET MANAGEMENT PLAN

EPBC Number: 2022/09397
Project Name: New Bundaberg Hospital
Proponent: Department of Health QLD (ABN: 66 329 169 412)
Approved Action: To construct and operate the New Bundaberg Hospital and associated infrastructure in Thabeban, Queensland.
Location of the Action: Bundaberg Ring Road, Thabeban
Date Prepared: 22 May 2026

Declaration of Accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____ Digitally signed by Blake Lepper, Deputy Director-General, Health Infrastructure Queensland, Queensland Health Date: 2026.06.03 11:49:20 +10'00'

Full name (please print) _____

Organisation (please print) _____

Date _____/_____/_____

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Title:	Offset Management Plan
Client:	The Department of Health QLD
Date:	22 May 2026
Version:	3.0
Distribution:	Department of Climate Change, Energy, the Environment and Water

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PREAMBLE

The following Offset Management Plan (OMP) has been prepared by Litoria Consulting on behalf of The Department of Health QLD (the proponent) with regard to the proposed development of a new Bundaberg Hospital (the action) located at Lot 23 on SP212513 and Lot 1 on SP285136 at Bundaberg Ring Road, Thabeban, Queensland.

The proposed new Bundaberg Hospital was referred to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and determined to be a controlled action requiring assessment by Preliminary Documentation (PD) (3 February 2023) (Reference number: 2022/09397). The decision to approve the action was made on the basis of assessment by Preliminary Documentation under section 130(1) and 133(1) of the EPBC Act and a *Notification of Approval* was received on 19 April 2024.

This OMP has been prepared in response to additional information requested in the *Notification of Approval* and details an offset management plan to compensate for residual impacts identified on matters protected by the EPBC Act. The delegate of the Minister for the Environment considers the proposed action likely to have a significant impact on the following matters:

Listed threatened species and communities (sections 18 and 18A), including:

a. *Phascolarctos cinereus* (Koala),
b. *Pteropus poliocephalus* (Grey-headed Flying-fox),
c. *Petauroides volans* (Greater Glider).

It was determined that offsets will be necessary to compensate for residual impacts and that an OMP would be required. The relevant conditions of approval are set out in Table 1.

This OMP addresses both information requirements above, including those already addressed in the Preliminary Documentation, as well as new requests for information per Annexure A of the approval to maintain continuity of information.

A cross-reference table provided below lists the information requested by the Commonwealth Government and identifies the location in this report where the reader can find the requested information. Although the report is intended to be read in the order it has been presented, the reference table displays where to find information in the order in which it was requested. Other supporting material has been included in the Appendices.

TABLE 1: CONDITIONS OF APPROVAL (REF: EPBC 2022/09397) REFERENCE TABLE.

No.	Request	Location
15	To compensate for the residual impacts of the Action on the Koala, Grey-headed Flying-fox and Greater Glider, the approval holder must, submit to the department for the Minister's approval, an Offset Management Plan proposing environmental offsets for impacts to the Koala, Grey-headed Flying-fox and Greater Glider. The approval holder must not commence main construction works unless the Offset Management Plan has been approved in writing by the Minister. The approval holder must commence implementing the approved Offset Management Plan within 20 business days of the date on which the Minister approves the Offset Management Plan and continue to implement the approved Offset Management Plan at least until the expiry of this approval.	The requested information is contained in the Offset Management Plan (Litoria Consulting, v 1.0, December 2025). Refer to: • Section 3: Offset Objective; • Section 6: Offset Assessment Summary. This condition will be complied with.
16	The approval holder must, within 5 business days of commencing implementation of the Offset Management Plan, notify the department of the date on which implementation of the Offset Management Plan commenced.	This condition will be complied with.
17	The Offset Management Plan must meet the requirements of the Environmental Offsets Policy and the Environmental Management Plan Guidelines to the satisfaction of the Minister. The Offset Management Plan must: a) be prepared by a suitably qualified ecologist, and b) be attached to the mechanism used to legally secure each offset area specified in the approved Offset Management Plan.	The Offset Management Plan (Litoria Consulting, v 1.0, December 2025) was prepared and reviewed by tertiary-qualified ecologists. Curriculum Vitae of the authors is provided in Appendix 14. Details of the legally binding mechanism are outlined in Section 14: Legally Secured Offset Area.
18	The Offset Management Plan must include: a. detailed information on the residual impacts to Koala, Grey-headed Flying-fox and Greater Glider that will be compensated for by the offset (Note: the offset comprises the securement of the offset site(s) and the habitat condition improvements to be achieved at the offset site(s)). This must include the area(s) of habitat for Koala, Grey-headed Flying-fox and Greater Glider (protected matters) and its condition and quality at all locations impacted by the Action which the offset is to address b. the relevant protected matters and a reference to the EPBC Act approval conditions to which the Offset Management Plan refers	The Offset Management Plan (Litoria Consulting, v 1.0, December 2025) outlines: a. Detailed information on residual impacts (Section 3: Offset Objective; Section 6: Offset Assessment Summary) b. List of the relevant protected matters (Section 1: Introduction) and reference to the EPBC Act approval conditions (Table 1)

No.	Request	Location
	c. detailed information and a shapefile specifying the location, area and boundaries of the proposed offset site(s) d. detailed baseline information on the area(s) of habitat, its condition, and the presence (or not) of the protected matters at the proposed offset site(s), e. commitments to achievable improved ecological benefits at the proposed offset site(s) and the timeframes in which they will be achieved, f. a table summarising all commitments to achieve the proposed ecological benefits for protected matters at the proposed offset site(s), and a reference to where each commitment is detailed in the Offset Management Plan g. reporting and review mechanisms to inform the department annually regarding compliance with the management and environmental outcome commitments, and attainment and maintenance of the ecological benefits specified in the Offset Management Plan h. an assessment of risks to achieving the ecological benefit(s) and what risk management measures and/or strategies will be applied to address these, i. a monitoring program, which must specify: - measurable performance indicators and the timeframes for their achievement to gauge attainment of the ecological benefits for the protected matters - trigger values for corrective actions, and - the proposed timing (including season/time of day/frequency) methods and effort, and an explanation of how these will be effective for this purpose, of monitoring to detect trigger values, changes in the performance indicators and to gather evidence that effectively demonstrates actual progress towards, attainment of and maintenance of the ecological benefits for the protected matters. j. corrective actions to be implemented to ensure that the proposed ecological benefits for the protected matters are achieved or maintained if trigger values are reached or performance indicators not achieved in the specified timeframes k. links to relevant referenced plans or conditions of approval (including state approval conditions), and l. how the proposed offset site(s) will be protected, and ecological benefits maintained, and have enduring protection.	c. Detailed information on the location and boundaries of the proposed offset site (Section 4: Offset Site Description ; Section 7: Proposed Offset) (shapefile provided separately) d. Detailed baseline information on habitat and protected matters presence (Appendix 8 – 10: MHQAT Results) e. Commitment to achievable ecological benefits and timeframes (Section 9.3: Completion Targets; Section 9.4: Interim Targets) f. Table summary of commitments / targets (Table 8; Table 9) g. Summary of reporting and review mechanisms (Section 12: Monitoring & Reporting) h. Risks and risk management for achieving ecological benefits(s) (Section 10: Risk Assessment; Section 11: Management Actions) i. Monitoring program (Section 12.1: Monitoring Requirements) j. Corrective actions (Section 11: Management Actions; Section 12.2.5: Corrective Actions) k. Links to referenced plans / conditions (Section 15: References; throughout document) l. Enduring protection (Section 13: Adaptive Management & Plan Review, Section 14: Legally Secured Offset Area)

No.	Request	Location
19	The approval holder must achieve all offset outcomes at the offset site(s) as proposed in the approved Offset Management Plan by the time specified for each outcome in the approved Offset Management Plan. Once achieved, the approval holder must maintain or exceed these offset outcomes at least until the expiry of this approval.	The requested information is contained in the Offset Management Plan (Litoria Consulting, v 1.0, December 2025). Refer to: • Section 9: Offset Completion Criteria; • Section 12: Monitoring & Reporting; • Section 14: Legally Secured Offset Area.
20	The approval holder must not commence the main construction works unless the offset site(s) specified in the approved Offset Management Plan is/ are controlled.	Details of the legally binding mechanism are outlined in Section 14: Legally Secured Offset Area.
21	The approval holder must notify and provide evidence to the department in writing within five (5) business days of each offset site being controlled and again within five (5) business days of each offset site being legally secured.	Details of the legally binding mechanism are outlined in Section 14: Legally Secured Offset Area.

EXECUTIVE SUMMARY

The following Offset Management Plan (OMP) has been prepared by Litoria Consulting on behalf of The Department of Health QLD (the proponent) for the proposed development of the new Bundaberg Hospital (the action). At the time of the referral, the site details were Lot 23 on SP212513 and Lot 1 on SP285136, Bundaberg Ring Road, Thabeban, Queensland.

The proposed hospital was referred to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and determined to be a controlled action requiring assessment by Preliminary Documentation (PD) on 3 February 2023 (Reference: 2022/09397). The action was subsequently approved under sections 130(1) and 133(1) of the EPBC Act, with a *Notification of Approval* issued on 19 April 2024.

This OMP responds to the additional information requirements set out in the *Notification of Approval*. This OMP is to be read in conjunction with the Preliminary Documentation Report (PD) prepared by Saunders Havill Group (Appendix 1).

The approval confirmed that offsets are required to compensate for residual impacts. At the impact site, significant impacts have been identified as:

- Removing 23.56 ha of critical habitat for the Koala,
- Removing 23.56 ha of critical habitat for the Grey-headed Flying-fox, and,
- Removing 23.56 ha of critical habitat for the Greater Glider.

As such, the objective of the offset is to create, rehabilitate and protect habitat that exceeds the quality and quantity of habitat impacted at the impact site. The aim of this OMP is to outline how an environmental offset will be implemented and managed to achieve the conservation outcomes required under the EPBC Act.

The proposed offset is located on land described as Lot 6 on CP BON456 and Lot 7 CP BON419 (the offset site). The offset site contains a mix of regrowth vegetation and pasture habitats. The area is characterised by tall regrowth canopy which is dominated by eucalypts and is restricted to the higher steeper parts of the land in the west. The underlying granite landscape gives rise to steep rolling hills that have been partially cleared for grazing.

The site was assessed for offset suitability utilising the Modified Habitat Quality Assessment Tool (MHQAT) and the Offsets Assessment Guide spreadsheet (OAG) provided by the Commonwealth Government.

To meet offset obligations for habitat quality improvement, the offset proposal includes management measures that, overall, result in a habitat quality uplift of two (2) points at the offset site for the Koala and Greater Glider, and three (3) points for the Grey-headed

Flying-fox. After the implementation of management measures to meet the offset goals, the final offset site score will be 7/10. Integrating the results of the MHQAT with the OAG indicates that 107 ha of offset will be sufficient to meet the proponent's offset obligation, including:

- 101% of the offset obligation for the Koala,
- 183% of the offset obligation for the Grey-headed Flying-fox, and
- 122% of the offset obligation for the Greater Glider.

The OMP details the management activities, monitoring and reporting requirements of offset delivery including adaptive management techniques to ensure the offset completion targets are achieved.

1 INTRODUCTION

The following Offset Management Plan (OMP) has been prepared by Litoria Consulting on behalf of The Department of Health QLD (the proponent) for the proposed development of the new Bundaberg Hospital (the action). At the time of the referral, the site details were Lot 23 on SP212513[1] and Lot 1 on SP285136[1], Bundaberg Ring Road, Thabeban, Queensland.

The proposed hospital was referred to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and determined to be a controlled action requiring assessment by Preliminary Documentation (PD) on 3 February 2023 (Reference: 2022/09397). The action was subsequently approved under sections 130(1) and 133(1) of the EPBC Act, with a *Notification of Approval* issued on 19 April 2024. The approval confirmed that offsets are required to compensate for residual impacts and that an OMP must be submitted.

This OMP responds to the additional information requirements set out in the *Notification of Approval*. It outlines how offsets will be provided to compensate for residual impacts on Matters of National Environmental Significance (MNES) protected under the EPBC Act, which the delegate of the Minister for the Environment determined are likely to be affected by the proposed action. Relevant MNES included listed threatened species and communities (sections 18 and 18A), including:

a) *Phascolarctos cinereus* (Koala),
b) *Pteropus poliocephalus* (Grey-headed Flying-fox),
c) *Petauroides volans* (Greater Glider).

The Preliminary Documentation (PD) was prepared by Saunders Havill Group (SHG) on behalf of The Department of Health QLD in February 2024. SHG also prepared the Matters of National Environmental Significance Management Plan (MNES MP) and the Preliminary Land-Based Offset Strategy between October and December 2023. The PD formed the basis of the Commonwealth government's assessment. This OMP is to be read in conjunction with the PD Report (Appendix 1).

Following approval of the action on 19 April 2024, a number of draft Offset management Plans have been prepared and submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW), which were each subject to an adequacy review. This OMP is not an update of the previously submitted Offset Management Plans, and

[1] The real property description for the new Bundaberg Hospital site has since changed.

instead, is a new document to be read independently of the previously submitted plans. It replaces all previously submitted Offset Management Plans.

The aim of this OMP is to outline how an environmental offset will be implemented and managed to achieve the conservation outcomes required under the EPBC Act. In summary, the objectives are to:

- Provide a clear and enforceable framework for meeting the offset conditions attached to the EPBC approval.
- Demonstrate how the offset will deliver measurable conservation gains that compensate for residual impacts on the relevant MNES.
- Describe the management actions, monitoring program and performance criteria that will guide implementation and allow progress to be evaluated.
- Establish an adaptive management approach that identifies thresholds, corrective actions and mechanisms for addressing emerging risks.

The OMP is divided into the following sections:

- Approved action and impacts,
- Offset objective,
- Offset site description,
- Offset assessment,
- Proposed offset,
- Conservation outcome,
- Offset completion criteria,
- Risk assessment,
- Management activities,
- Monitoring and reporting requirements,
- Adaptive management,
- Legally secured offset area, and
- References.

2 APPROVED ACTION & IMPACTS

The approved action is associated with The Department of Health QLD's new Bundaberg Hospital development[2], located at Bundaberg Ring Road, Thabeban. The approved action is located within Bundaberg Regional Council (BRC) local government area and includes earthworks and vegetation clearing to facilitate development and associated infrastructure. The new hospital is proposed to deliver improved healthcare services to the region's growing and ageing community.

The proposed action includes clearing of 23.56 ha of eucalypt woodland that is described under the Queensland regional ecosystem (RE) framework[3] as *RE 12.5.4: Eucalyptus latisinensis +/- Corymbia intermedia, C. trachyphloia subsp. trachyphloia, Angophora leiocarpa, Eucalyptus exserta woodland on complex of remnant Tertiary surfaces and Cainozoic and Mesozoic sediments.* The technical descriptions for the impact site RE (12.5.4) and offset site RE (12.12.5) are provided in Appendix 2.

The proposed action is comprised of the:

- Project area,
- Johanna Boulevard extension,
- East – West Connection Road to Kay McDuff Drive, and
- Electrical substation.

The development is comprised of the main hospital, mental health inpatient unit, the facility support centre, multi-level car parking buildings and future expansion zones. The project includes new road extensions providing road access both north-south and east-west. Infrastructure including a new power substation is contained in the south west portion of the site. Refer to the PD Report (Appendix 1) for further details on the proposed action and impact site.

An assessment of the significance of the impact of the proposed action on the relevant MNES (Koala, Greater Glider and Grey-headed Flying-fox) was undertaken in accordance with the Significant Impact Guidelines (Department of the Environment, 2013) by Saunders Havill Group (SHG). Refer to the PD Report (Appendix 1) for the details of the

[2] The project is also subject to a Ministerial Infrastructure Designation (MID) (1222-0662, dated 26 February 2024; Appendix 15), a State planning process under the Queensland *Planning Act 2016*. Pursuant to the EPBC Act referral 2022/09397 Decision Notice, Conditions 34 and 35), the Department of Health will notify DCCEEW in writing within the prescribed timeframes of any proposed change to the MID that relates to protected matters pursuant to Special Condition 34, and of any proposed change to the MID approval conditions that may relate to protected matters pursuant to Special Condition 35 of the aforesaid EPBC Act Decision Notice.

[3] Queensland's regional ecosystem (RE) framework is the Queensland Government's system for classifying and mapping native vegetation communities across the state. Each RE is defined as a vegetation community occurring within a particular bioregion and typically associated with a specific land zone (broad geology / landform / soil) and is identified by a three-part code (bioregion, land zone, vegetation community).

significant impact assessment on the relevant MNES (Koala, Greater Glider and Grey-headed Flying-fox).

In summary, the residual impact of the proposed development on MNES after the implementation of avoidance, minimisation and mitigation is described as:

- **Koala:** Vegetation that constitutes habitat critical to the survival of the Koala will be cleared as a result of the proposed action. While low levels of activity were recorded, the area of lost habitat that is critical to the survival of the species constitutes a significant impact after avoidance, minimisation and mitigation and an offset is required in accordance with the EPBC Act Environmental Offsets Policy. The provision of an offset for this impact is a condition of the approval granted on 19 April 2024 (EPBC 2022/09397).
- **Grey-headed Flying-fox:** Vegetation that constitutes habitat critical to the survival of the Grey-headed Flying-fox will be cleared because of the proposed action, including vegetation that provides important winter and spring flowering resources. The area of lost habitat that is critical to the survival of the species constitutes a significant impact after avoidance, minimisation and mitigation and an offset is required in accordance with the EPBC Act Environmental Offsets Policy. The provision of an offset is a condition of the approval granted on 19 April 2024 (EPBC 2022/09397).
- **Greater Glider:** The site contains large trees with hollows suitable for the Greater Glider. Though the referral identified the lack of connected vegetation which resulted in a failure to meet minimum patch size requirements for species habitats, an offset for loss of potential habitat is a condition of approval granted on 19 April 2024 (EPBC 2022/09397).

Full details of the proposed action, impacts and impact assessment can be found in the PD Report (Appendix 1). The action area can also be seen in Appendix 3.

3 OFFSET OBJECTIVE

The objective of the offset is to compensate for significant impacts that remain on MNES impacted by the development after the exhaustion of all reasonable avoidance and mitigation measures. The compensatory environmental offset is designed under the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (EPBC Environmental Offsets Policy). Offsets will align with conservation priorities for the impacted protected matter and be tailored specifically to the attributes of the protected matter to deliver a conservation gain.

Direct offsets will compensate for the proposed action. Direct offsets are those actions that provide a measurable on-ground conservation gain for an impacted protected matter. A conservation gain is the benefit that a direct offset delivers to the protected matter, which maintains or increases its viability or reduces any threats of damage, destruction or extinction. A conservation gain for species may be achieved by (Department of Sustainability Environment Water Population and Communities, 2012):

- Improving existing habitat for the protected matter,
- Creating new habitats for the protected matter,
- Reducing threats to the protected matter, and/or,
- Averting the loss of a protected matter or its habitat that is under threat.

At the impact site, significant impacts have been identified as:

- Removing 23.56 ha of critical habitat for the Koala,
- Removing 23.56 ha of critical habitat for the Grey-headed Flying-fox, and,
- Removing 23.56 ha of critical habitat for the Greater Glider.

As such, the objective of the offset is to create, rehabilitate and protect habitat that exceeds the quality and quantity (quantum) of habitat impacted at the impact site.

Refer to the PD Report (Appendix 1) for a detailed assessment of significant impacts on the identified species.

4 OFFSET SITE DESCRIPTION

The proposed offset is located on land described as Lot 6 on CP BON456[4] and Lot 7 CP BON419[5] (the offset site). The site is approximately 78 km south-west of Bundaberg central and the Bundaberg Hospital impact site. The offset site is a parcel of land located approximately 5 km south of the township of Mt Perry within the North Burnett Regional Council local government area and has a total area of approximately 107 ha. Figure 1 displays a recent aerial image of the offset site.

The offset site contains a mix of regrowth vegetation and pasture habitats. The area is characterised by tall regrowth canopy which is dominated by eucalypts and is restricted to the elevated and inclined land in the west. The underlying granite landscape gives rise to steep rolling hills that have been partially cleared for grazing. In terms of existing infrastructure, the land is undeveloped and unfenced on the northern and eastern boundaries. To the east lies Eight Mile Road, and to the north lies undeveloped road easements labelled Five Mile Road and Zamia Lane.

The EPBC Protected Matters Search Tool (PMST) search results are provided in Appendix 4, indicating that the species and/or their habitats are known or likely to occur in the vicinity of the site.

In summary, the existing environment of the offset site is characterised as follows:

- Vegetation is wholly consistent with pre-clearing regional ecosystem (RE 12.12.5).
- The distance between the impact and offset site is 78km (Figure 3).
- The impact and offset sites are located in different local government areas, namely Bundaberg Regional Council and North Burnett Regional Council, respectively.
- The offset site is located in the regional context of the impact site, being within the same Burnett River catchment area. This is the management jurisdiction for integrated environmental management in the area, such as work done by the Burnett Catchment Care Association.
- Under the Burnett Regional Council planning scheme, the site is zoned rural and is within an intensive agricultural precinct on the north, east, and south.
- The site is within a Queensland strategic statewide environmental terrestrial corridor demonstrating that the State management intent for the area is the provision of landscape scale environmental connectivity.

[4] The registered owner of Lot 6 on CP BON456 is The State of Queensland (represented by Queensland Health).

[5] The real property description for Lot 7 for the offset site is now Lot 7 on SP355179 (Street Address Lot 7 Eight Mile Road, Mt. Perry) due to the Department of Health undertaking a boundary realignment action to remove the encroachment of part of the road reserve and cattle grid from Part of Lot 7 on CP BON419. Upon registration of SP355179, the title for Lot 7 on CP BON419 was fully cancelled. The registered owner of Lot 7 on SP355179 is The State of Queensland (represented by Queensland Health).

- Outside the site boundary to the east, the site is bordered by Chinaman Creek.
- There are agistment watering points maintained outside the site to the north and east.
- The site has been used for agistment, though no activity was current at the time of field investigation.
- The site is bordered by an unsealed local road to the east (Eight Mile Road). To the north, there is an unused local road, with the easement currently containing native vegetation (refer Figure 1 and Figure 2).
- The offset site geology is entirely comprised of late Permian Biotite granodiorite, muscovite-biotite granodiorite that support Hills and lowlands on granitic rocks (Geological Survey of Queensland, 2011).
- The offset site exhibits an overall topographical gradient that descends from the western site boundary to the east, at first descending steeply then flattening as it nears the eastern site boundary.
- In addition, the site is characterised by several ridgelines that travel in an east-west direction, resulting in north and south facing slopes. The slopes are likely subject to variable microclimates and have observed differences in vegetation characteristics, with increased native understory species richness and canopy cover on southern slopes.
- The offset site varies widely in vegetation condition and weed content, with low weed content and a variety of native species, including understory species, found on the ridgelines. As topography descends, particularly on the flatter land to the east, there is more significant weed content and absent native shrub and canopy strata.
- Weed invasion is a key threat to the native vegetation on the offset site due to the pockets of land dominated by exotic pasture grasses and other common weeds of disturbed land.
- The site consists of two main vegetation types which have been discretised for assessment in accordance with the BioCondition Assessment Manual (Eyre et al., 2015), described as (Figure 4):
    - Assessment unit 1: Cleared of canopy and shrub with a maintained understory for agistment, there are occasional scattered saplings of *Acacia, Eucalyptus* or *Corymbia* genera and a ground layer with mixed exotic and native species, such as *Sporobolus pyramidalis* and *Heteropogon contortus* (area of approximately 34 ha).
    - Assessment unit 2: Vegetation consistent with regrowth RE 12.12.5 with a canopy 12-15m and subcanopy 7-9m containing *Corymbia citriodora, Eucalyptus crebra, Eucalyptus exserta, Brachychiton populneus* with *Corymbia tessellaris* on lower slopes and *Corymbia erythrophloia* on upper slopes, and a shrub and understory of mixed native and exotic species (area of approximately 73 ha).

FIGURE 1: DIGITAL AERIAL IMAGE OF THE SITE AND INSET INDICATING SITE POSITION IN RED WITHIN THE CONTEXT OF THE QUEENSLAND STATE (GOOGLE EARTH 2018).

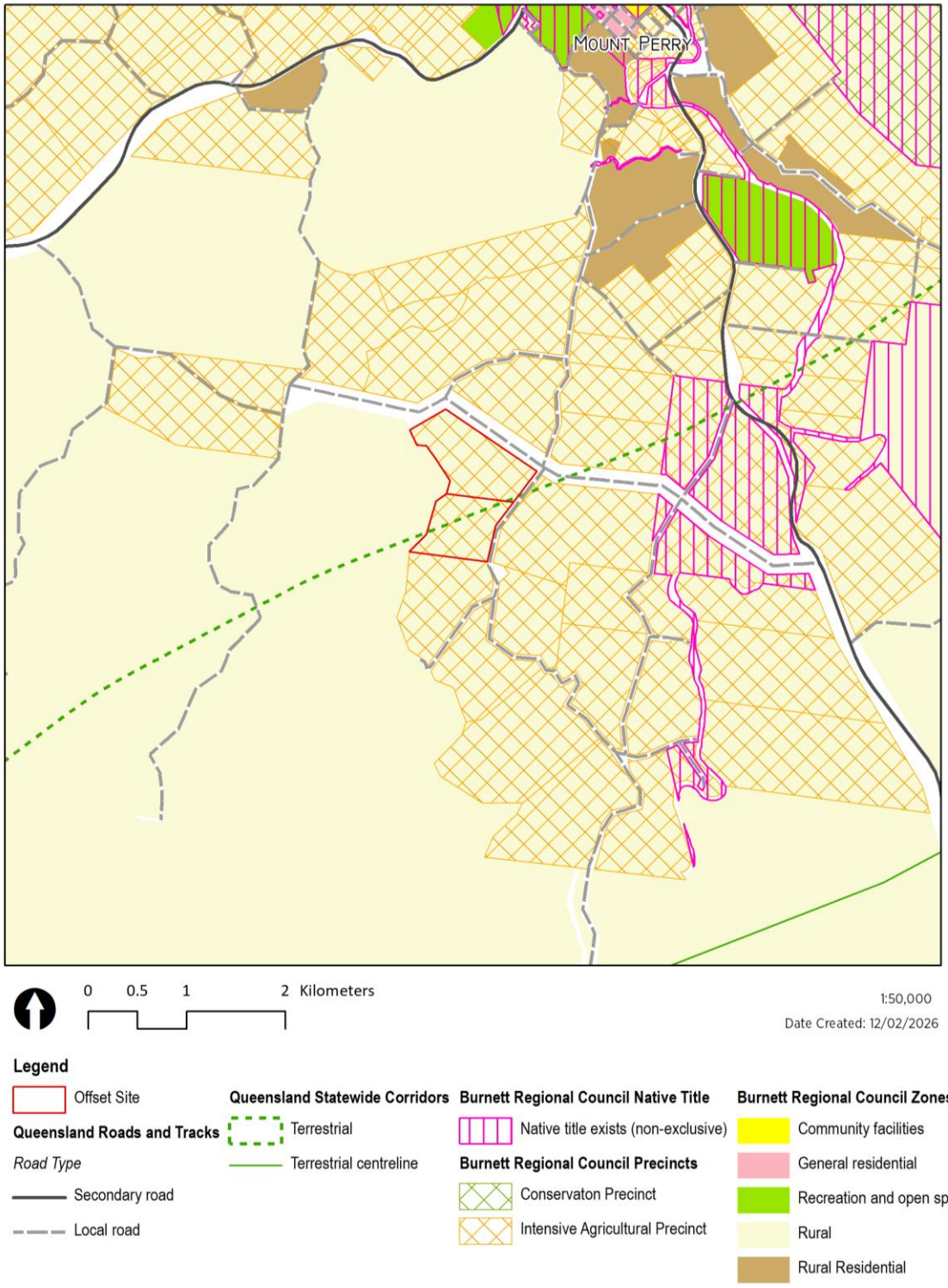

FIGURE 2: ADMINISTRATIVE LAYERS AND SITE AND CONTEXT FROM BURNETT REGIONAL COUNCIL AND QUEENSLAND SPATIAL CATALOGUE.

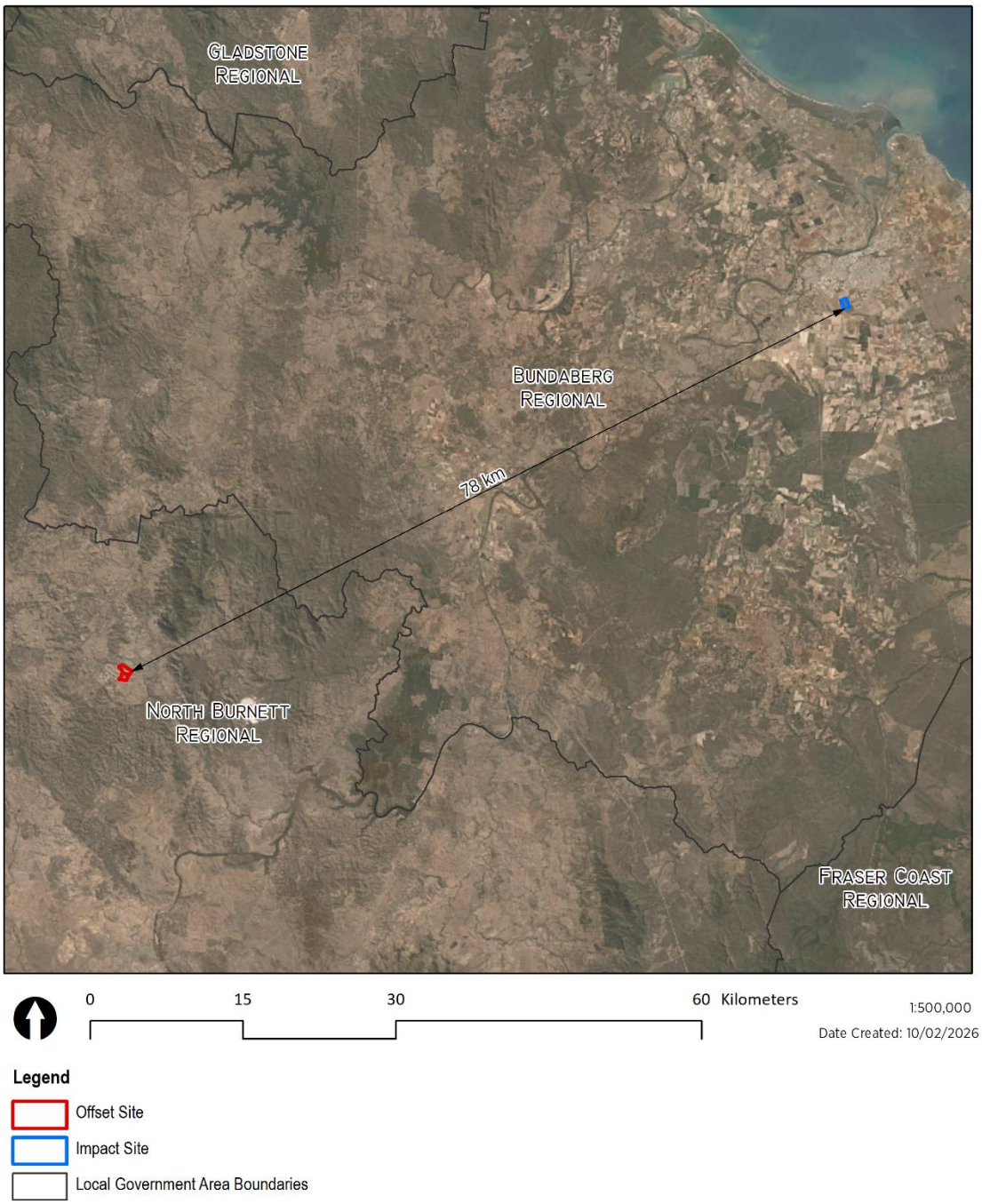

FIGURE 3: DISTANCE BETWEEN IMPACT AND OFFSET SITES AND BOUNDARIES BETWEEN LOCAL GOVERNMENT JURISDICTIONS (STATE OF QUEENSLAND, 2025).

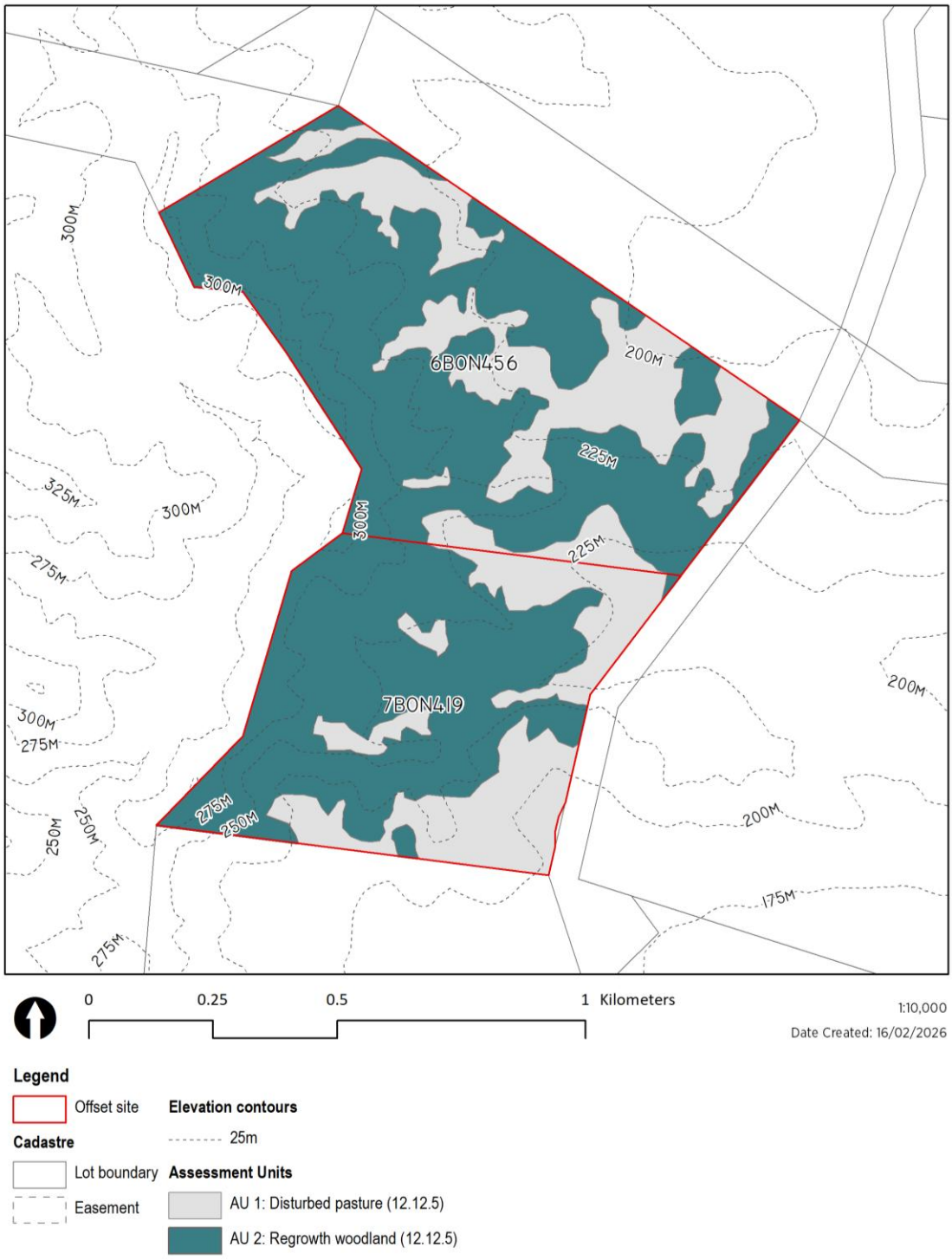

FIGURE 4: ASSESSMENT UNITS AND ELEVATION CONTOURS.

5 OFFSET SITE HABITAT SUITABILITY

The following section outlines the ecological dependencies of the target MNES and links this to the proposed offset site to demonstrate how the site provides suitable existing or potential habitat. This ensures that the offset provides or could improve suitable habitat for target MNES and will deliver a conservation outcome. The following sections provide further information regarding the:

- Koala,
- Grey-headed Flying-fox, and
- Greater Glider.

5.1 KOALA

The Koala (combined populations of Queensland, NSW and ACT) is listed as endangered under the EPBC Act. The Koala is a wide-ranging and mainly arboreal marsupial endemic to Australia. Within Queensland, they occur from the Wet Tropics to Southeast Queensland (SEQ) (Department of Agriculture Water and the Environment, 2022a). A summary of habitat requirements and site suitability is provided in Table 2.

Review of habitat mapping and modelling indicates that the site and surrounds were mapped by the Threatened Species Recovery Hub as part of a nationally harmonised Koala habitat mapping project. The map was produced by ranking regional ecosystems according to their predicted utility to Koalas and overlaid with predictions of the environmental suitability of the landscape for Koalas to generate a predicted ranking of utility of habitat. This map indicates that almost all of the site and surrounds is considered Koala habitat with a high habitat ranking of between 8-10/10 (Runge et al., 2021). A map of koala habitat ranking and confirmed observations of the species are provided in Figure 5.

TABLE 2: HABITAT REQUIREMENTS AND OFFSET SITE SUITABILITY ASSESSMENT FOR THE KOALA (PHASCOLARCTOS CINEREUS) (DEPARTMENT OF AGRICULTURE WATER AND THE ENVIRONMENT, 2022A, DEPARTMENT OF AGRICULTURE WATER AND THE ENVIRONMENT, 2022B).

Target MNES	Requirements	Offset Site Assessment
Landscape context	Large and contiguous bushland or mosaics with a safe intervening ground matrix for travelling between patches. Koalas can be highly mobile, and habitat may include the matrix between patches and habitat that may be unoccupied.	The offset site contains approximately 73 ha of bushland and 34 ha of cleared land for pasture that is proposed to be rehabilitated. The site is contiguous with large areas of connected bushland to the north and is positioned within a statewide conservation corridor. The locality is zoned rural and used for low intensity agistment. Gaps between patches are relatively

Target MNES	Requirements	Offset Site Assessment
		benign pasture. Roads adjacent to the site are unsealed country roads with local vehicle traffic.
Microhabitat / structural complexity	Koalas utilise a variety of tree sizes and tend to use different trees for feeding and sheltering. Mature sclerophyll forests provide preferred structural complexity though they can be found in a variety of habitats.	The site supports various *Corymbia, Eucalyptus* and *Angophora* tree species that will provide options for feeding and shelter.
Seasonality	Koalas are subject to drought stress in summer. Climatically suitable habitat for Koalas is contracting, with projected contractions expected eastwards and southwards due to current and future climate change.	The offset site is not within the western or northern edge of the koala distribution subject to climatic contraction.
Home range	The Koala utilises a variable home range, with records ranging from 2 to 170 ha. Home ranges can overlap. Koalas usually complete short-range movements, though travel of up to 20km have been recorded.	The site and connected vegetation (approx. 200 hectares of vegetation represented by RE mapping) provide ample habitat for the existence of Koala home ranges.
Food resources	The Koala is folivorous, feeding primarily on the *Myrtaceae* family, with a strong preference for certain *Eucalyptus*. Preferred feed trees vary by location, and the Koala develops geographically distinct gut flora.	The canopy is predominantly suitable food tree species of the *Myrtaceae* family including *Corymbia, Eucalyptus* and *Angophora*.
Shelter	Non-food trees, particularly large shady trees, are also an essential resource, as Koalas use them for shelter and thermoregulation.	Tree species listed above also serve suitable shelter trees.
Threats	The Koala is threatened by: • Habitat loss, • Vehicle strike, • Dog attack, • Disease, Impacts have a cumulative effect when multiple threats occur in a locality.	The site contains the following threats: • Dingoes were observed in the locality of the offset site during field investigations (as roadkill). • The surrounds are utilised for agriculture and so dogs may be present from time to time. • The surrounds may be subject to low level disturbances (maintenance, agistment). • Vegetation in the locality is fragmented. The site is considered to have the following strengths with regards to threats: • The site is connected to a large contiguous patch of bushland to the north. • The matrix in the locality is relatively low impact (pasture). • The presence of urban land use is very low and restricted to the Mount Perry township.
Evidence of occurrence	The Koala is a large, charismatic species that is regularly sighted. Koala sightings are subject to observer bias, and the Koala is recorded much more frequently near city centres and urban	WildNet data records tend to pre-date the 1990s. More relevant Koala sightings were found through the Burnett Koala Program, a citizen science effort to track Koalas in the

Target MNES	Requirements	Offset Site Assessment
	hotspots, and in parkland that is accessible for recreation.	Burnett region. Results indicate (Burnett Catchment Care Association, 2023): • The Burnett Regional Council has the lowest human population density between the three Local Governments invited to participate in the Burnett region and the lowest participation. Hence, low records should not be considered an indication of an absent Koala population. • When considering observer bias, Koala density in region is predicted at 0.55 individuals per hectare.
Critical Habitat	Critical habitat is broadly defined as areas relied on to avoid or halt species decline and promote recovery. This definition includes many supporting factors. For the Koala, critical habitat may be broadly described as areas with sufficient resources and minimal threatening processes such that the location supports the full life cycle of the species and a self-sustaining population, particularly those populations that are a genetic stronghold or a source population.	Though the North Burnett is relatively data deficient, there is a known Koala population in the area that is likely to be fragmented. Due to the presence of a known, low-density population, bushland in the North Burnett, particularly habitat that provides landscape connectivity and is large and contiguous, is likely to be considered critical habitat for the Koala that is important for sustaining the Burnett population. Habitat within the statewide terrestrial corridor area, like the offset site, are additionally important for strategic landscape connectivity value.

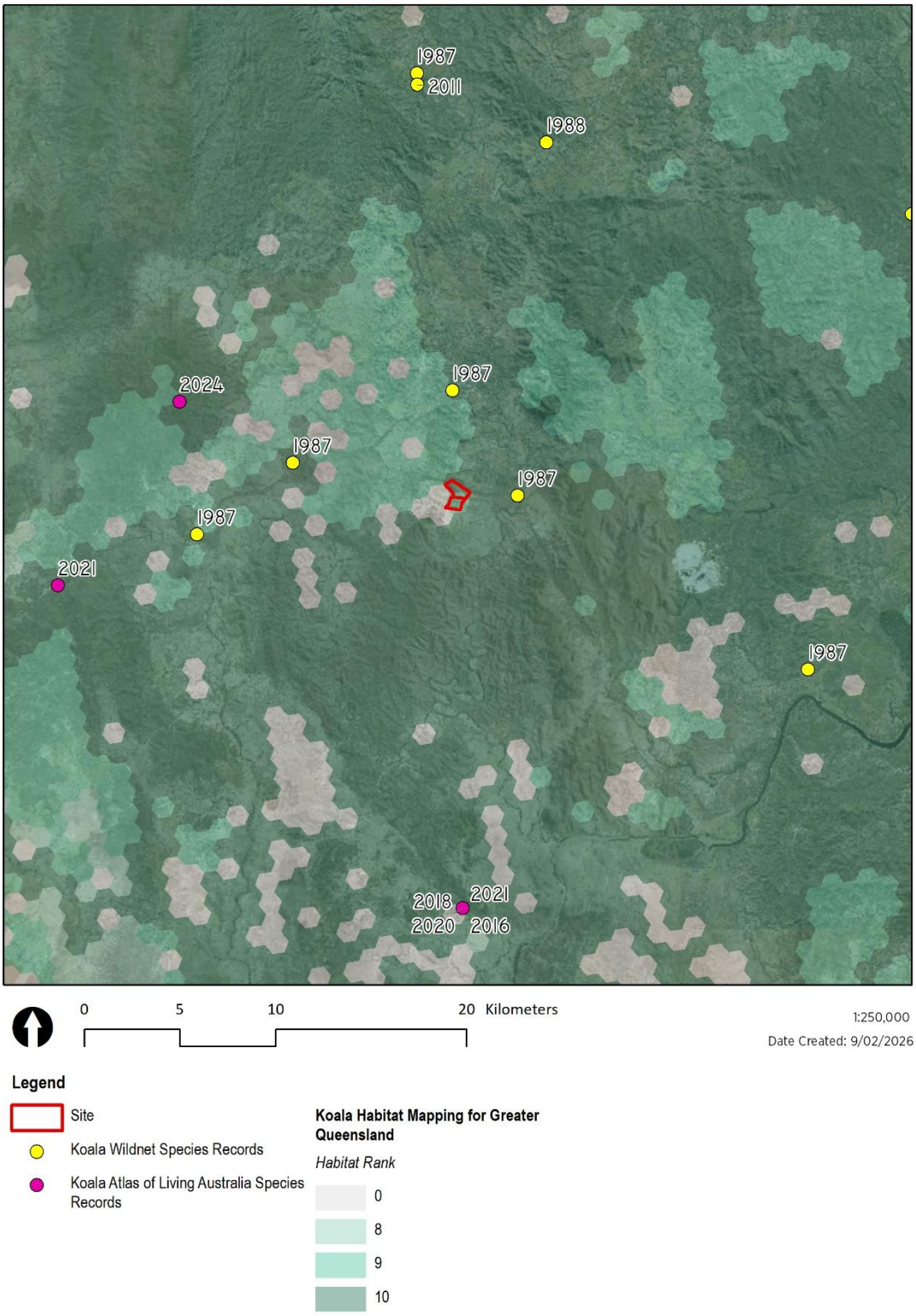

FIGURE 5: CONFIRMED OBSERVATIONS OF THE KOALA (YEAR LABELLED) AND THE STATE-WIDE KOALA HABITAT RANKING MAP (ATLAS OF LIVING AUSTRALIA, 2026, DEPARTMENT OF THE ENVIRONMENT TOURISM SCIENCE AND INNOVATION, 2026, RUNGE ET AL., 2021).

5.2 GREY-HEADED FLYING-FOX

The GHFF is listed as Vulnerable under the EPBC Act. The GHFF is a large, flighted mammal found on the east coast of Australia, ranging from Bundaberg in Queensland to Melbourne in Victoria (Department of Climate Change Energy the Environment and Water, 2022b). The GHFF is a large bat species that rests, socialises and bears young in roosts (or camps) and only leaves roosts for nocturnal foraging activity on fruits and nectar. A summary of GHFF habitat requirements and offset site suitability is provided in Table 3.

In the region, there is no modelling of habitat for the species; however, there are roosts that have been monitored as part of the National Flying Fox Monitoring Program (NFFMP). The program ran for approximately ten years from 2012 to 2022. A map of GHFF camps, other Flying-fox camps, and species records within a 50km buffer of the site is displayed in Figure 6, with dates of observations displayed where available.

TABLE 3: HABITAT REQUIREMENTS AND OFFSET SITE SUITABILITY ASSESSMENT FOR THE GREY-HEADED FLYING-FOX (PTEROPUS POLIOCEPHALUS).

Target MNES	Requirements	Offset Site Assessment
Landscape context	The species is exclusively aerial and arboreal, so mobility and population dynamics are not influenced by terrestrial factors such as dispersal barriers and fragmentation. However, the species requires large areas to forage due to seasonal and phenological variation in resource availability. Roosts are more frequently are established near or within riparian vegetation. Light pollution can influence Grey-headed Flying-fox during dispersal to and from feeding sites (Ecosure Pty Ltd, 2021). The relevant scale within which habitat can be considered is wide, due to the species' large foraging radius and capacity to travel long distances in single efforts.	Within the foraging radius of the offset site, there is a mosaic of vegetated areas and cleared land for pasture as evident in Figure 6. Such fragmentation increases the importance of seasonally available resources present in remaining patches. Urban presence and powerline density is comparatively lower than the impact site due to the rural setting and low intensity agricultural activities. The landscape context is considered suitable for the species, due to the presence of roosts, and the existence of some large and contiguous vegetated areas with winter flowering food trees.
Microhabitat / structural complexity	Usually (not always) prefer closed canopy forests at least 5 m high in forests with upper, mid and understorey layers present (Council 2016, Department of Agriculture Water and the Environment 2021). Differentiation between the mid and upper story is particularly important for the Grey-headed Flying-fox in summer when they utilise the sub-canopy to manage heat stress while feeding (Council 2016).	The offset site contains approximately 73 ha of bushland and 34 ha of cleared land for pasture that is proposed to be rehabilitated. The site supports existing differentiated strata in areas currently occupied by bushland consistent with preferences.
Seasonality	The species has adopted complex migration traits in response to ephemeral and patchy food resources (Department of Agriculture Water and the Environment, 2021). The key threat to the Grey-headed Flying-fox is winter food resource bottlenecks.	The offset site contains a variety of food tree species, and the surrounds supports large contiguous habitat likely to offer a variety of foraging resources. The site contains tree species that flower in winter, including *Corymbia citriodora.*

Target MNES	Requirements	Offset Site Assessment
Home range	The species is considered one population due to high genetic exchange and mobility across a unified range. The Grey-headed Flying-fox can travel very large distances in a single day to forage and return to roost (between 10-50km from the roost, with outliers of up to 150km recorded) (Sunshine Coast Council, 2022). They have also been recorded travelling up to 400km in a single effort when moving between roosts (Sunshine Coast Council, 2022).	Within a 50km radius of the site (upper-average foraging radius) species records and known roosts occur. Therefore, the site is within the species range and may be utilised for foraging, particularly as dominant tree *Corymbia citriodora* can flower in winter. Species records are likely to underrepresent landscape presence due to the predominant existence of private tenure and observer bias.
Food resources	A variety of *Eucalyptus, Corymbia, Angophora, Grevillea, Melaleuca,* and *Banksia* nectar, and a wide variety of fruits, including from rainforest trees, comprise the diet of the Grey-headed Flying-fox. The Grey-headed Flying-fox will also utilise the blossoms and fruits of introduced species in the urban landscape (Sunshine Coast Council, 2022).	The site canopy is dominated by flowering *Eucalyptus* and *Corymbia* species known to be primary food sources.
Shelter	The species is exclusively aerial and arboreal. The Grey-headed Flying-fox rests, socialises and bears young in roosts (or camps) and only leaves for foraging activity.	Within a 50km radius of the site (upper-average foraging radius) species records and known Grey-headed Flying-fox roosts occur. Therefore, the site is within the species range and may be utilised for foraging, particularly during winter.
Threats	Large scale clearing of coastal land for urban and agricultural use has resulted in winter food resource bottlenecks (Eby, 2008). This is the primary reason for decline of the species. In addition, the Grey-headed Flying-fox is threatened by illegal culling due to fruit farm nuisance, and entanglement in powerlines, fences and netting (Department of Agriculture Water and the Environment, 2021).	Current active threats in the area may include local resource bottlenecks due to historic clearing for agricultural activity. Fruit farming activity in the area is low, as is the presence of powerlines and light pollution from urban landscapes when compared to more coastal landscapes such as the impact site.
Evidence of occurrence	From 2012 to approximately 2022, the Grey-headed Flying-fox was monitored in the National Flying-Fox Monitoring Program (NFFMP). Since that time, the camp monitoring has halted. The Grey-headed Flying-fox is most frequently sighted when roosting.	Within a 50km radius of the site (upper-average foraging radius) species records and known roosts occur. Therefore, the site is within the species range and may be utilised for foraging. Species records are likely to underrepresent the presence of the species in the landscape due to the predominant existence of private tenure and observer bias.
Critical Habitat	The criteria for critical habitat for the species in accordance with the National Recovery Plan (Department of Agriculture Water and the Environment, 2021) is vegetation that contains any of the following critical winter flowering food resources: *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, Banksia integrifolia, Castanospermum australe, Corymbia citriodora,*	The site is critical habitat for the Grey-headed Flying-fox because it contains listed tree *Corymbia citriodora*. *Eucalyptus crebra* is also present on the site and has a wide flowering window including winter months.

Target MNES	Requirements	Offset Site Assessment
	C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia or Syncarpia glomulifera. If inconsistent with the above, critical habitat is also defined as native vegetation within 20km of a nationally important camp vegetation used for roosting identified by the NFFMP.	

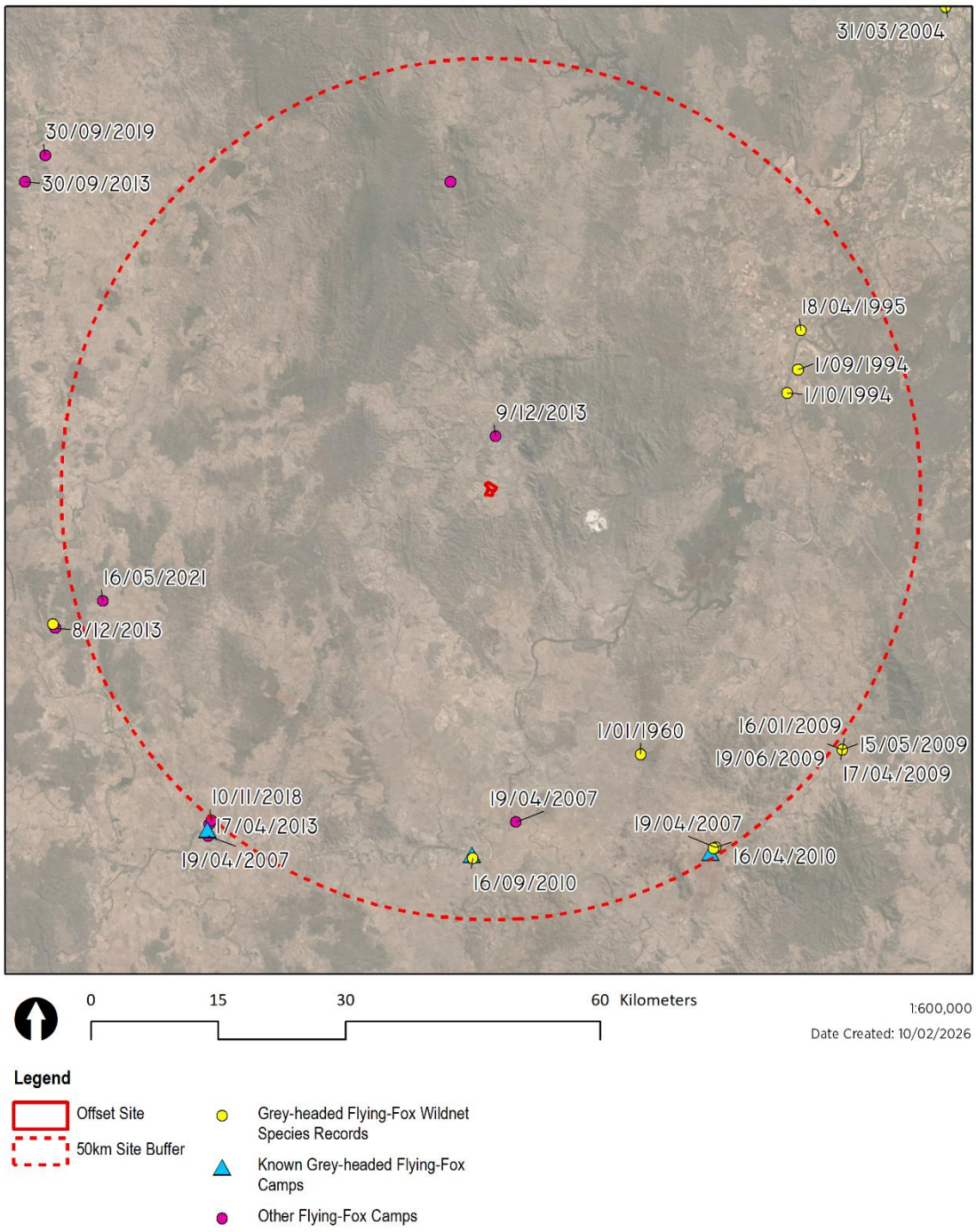

FIGURE 6: UPPER AVERAGE FORAGING RADIUS TO THE OFFSET SITE (50KM), GREY-HEADED FLYING-FOX CAMPS AND SPECIES RECORDS (AUSTRALIAN GOVERNMENT, 2022, DEPARTMENT OF THE ENVIRONMENT TOURISM SCIENCE AND INNOVATION, 2026).

5.3 GREATER GLIDER

The Greater Glider is listed Endangered under the EPBC Act and is the largest gliding possum in Australia, occupying eucalypt forests in eastern Australia (Department of Climate Change Energy the Environment and Water, 2022a). A summary of Greater Glider habitat requirements and offset site suitability is provided in Table 4.

Modelled potential habitat for the species exists over the site. The habitat mapping (thresholded to represent habitat areas only) and species records within a 50km buffer of the site is displayed in Figure 7. Mapping indicates that the site and the greater locality, where containing remnant vegetation, is habitat for the Greater Glider.

TABLE 4: HABITAT REQUIREMENTS AND OFFSET SITE SUITABILITY ASSESSMENT FOR THE GREATER GLIDER (*PETAUROIDES VOLANS*) (DEPARTMENT OF CLIMATE CHANGE ENERGY THE ENVIRONMENT AND WATER, 2022A).

Target MNES	Requirements	Offset Site Assessment
Landscape context	Large, remnant eucalypt forest / woodland in a landscape that supports persistence are higher quality where habitat is less fragmented and better connected via corridors and adjoining bushland. Small remnant patches can still be important where connected.	Though the wider landscape is subject to fragmentation, there are patches of contiguous habitat including those connected to the site within a relatively benign (low intensity) agricultural matrix. Potential habitat modelling demonstrates that the majority of land in the greater landscape is suitable Greater Glider habitat (either pre-clearing[6], or in mapped *remnant* vegetation according to the VM Act) (Figure 7).
Microhabitat / structural complexity	The Greater Glider is highly reliant on hollow-bearing trees for shelter and breeding and prefers large hollows (diameter >10 cm) in large, old living trees but will also use hollows in dead trees (Department of Environment and Science, 2022). Large tree density (e.g. >46 cm DBH in Queensland) can be utilised to predict the presence of hollows. In southern Queensland, research suggests that at least 2–4 live den trees for every 2 ha of suitable forest habitat are likely to be necessary for their presence.	The site supports bushland with differentiated strata. Some trees meeting the DBH threshold were confirmed during surveys. Vegetation maturity and tree size will improve over the nominated 20-year time horizon.[7]
Seasonality	The Greater Glider breeds during autumn and early winter. The species can be subject to heat stress, and cool hollows and shade is important during hot conditions.	The offset site is not positioned within the northern or western edge of the species' total occurrence and is therefore less likely to be subject to restricting climatic extremes.

[6] Vegetation that was present prior to clearing.

[7] Refer to Table 19, Item 9, for additional information regarding a nest box installation program.

Target MNES	Requirements	Offset Site Assessment
Home range	Home ranges of this species are typically relatively small (1 – 4 ha) but can be larger (up to 19 ha) in forests that are less fertile and in open woodlands.	The offset site contains approximately 73 ha of bushland and 34 ha of cleared land for pasture that is proposed to be rehabilitated. The site is contiguous with large areas of connected bushland to the north and is positioned within a statewide conservation corridor. The site is large enough to support several home ranges.
Food & Shelter	The Greater Glider is a specialist folivore, feeding primarily on eucalypt-type leaves, often in large trees with a DBH>30cm. Trees frequent in preferred habitat for the Greater Glider in Queensland, in order of frequency, include predominantly *Corymbia intermedia, C. citriodora, Eucalyptus tereticornis, Eucalyptus crebra,* and *Eucalyptus acmenoides.*	The offset site notably contains many of the preferred habitat trees for southeast Queensland populations, including *Corymbia intermedia, C. citriodora, Eucalyptus tereticornis,* and *E. crebra.* Therefore, it is likely that mature habitat of this type is ideal for the species in terms of food and shelter.
Threats	Threats to the Greater Glider include: • Habitat loss and fragmentation • Hollow-bearing tree removal (i.e., forestry practices often select large trees), • Altered fire regimes, severe fires, • Climate change, heat and drying, • Predation by introduced predators, and • Competition for tree hollows.	The site contains the following threats: • Vegetation in the locality is fragmented. • Dingoes were observed in the locality of the offset during field investigations (as roadkill). • The surrounds is utilised for agriculture and so dogs may be present from time to time. • The surrounds may be subject to low level disturbances (maintenance, agistment). The site is considered to have the following strengths with regards to threats: • The site is connected to a large contiguous patch of bushland to the north. • To the south is a statewide conservation corridor and large mapped areas of greater glider habitat (Figure 7). • The matrix in the locality is relatively low impact (pasture). • The presence of urban land use is very low and restricted to the Mount Perry township.
Evidence of occurrence	The Greater Glider is a cryptic species, usually nocturnal and silent feeders. Even when present, Greater Gliders are known to be missed during targeted survey.	Species records have been found in the greater locality. Records are difficult to rely on because: • They may be underrepresented due to the dominance of private tenure and due to observer bias. • The species is cryptic and nocturnal, and therefore difficult to detect. As the site comprises suitable habitat, and the species is known to the locality, the species may occur in the area.
Critical Habitat	For the Greater Glider, critical habitat includes areas relied upon to avoid/halt decline and	The site has potential value as critical habitat due to contiguous forests to the north and

Target MNES	Requirements	Offset Site Assessment
	promote recovery, including occupied and unoccupied areas needed for life-cycle needs (foraging, breeding, shelter), stress refugia (fire/drought), corridors, genetic diversity, and climate refugia.	canopy species consistent with preferred Qld habitats. The site and contiguous vegetation may provide critical habitat particularly due to fragmentation in the broader region.

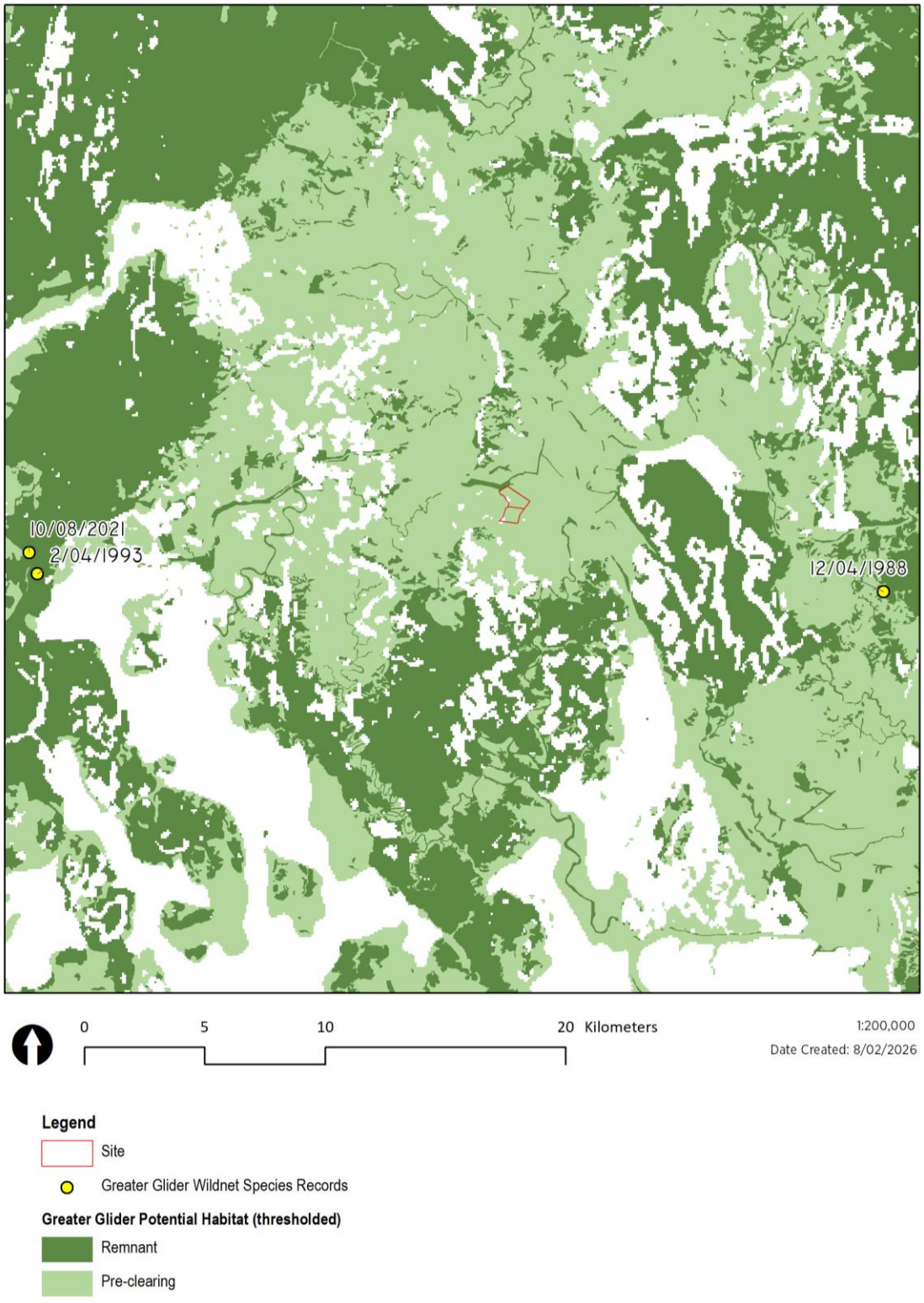

FIGURE 7: GREATER GLIDER MODELLED POTENTIAL HABITAT AND WILDNET SPECIES RECORDS (DEPARTMENT OF THE ENVIRONMENT TOURISM SCIENCE AND INNOVATION, 2026).

6 OFFSET ASSESSMENT SUMMARY

The following section describes the offset assessment. Offset assessment was undertaken using Department material and included the development of a species-specific method for offsetting impacts tailored to the habitat requirements of the Koala, Grey-headed Flying-fox and the Greater Glider. The offset methodology has been built on two (2) key documents provided by DCCEEW, including:

1. The **Modified Habitat Quality Assessment Tool (MHQAT)**. This document is an assessment tool for assessing habitat quality for MNES that is an adaptation of the *BioCondition Assessment Manual: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual* (Eyre et al., 2015), which is a standard method of assessing habitat quality developed for Queensland REs. The standard MHQAT was adjusted to suit the target species. An in-depth description of the species-specific methods for measuring habitat quality can be found in Appendix 5 (Koala), Appendix 6 (Grey-headed Flying-fox) and Appendix 7 (Greater Glider).
2. The **Offsets Assessment Guide** (OAG) spreadsheet is used to determine the Offset Area required to compensate for 100% of the impacts of the proposed development.

The modified BioCondition assessment was undertaken generally in accordance with the methods described in *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual* (Eyre et al., 2015). The habitat quality scores at the impact and offset sites are outlined below:

TABLE 5: HABITAT QUALITY SCORE AT THE IMPACT AND OFFSET SITE.

Species	Impact Site Habitat Quality Score	Offset Site Habitat Quality Score
Koala	6/10	5/10
Grey-headed Flying-fox	5/10	4/10
Greater Glider	5/10	5/10

The MHQAT spreadsheets containing the results of the assessments can be found in Appendix 8 (Koala), Appendix 9 (Grey-headed Flying-fox) and Appendix 10 (Greater Glider). For ease of reference, the MHQAT results for both the impact and offset sites are included for each species.

To meet offset obligations for habitat quality improvement, the offset proposal includes a habitat quality uplift of two (2) to three (3) points at the offset site. After the implementation of management measures to meet the offset goals, the final offset site score will be 7/10. Integrating the results of the MHQAT with the OAG indicates that 107 ha of offset will be sufficient to meet the proponent's offset obligation, including:

- 101% of the offset obligation for the Koala,
- 183% of the offset obligation for the Grey-headed Flying-fox, and
- 122% of the offset obligation for the Greater Glider.

The OAG spreadsheets containing the results of the offset assessments can be found in Appendix 11 (Koala), Appendix 12 (Grey-headed Flying-fox) and Appendix 13 (Greater Glider). Selected OAG inputs have been identified and justified in Table 6.

TABLE 6: EXPLANATION OF OFFSET ASSESSMENT GUIDE (OAG) INPUTS.

Input Label	Input Data	Description or Justification
EPBC Act Status	Koala: Endangered GHFF: Vulnerable Greater Glider: Endangered	Listing status of MNES at the time of controlled action decision (EPBC 2022/09397 provided 3 February 2023).
Threatened Species Habitat – Area	23.6 ha	Impact area to habitat, on the impact site, for all MNES (per decision notice dated 19 April 2024).
Threatened Species Habitat – Quality	Koala: 6 GHFF: 5 Greater Glider: 5	Habitat quality results at the impact site as determined by the MHQAT (refer to Appendix 7).
Time over which loss is averted (max. 20 years)	20 years	To allow maximum time for success and for the accrual of benefits, 20 years is nominated as the time horizon. The time until ecological benefit may be less than nominated, depending on the offset management outcomes.
Time until ecological benefit	20 years	
Start area	107.14 ha	The offset site is 107.14 ha in size, and the entire site is to be utilised for offsets.
Start quality (scale of 0-10)	Koala: 5 GHFF: 4 Greater Glider: 5	Habitat quality results at the offset site (prior to intervention) as determined by the MHQAT (refer to Appendix 7).
Future quality without offset (scale of 0-10)	Koala: 5 GHFF: 4 Greater Glider: 5	Predicted habitat quality results at the offset site if the status quo was maintained. The site is managed for agistment, and it is likely that the habitat quality would neither significantly decrease or increase.
Future quality with offset (scale of 0-10)	7	Predicted habitat quality results at the impact site (after management) as determined by the MHQAT (refer to Appendix 7).
Risk of loss (%) without offset	0%	Over 20 years, the risk of loss at the offset site (with and without offset) has been nominated 0%. This is because there is no environmental factor likely to result in the total loss (without prospect of regeneration) of the habitat. Prior to the offset, development risk at the site is present in the form of low VMA protections (Category X vegetation), however, if the vegetation was to be cleared, this would likely require referral.
Risk of loss (%) with offset	0%	
Confidence in result	Koala: 85% GHFF: 70%	Based on a habitat quality uplift of two points for Koala and Greater Glider, a confidence in result of 85% has been nominated

Input Label	Input Data	Description or Justification
	Greater Glider: 85%	in accordance with guidance material from DCCEEW, and due to the stochastic nature of environmental management projects and the 20-year time horizon. Based on a habitat quality uplift of three points for GHFF, a confidence result of 70% has been nominated in accordance with guidance material from DCCEEW. A three-point uplift will be necessary as the future quality score with offset must reach 7 to ensure offset obligations are achieved for the Koala.

The assessment of the site against DCCEEW's EPBC Act Environmental Offsets Policy (2012) (Offsets Policy) (Department of Sustainability Environment Water Population and Communities, 2012) suggests that the offset is appropriate due to the following considerations:

- The site provides a direct conservation outcome for the species and maintains or improves species viability by enhancing and protecting habitat critical to the survival of the species.
- The scale of the offset is appropriately sized according to the OAG and is proportional to the residual impacts on the species.
- The OMP will include thorough risk management, auditing, contingency and adaptive management planning to ensure offset delivery.
- The offset will improve existing habitat for the protected matters by rehabilitating habitat on the offset site.
- The offset will create new habitats for the protected matters by planting habitats in disturbed areas.
- The offset will reduce threats to the protected matters.
- The offset site and impact site are like-for-like due to the following key reasons:
  - The offset and impact site both support habitat for the Koala, Grey-headed Flying-fox and Greater Glider.
  - The offset site supports similar habitat types as most of the cleared habitats on the impact site (RE 12.5.4).
  - The offset site regional ecosystem (RE 12.12.5) is described by the Queensland Herbarium as: *Corymbia citriodora subsp. variegata and Eucalyptus crebra open forest on Mesozoic–Proterozoic igneous substrates.*
  - The impact site regional ecosystem (RE 12.5.4) is described by the Queensland Herbarium as: *Eucalyptus, Corymbia and Melaleuca woodland occurring on a complex of remnant Tertiary surfaces underlain by Cainozoic and Mesozoic sediments.*
- The offset site is not located in the same local government jurisdiction (North Burnett Regional Council) as the impact site (Bundaberg Regional Council); however, they are located in the same bioregion (South East Queensland bioregion). This means that the benefits of the offset are located in the regional context of the impact.

7 PROPOSED OFFSET

The results of the offset assessment determined that to compensate for the impacts of the proposed action, approximately 107 ha of offset area will be required. The residual impact of the proposed action is expected to be compensated with a proposed two (2) point habitat quality uplift for the Koala and Greater Glider with three (3) for the Grey-headed Flying-fox and a final offset score of 7/10.

The proposed Offset Area contains a mix of regrowth vegetation and pasture habitats. The proposed Offset Area is approximately 107 ha in size. The boundaries of the proposed Offset Area are congruent with the boundaries of the offset site. All assessment units in the proposed Offset Area contain or are suitable to contain habitat for the Koala, Grey-headed Flying-fox and Greater Glider.

The coordinates of the boundary points of the Offset Area are displayed in Figure 8. Shapefiles of the proposed Offset Area will be provided to DCCEEW.

TABLE 7: COORDINATES OF THE BOUNDARY POINTS OF THE PROPOSED OFFSET AREA[8].

Coordinate ID	X Coordinate	Y Coordinate
A	151.6406	-25.2327
B	151.6388	-25.2349
C	151.6379	-25.2381
D	151.6301	-25.2372
E	151.6318	-25.2356
F	151.6328	-25.2326
G	151.6339	-25.2319
H	151.6303	-25.226
I	151.6339	-25.2241
J	151.643	-25.2299
K	151.6343	-25.2307
L	151.6319	-25.2275
M	151.631	-25.2274
N	151.6383	-25.2368
O	151.6381	-25.2371
P	151.6381	-25.2373
Q	151.6381	-25.2376

[8] Note points N, O, P and Q have been determined from a geo-rectified survey plan and may not be 100% accurate.

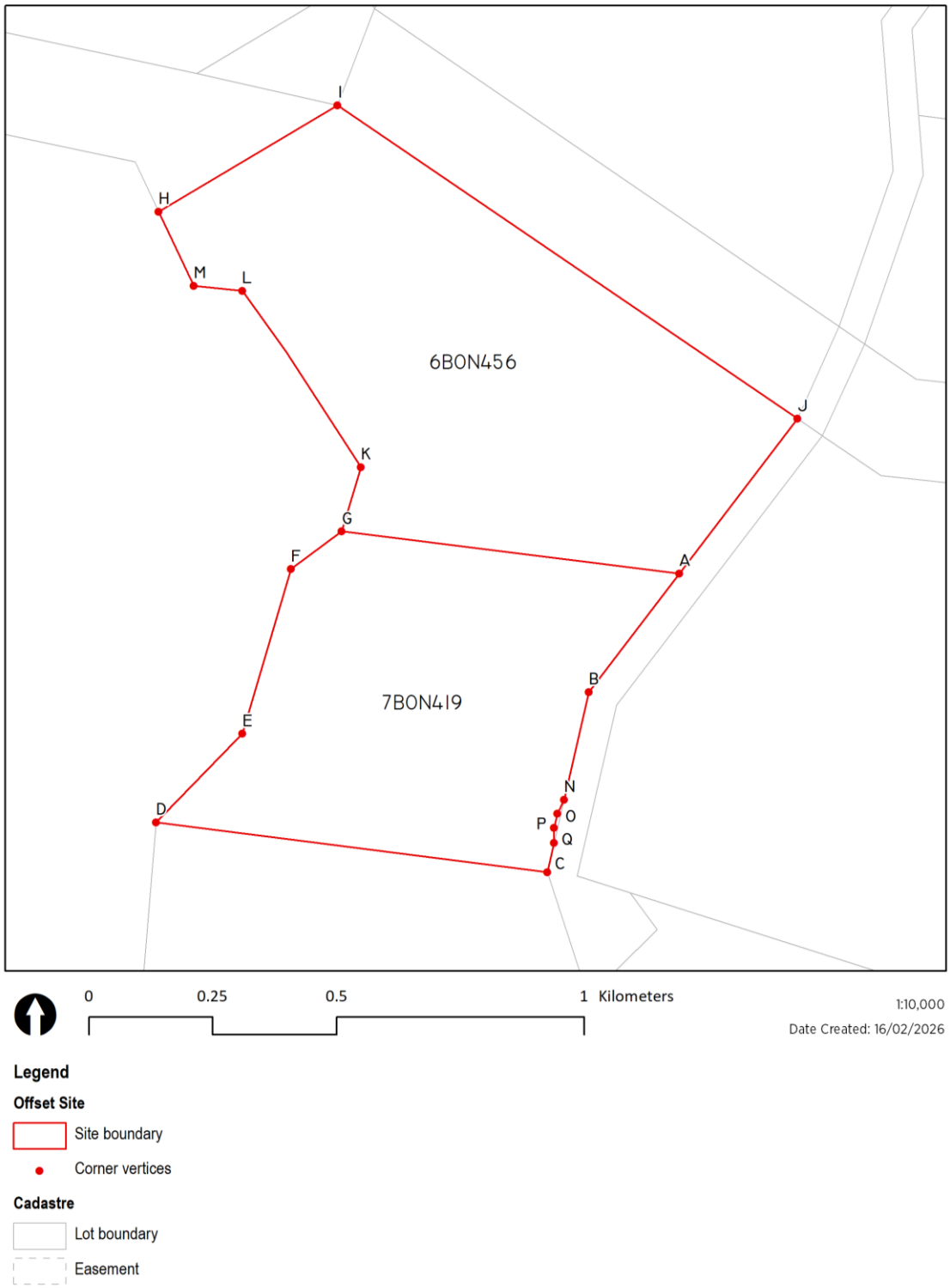

FIGURE 8: PROPOSED OFFSET SITE VERTICES (COORDINATES).

8 CONSERVATION OUTCOME

Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter (Department of Sustainability Environment Water Population and Communities, 2012). To deliver a conservation gain, actions must be tailored to the specific matter that has been impacted, in this case, Koala, Grey-headed Flying-fox and Greater Glider habitats. A conservation gain may be achieved by (Department of Sustainability Environment Water Population and Communities, 2012):

- Improving existing habitat for the protected matter,
- Creating new habitats for the protected matter,
- Reducing threats to the protected matter,
- Increasing the values of a heritage place, and/or,
- Averting the loss of a protected matter or its habitat that is under threat.

In this instance, a conservation gain will be achieved by:

- Improving existing habitat for target MNES with supplementary planting,
- Creating new habitat for target MNES within cleared and disturbed areas, and
- Reducing threats to target MNES.

9 OFFSET COMPLETION CRITERIA

These offset completion criteria fulfil the offset objective and achieve a conservation outcome that satisfies the proponent's obligations. The offset completion criteria ensure that habitat reflects the structure and function of the target vegetation community, while providing sufficient resources to support the species.

These offset completion criteria are based on known habitat features that the species prefer, as well as the expected structure and function of the RE in the Offset Area. *Eucalyptus* spp., *Angophora* spp. and *Corymbia* spp. that are characteristic of the target RE are the priority tree species.

Canopy height and stem density targets in the offset completion criteria have been defined using stratum heights and stem densities, as per the RE technical description for RE 12.12.5. Therefore, targets are based on the expected or the 'ideal'.

Utilising known habitat features and the expected structure and function of the RE, the offset completion criteria have been broken into the following key components:

- Goal,
- Objectives, and
- Targets.

9.1 GOAL

The goal of the OMP is to improve habitat for Koala, Grey-headed Flying-fox and Greater Glider on the Offset Area by ensuring that habitat reflects the structure and function of the relevant RE and providing sufficient resources to support the species. Specifically, to achieve an average 2-point uplift or 3-point uplift in habitat scores for each species by the end of the offset.

9.2 OBJECTIVES

In order to achieve the goal, a series of objectives must be met. All objectives need to be met in order to achieve the goal. The objectives are:

- Tree species reflect the structure and function of the relevant RE.
- Tree species include a range of *Eucalyptus, Corymbia* and *Angophora* species.
- Achieve an average 2-point uplift or 3-point uplift in habitat scores for each species.

9.3 COMPLETION TARGETS

To fulfil the objectives, the completion targets will be committed to and achieved. The completion targets will indicate that sufficient ecological benefit is being delivered (i.e., habitat uplift). The completion targets are outlined in Table 8.

It is important to note that there is more than one way to achieve the goal and objectives outlined above and achieve an MHQAT score of 7. The targets below provide one example of how the goal and objectives could be achieved. If the offset site meets the Targets 1 – 3, the offset site will achieve an MHQAT score of 7 and will have obtained the average 2-point uplift or 3-point uplift in habitat scores for each species. Target 4 has been designed to provide flexibility in approach. As such, the offset is considered to satisfy the proponent's obligations when:

- Target 1 – Target 3 have been achieved, OR,
- Target 4 has been achieved.

TABLE 8: OFFSET COMPLETION TARGETS.

Target Number	Target
1	Within 20 years of starting the offset, achieve and maintain an open forest structure typical of the relevant RE, which fulfils the following[9]: • *Eucalyptus*, *Corymbia* and *Angophora* spp. in the canopy (T1 and T2) achieve a density of at least one stem every 17 square metres, and • Tree height of at least 12.4 metres, being the average of T1 and T2 strata, • Tree cover of at least 20.4%, comprised of T1 and T2 strata, and, • Shrub cover of at least 3%, comprised of S1 and S2, and • Non-native plant cover of less than 25% inclusive of all strata, with non-native plant cover not exceeding baseline non-native plant cover for any transect.
2	Within 20 years of starting the offset, achieve and maintain a diverse flora species assemblage that reflects species currently present as well as species typical of the relevant RE to fulfil the following: • Tree species richness of at least five (5) species comprising ***priority species***[10] (T1 and T2 strata), and, • Shrub species richness of at least nine (9) species (S1 and S2).
3	Within 1 (one) year of starting the offset, develop and implement an appropriate fire management strategy.

[9] T1 describes the upper or predominant canopy that usually comprises the ecologically dominant layer (EDL, or layer of greatest biomass) where present. T2 describes the sub-canopy layer of trees at a consistent height range in a distinct lower layer to the T1 canopy. S1 and S2 describe the upper and lower shrub strata, respectively. To define canopy strata, complete an assessment in accordance with Appendix 6 of the document *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual (Version 2.2, 2015).*

[10] For the list of priority trees, refer to Section 11.1.1: Canopy Species Selection.

Target Number	Target
4	Notwithstanding the timeframes specified for Targets 1-3, the offset will be considered achieved if, at any monitoring event, the offset site: • Achieves a minimum habitat quality score of 7 out of 10, and, • Contains *Eucalyptus, Corymbia* and *Angophora* spp. in the canopy, and, • Has confirmed records of the target MNES species.

9.4 INTERIM TARGETS

This section identifies interim targets (Table 9) to mark the progression towards the achievement of the completion targets (Table 8). Interim targets help to ensure that the offset is being correctly managed and help the manager of the Offset Area to assess the need for and priority of adaptive management measures and controls. The interim targets are to be used as a guide for implementation of adaptive management.

TABLE 9: INTERIM TARGETS TO ASSESS PROGRESS TOWARDS THE COMPLETION TARGETS.

Completion Targets (Section 9.3)	Interim Targets		
	Year five (5)	Year ten (10)	Year fifteen (15)
1	Within five (5) years of starting the offset, *Eucalyptus*, *Corymbia* and *Angophora* spp. in the canopy (T1 and T2) to achieve an average density of at least one stem every 40 square metres.	Within ten (10) years of starting the offset, fulfil the following (site average): • *Eucalyptus*, *Corymbia* and *Angophora* spp. in the canopy (T1 and T2) achieve an average density of at least one stem every 30 square metres, and, • Tree height of at least 5 metres, being the average of T1 and T2 strata, and, • Tree cover of at least 10%, comprised of T1 and T2 strata, and, • Shrub cover of at least 1%, comprised of S1 and S2.	Within fifteen (15) years of starting the offset, fulfil the following (site average): • *Eucalyptus*, *Corymbia* and *Angophora* spp. in the canopy (T1 and T2) achieve an average density of at least one stem every 20 square metres, and, • Tree height of at least 10 metres, being the average of T1 and T2 strata • Tree cover of at least 15%, comprised of T1 and T2 strata, and, • Shrub cover of at least 2%, comprised of S1 and S2.
2	Within five (5) years of starting the offset, achieve on average, tree species richness of at least two (2) species comprising *Eucalyptus, Corymbia* and *Angophora* spp. (T1 and T2 strata).	Within ten (10) years of starting the offset, achieve on average: • Tree species richness of at least three (3) species comprising *Eucalyptus,*	Within fifteen (15) years of starting the offset, achieve on average: • Tree species richness of at least four (4) species comprising *Eucalyptus,*

Completion Targets (Section 9.3)	Interim Targets		
	Year five (5)	Year ten (10)	Year fifteen (15)
		Corymbia and *Angophora* spp. (T1 and T2 strata). • Shrub species richness of at least five (5) species (S1 and S2).	*Corymbia* and *Angophora* spp. (T1 and T2 strata). • Shrub species richness of at least seven (7) species (S1 and S2).
3	Within 1 (one) year of starting the offset, develop and implement an appropriate fire management strategy. Maintain management measures as required.	Maintain management measures as required.	Maintain management measures as required.
4	Within five (5) years of starting the offset, achieve and maintain a minimum habitat quality score of 5/10.	Within ten (10) years of starting the offset, achieve and maintain a minimum habitat quality score of 6/10.	Within fifteen (15) years of starting the offset, achieve and maintain a minimum habitat quality score of 6.5/10.

Refer to Section 12: Monitoring & Reporting for information on the procedure of monitoring the completion targets, in addition, the correct procedure should be followed if targets are not met within specified timeframes.

9.5 MHQAT CONSERVATION OUTCOMES

The completion targets and interim targets outlined above are designed with intention and correspond directly with MHQAT measures. As the MHQAT has been individually tailored to represent habitat quality for each target MNES, improvement of the MHQAT is the creation of a conservation outcome by improving species habitat at the location. Subject to consideration, measures are:

- Selected preferentially where they correspond to priority outcomes for species or key minimum habitat requirements – this conversely corresponds with greater habitat uplift.
- Constrained to what can be changed with direct human intervention, for example, this must relate solely to factors like vegetation planting, habitat augmentation and threat management on the site[11].

[11] As opposed to factors unaffected by management. For example, site position in the landscape contributes to the MHQAT starting score and ensures the site is accessible to species, but this is determined at the offset site selection stage and cannot contribute to uplift by nature of being unmodifiable. Indirect benefits may accrue, such as the creation of a larger habitat patch with revegetation.

A summary of the selected MHQAT measures for improvement on the offset site has been provided alongside the related offset completion criteria, proposed management to achieve outcomes, and a discussion of the resulting conservation outcomes is provided in Table 10. The table is a roadmap for information purposes. For specific management measures to be undertaken, refer to Section 11. For the MHQAT (in full) refer to Appendix 9.

TABLE 10: OUTLINE OF THE MANAGEMENT INTENT AND CONSERVATION OUTCOME FOR THE OFFSET COMPLETION CRITERIA.

Improved MHQAT Measure	Completion Target	Relevant Target MNES	Management Discussion[12]	Conservation Outcome
Site Condition				
Native plant species richness – trees (of at least five (5) species)	2	All target MNES	Priority tree species are to be planted in accordance with Section 11.1: Vegetation & Habitat Management. This section identifies the best habitat trees for the MNES (priority trees) in accordance with known preferences and establishes best practice soil preparation and planting methods. The management intent is the greatest chance of establishment and growth to maturity of habitat trees.	A variety of habitat trees providing structural complexity for shelter and foraging variety to maximise resources. Priority trees are preferred by the target MNES while also being representative of the local area. This provides maximum habitat benefit within the constraints of the RE. Management that increases the likelihood of sapling recruitment and survival should promote faster or improved habitat outcomes.
Native plant species richness – shrubs (of at least nine (9) shrub species)	2	All target MNES	Shrub species consistent with the relevant RE are to be planted in accordance with Section 11.1: Vegetation & Habitat Management.	Supports ecosystem integrity and resilience and supports sapling survival for canopy recruitment. Provides native competitors to exotic species that may interfere with ground travel i.e., *Lantana camara*.
Average canopy height (emergent, canopy, sub-canopy) of at least 15.5 m.	1	All target MNES	Best-practice vegetation rehabilitation (Section 11.1) will establish new forest in areas of pasture and improve the average canopy height and cover. Stem density minimums of completion target 1 and consistent with the RE (1 per 17 sqm) will achieve the benchmark. In some vegetated areas this target has been met. Over the 20 year time horizon, the stewardship of existing and new vegetation, together with monitoring and supplementary planting, is expected to achieve this benchmark.	Canopy of an average height and cover consistent with the benchmark provides ideal structural complexity and tree maturity for shelter and feeding.
Average canopy cover (emergent, canopy, sub-canopy) of at least 25.5%.	1	All target MNES		

[12] The management discussion column explains the link between selected completion targets, MHQAT measures to be improved, proposed management to achieve the improvement and the resulting conservation outcome. It is for information purposes only, for specific management measures to be undertaken, refer to Section 11.

Improved MHQAT Measure	Completion Target	Relevant Target MNES	Management Discussion[12]	Conservation Outcome
Shrub canopy cover of at least 3%.	1	All target MNES	Best-practice vegetation rehabilitation (Section 11.1) will establish new forest in areas of pasture and improve the average shrub cover. In some vegetated areas this target has been met. Over the 20 year time horizon, the improvement of existing and new vegetation is expected to achieve this benchmark.	Supports ecosystem integrity and resilience and supports sapling survival for canopy recruitment. Removes exotic species that may interfere with ground travel i.e., *Lantana camara*.
Non-native plant cover of less than 25%, with non-native plant cover not exceeding baseline non-native plant cover for any transect.	1	All target MNES	Section 11.3, details weed removal and practices to prevent weed invasion from human traffic on the site. Non-native plant cover across the offset site is variable, ranging from 5 – 40%. Therefore, the 25% threshold is a feasible outcome over an extensive offset area and is based on BioCondition scoring for non-native plant cover (BioCondition Score 5).	Supports ecosystem integrity and resilience and supports sapling survival for canopy recruitment. Controls exotic species that may interfere with ground travel i.e., *Lantana camara*.
Large trees (at least one large tree is present per survey unit).	3	All target MNES	Implementation of stochastic event management and planning (i.e., to prevent severe bushfire) in accordance with Section 11.5 will reduce the risk of tree mortality and support retention of large trees in the existing vegetation. A minimal improvement was selected as tree growth cannot be directly influenced. This target was not placed on areas that do not already contain trees, such that the outcome remains reasonable to achieve. The result may exceed minimum requirements.	Provides an improved habitat structural complexity consistent with the RE. Signifies tree retention and the maturing of vegetation.
Presence of preferred habitat trees (four species)	2	Greater Glider	Priority tree species are to be planted in accordance with Section 11.1: Vegetation & Habitat Management. This section identifies the four trees consistent with the local RE that are also frequent to Greater Glider habitat and therefore may be preferred (Department of Environment and Science, 2022). The management intent is the	Planting of four trees that are commonly found in known Greater Glider habitat in south east Queensland focuses rehabilitation effort on food and shelter resources that are more likely to be optimal for the Greater Glider. Providing a variety of habitat improves structural complexity for shelter and foraging variety to maximise resources. Management that increases the likelihood of sapling recruitment and

Improved MHQAT Measure	Completion Target	Relevant Target MNES	Management Discussion[12]	Conservation Outcome
			greatest chance of establishment and growth to maturity of habitat trees.	survival will be linked to faster or improved habitat outcomes.
Foraging tree density (one per 17 sqm)	1	Greater Glider	The offset site, which currently contains large, cleared areas, will be rehabilitated such that there is a consistent upper canopy stratum present in accordance with Section 11.1: Vegetation & Habitat Management. Trees must be potential food and shelter trees (i.e., *Eucalyptus*, *Corymbia* and *Angophora* spp.) including planted and existing vegetation. Existing vegetation is to be supplemented if required.	Densities specified in the completion criteria reflect the benchmark RE canopy stem density and priority trees are those providing maximum blossom productivity, reliable flowering, and winter availability. A variety of habitat trees providing structural complexity for shelter and foraging variety to maximise resources.
Site Context				
Size of patch (reaches >200 ha of remnant vegetation).	1 - 3	All target MNES	The site and connected vegetation is comprised of approximately 279 ha of vegetation, of which 135 ha is remnant (in adjacent areas). Establishment of new vegetation in the cleared areas planted in accordance with Section 11.1: Vegetation & Habitat Management and stewardship of the existing vegetation will increase the patch size to 314 ha (of which, 242 ha will be remnant).	Increasing the patch size provides the following benefits: • Reduction of fragmentation and increased connectivity, • Increased resilience to disturbances and reduction of edge effects, • Increased shelter opportunities and reduced vulnerability to predators with no extended or forced ground travel inside the site, and • Increased variety and volume of foraging resources and microhabitat complexity.
Threats to the Species are reduced.	1 -3	All target MNES	Threats to the species will be reduced by: • Legally securing the offset site (Section 14: Legally Secured Offset Area), • Exclude agistment and unauthorised access (Section 11.4.1: Access), • Reducing weed presence and preventing further weed invasion (Section 11.3 Biosecurity), and	The result of actions are the following conservation outcomes: • Security of the site against any future land use incompatible with conservation, • Reduction of fragmentation and increased connectivity, • Increased resilience to disturbances and reduction of edge effects,

Improved MHQAT Measure	Completion Target	Relevant Target MNES	Management Discussion[12]	Conservation Outcome
			• Revegetating cleared areas and addressing risks to habitat establishment and growth to maturity (Section 11.1: Vegetation & Habitat Management).	• Exclusion of anthropogenic impacts (i.e., cattle, ground erosion, pasture maintenance, tree clearing, vehicle access), • Increased shelter opportunities and reduced vulnerability to predators with no extended or forced ground travel inside the site, • Increased variety and volume of foraging resources and microhabitat complexity, and • Reducing resource scarcity.
Species mobility capacity is improved.	1 - 2	Koala and Greater Glider	The offset site, which currently contains large, cleared areas, will be rehabilitated such that there is a consistent upper canopy stratum present in accordance with Section 11.1: Vegetation & Habitat Management. Weed presence will be managed and reduced.	Controls exotic species that may interfere with ground travel i.e., *Lantana camara*. Provides opportunities for species to escape into trees if they encounter threats on the ground.
Species Stocking Rate				
Species usage of the site.	1 - 3	Koala and Greater Glider	The offset site, which currently contains large, cleared areas, will be rehabilitated such that there is a consistent upper canopy stratum present in accordance with Section 11.1: Vegetation & Habitat Management. In these areas, the vegetation will change from *dispersal* to *foraging* for the Koala and the Greater Glider.	The offset directly creates new habitat where there is no habitat prior to intervention, changing the potential usage of these areas for the target MNES, providing at minimum foraging and dispersal through previously uninhabited areas.
GHFF foraging tree density (one per 17 sqm).	1	GHFF	The offset site, which currently contains large, cleared areas, will be rehabilitated such that there is a consistent upper canopy stratum present in accordance with Section 11.1: Vegetation & Habitat Management. The management specifies priority GHFF food trees for planting. Existing vegetation is to be supplemented if required.	Densities specified in the completion criteria reflect the benchmark RE canopy stem density and priority trees are those providing maximum blossom productivity, reliable flowering, and winter availability. A variety of habitat trees providing structural complexity for shelter and foraging variety to maximise resources.

10 RISK ASSESSMENT

The following section outlines a qualitative risk assessment which evaluates risks associated with achieving the completion targets set out in the Offset Completion Criteria (Section 9.3).

A qualitative offset risk assessment was undertaken in accordance with AS ISO 31000:2018 Risk management – Guidelines (Standards Australia, 2018). A qualitative approach was utilised as it is suitable in this instance to gather information that can't easily be measured by or translated into numbers. Risk assessment first requires the establishment of the context and scope for the risk assessment. The context and scope of the offset risk assessment is to identify, assess and treat risks to achieving the offset goal and objectives, particularly the offset targets, described in the preceding section. The offset goal and objectives are achieved when the targets are achieved.

The offset risk assessment was comprised of three stages:

- **Risk identification:** Identify risks which would prevent the completion targets from being achieved.
- **Risk analysis:** Analyse the likelihood and consequences (impact) of each of the identified risks on achieving the completion targets.
- **Risk evaluation**: Based on the outcomes of the risk analysis, determine whether the risk:
  - is otherwise acceptable or tolerable (low risks), and
  - requires treatment or management to reduce the risk to acceptable or tolerable levels. The 'treatments' identified as part of the risk evaluation are equivalent to offset management actions which are subsequently described in Section 11 of the report.

The following subsections describe:

- Risk identification,
- Risk analysis,
- Risk evaluation, and
- The consolidated risk assessment.

10.1 RISK IDENTIFICATION

The purpose of risk identification is to generate a comprehensive list of risks based on those events that might prevent, degrade, or delay the achievement of the completion targets set out in the Offset Completion Criteria (Section 9.3). Risks were identified

through a qualitative assessment involving expert elicitation and evidence-based methods.

Risks were identified having regard to the site context and the goal of the offset, including:

- the Offset Area's existing characteristics e.g., BioCondition,
- the location of the Offset Area within the landscape,
- desired environmental outcomes (offset completion targets).

Risk identification resulted in the establishment of six (6) 'risk groups' for subsequent risk analysis and risk evaluation:

- Vegetation management risks,
- Soil environment risks,
- Biosecurity risks,
- Anthropogenic risks,
- Stochastic event risks, and
- Operational risks.

The risk groups are described in further detail in Table 11. Specific risks within each of the groups are listed in the consolidated risk assessment (Refer to Section 10.4) and are cross-referenced in the table below.

TABLE 11: DESCRIPTION OF RISK GROUPS.

Risk Group	Description	Identified risks
Vegetation management risks	Vegetation management risks may affect the successful growth or establishment of vegetation that is existing (i.e., regrowth) or being rehabilitated (i.e., tubestock and direct seeding). For example, abiotic stressors resulting in slow or stunted plant growth is a vegetation management risk.	Items 1 – 11 of Table 17.
Soil environment risks	Soil environment risks are related to site suitability and soil health/integrity and issues that may arise due to erosion and/or nutrient imbalances. For example, intensification of gully erosion is a soil environment risk.	Items 12 – 14 of Table 17.
Biosecurity risks	Biosecurity risks may affect plant health and successful establishment due to pests, pathogens and disease, including factors such as weed competition and native plant herbivory. For example, myrtle rust infestation of Eucalyptus trees presents a biosecurity risk.	Items 15 – 18 of Table 17.
Anthropogenic risks	Anthropogenic risks are related to damages to vegetation or land resulting from various actions of people, including accidental damages, site access, disturbances, unauthorised site use, or dumping.	Items 19 – 25 of Table 17.
Stochastic event risks	Stochastic event risks are related to weather events and the possibility for some events to cause site damage and loss of environmental value. Such events are somewhat unpredictable	Items 26 – 31 of Table 17.

Risk Group	Description	Identified risks
	(stochastic) and are related to the frequency and intensity of storms, drought, flood and bushfire.	
Operational risks	Operational risks are associated with the management, execution, and continuity of operations that could affect the ability to meet objectives. These include funding gaps that may delay activities, inadequate budgets, delays in approvals or permits, insufficient resources such as staff, equipment, or infrastructure, and other internal operational challenges.	N/A[13]

Each of the six (6) risk groups identified may be independently and collectively associated with failing to achieve the offset completion criteria. The identified risks are analysed in the following section.

10.2 RISK ANALYSIS

Risk analysis involves developing an understanding of the identified risks, to provide input into risk evaluation and decision-making (i.e., whether a risk needs to be treated) (Standards Australia, 2018). Risk is analysed by determining the likelihood and consequence of a risk, where likelihood refers to the probability of a particular identified risk occurring, and consequence is the expected severity of the risk (Standards Australia, 2018). The determination of the likelihood and consequence for each risk is based on their respective association in achieving the offset completion criteria target(s) (Standards Australia, 2018). A risk could have multiple consequences and affect multiple targets.

Each of the identified risks was given a rating in terms of the likelihood and consequence of the risk event occurring. The likelihood of a risk occurring was categorised according to Table 12 and the consequences were classified according to categories listed in Table 13 in accordance with AS ISO 31000:2018 (Standards Australia, 2018).

Risks were qualitatively assessed using a combination of expert elicitation and evidence-based methods. Likelihood and consequence ratings were combined according to the AS ISO 31000:2018 risk rating matrix to generate a risk rating of either low, medium, high or severe (Table 14; described in Table 15).

TABLE 12: LIKELIHOOD RISK RATING DESCRIPTION (STANDARDS AUSTRALIA, 2018).

Descriptor	Description
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

[13] The proponent is expected to identify and manage their own operational risks, to ensure they do not interfere with achieving offset completion.

Descriptor	Description
Unlikely	Could occur, but is considered unlikely or doubtful to occur
Rare	May occur, but only in exceptional circumstances

TABLE 13: CONSEQUENCES RISK RATING DESCRIPTION (STANDARDS AUSTRALIA, 2018).

Descriptor	Description
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental features and danger of continuing
Critical	Severe widespread loss of environmental features and irrecoverable environmental damage

TABLE 14: RISK RATING MATRIX (STANDARDS AUSTRALIA, 2018).

		Consequence				
		Minor	Moderate	High	Major	Critical
Likelihood	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

TABLE 15: RISK RATING MATRIX RESULT DESCRIPTION (STANDARDS AUSTRALIA, 2018).

Risk Matrix Result	Description
Low	Low risks do not pose a real threat to achievement of the targets of the offset completion criteria.
Medium	Medium risks may interfere with achievement of the targets of the offset completion criteria.
High	High risks may prevent the achievement of the targets of the offset completion criteria.
Severe	Severe risks are likely to prevent the achievement of the targets of the offset completion criteria.

The outcomes of the risk analysis, including overall risk ratings (inherent risks), was used to inform risk evaluation in the following section of the report. Risk evaluation involves the identification of management actions that could be adopted to reduce the inherent risk to an acceptable or tolerable level (residual risks).

10.3 RISK EVALUATION

The purpose of risk evaluation is to provide a framework for decision-making based on the outcomes of risk analysis. Risk evaluation enables the identification of appropriate treatments, management actions and priorities for management implementation. Using the results of the risk matrix, the costs and efforts of management implementation should be balanced against the benefits derived (Standards Australia, 2018).

Offset risk treatment and appropriate management responses were evaluated through a qualitative assessment through expert elicitation and evidence-based methods. The risk evaluation determined:

- whether the risk is acceptable or tolerable,
- whether the risk needs to be managed,
- the appropriate management action, and
- the priority for management implementation.

Table 16 outlines the risk evaluation response required to address the aforementioned points. Appropriate management actions are identified in Section 11.

TABLE 16: RISK EVALUATION RESPONSE.

Inherent Risk	Action	Residual Risk
Low	Low inherent risks are accepted risks. Low risks do not necessitate a management response.	Low
Medium	Medium inherent risks are tolerable, however, some management of the risk may be required.	Medium/Low
High	High risks are intolerable. Risk management is required. Risk must be managed until the residual risk is Medium or below.	Medium/Low
Severe	Severe risks are intolerable. High-priority risk management required. Risk must be managed utilising one or multiple measures until the residual risk is Medium or below.	Medium/Low

Risk evaluation was the final step in the risk assessment process and included the determination of management actions to reduce the inherent risk to an acceptable or tolerable level, also known as the 'residual risk'. The outcomes of the risk identification, analysis and risk evaluation were combined and consolidated in the following section (Section 10.4). The management actions that arose from the risk evaluation and consolidated risk assessment form the basis for the offset management activities (Section 11).

10.4 CONSOLIDATED RISK ASSESSMENT

The following section contains the consolidated risk assessment table that combines the results of the Risk Identification (Section 10.1), Risk Analysis (Section 10.2) and Risk Evaluation (Section 10.3) assessments. Table 17 displays the results of identification, analysis, and evaluation in order of completion, from left to right. The consolidated risk assessment:

- Identifies risks which would prevent the completion targets being achieved (risk category, and risks),
- Analyses the likelihood and consequences (impact) of each of the identified risks on achieving the completion targets (likelihood and consequence, inherent risks), and
- Based on the outcomes of the risk analysis, determines whether the risk is otherwise acceptable or tolerable (low risks), or requires management to reduce or control the risk (management actions and residual risks).

The consolidated risk assessment (Table 17) must be updated by the Offset Manager (OM) at the following times:

- Prior to initial commencement of works,
- Prior to vegetation clearing operations,
- At the completion of vegetation clearing operations,
- As required following non-conformances or other changes to procedures, and,
- Annually, as part of the review and audit procedures.

TABLE 17: CONSOLIDATED RISK ASSESSMENT.

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
Vegetation management risks								
1	Incorrect rehabilitation timing	Unlikely	Major	High	• Section 11.1.3: Planting and Establishment, item 5 • Section 11.1.4: Direct Seeding, item 8	Rare	Major	Medium
2	Slow or stunted plant growth (i.e., abiotic stresses)	Possible	Major	High	• Section 11.1.2: Site Preparation • Section 11.1.3, Planting and Establishment • Section 11.1.4: Direct Seeding	Possible	High	Medium
3	Target species fail to establish	Unlikely	Critical	High	• Section 11.1.2: Site Preparation • Section 11.1.3, Planting and Establishment • Section 11.1.4: Direct Seeding	Rare	Major	Medium
4	Inconsistent growth and maturity of vegetation	Possible	Moderate	Medium	• Section 11.1.2: Site Preparation • Section 11.1.3, Planting and Establishment • Section 11.1.4: Direct Seeding	Unlikely	Minor	Low
5	Inadequate planting approaches and maintenance	Possible	High	Medium	• Section 11.1.2: Site Preparation • Section 11.1.3, Planting and Establishment • Section 11.1.4: Direct Seeding	Unlikely	High	Medium

[14] Indicates the likelihood and consequences of an action prior to planned mitigation measures from OMP implementation.

[15] Indicates the likelihood and consequences of an action following implementation of planned mitigation measures from the OMP.

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
6	Intraspecies competition (i.e., dense regrowth)	Possible	Moderate	Medium	• Section 11.1.3: Planting and Establishment, item 14 • Section 11.1.4: Direct Seeding, item 9	Rare	High	Low
7	Interspecies competition	Possible	Moderate	Medium	• Section 11.1.3: Planting and Establishment, items 13 - 14 • Section 11.1.4: Direct Seeding, items 7 and 9 • Section 11.3: Biosecurity, items 1-6, item 11	Unlikely	Moderate	Low
8	Unsuitable species selection	Unlikely	High	Medium	• Section 11.1.3: Planting and Establishment, item 1- 4 • Section 11.1.4: Direct Seeding, items 1-2	Rare	High	Low
9	Unsuitable microclimate for species	Unlikely	Moderate	Low	• Acceptable risk, management not required	Unlikely	Moderate	Low
10	Seed predation in direct seeding treatment areas	Possible	High	Medium	• Section 11.1.4: Direct Seeding, item 9	Possible	Moderate	Medium
11	Unhealthy or low-quality nursery stock	Possible	Moderate	Medium	• Section 11.1.3: Planting and Establishment, items 3-4 • Section 11.1.4: Direct Seeding, items 1-2	Unlikely	Moderate	Low
Soil environment risks								
12	Nutrient imbalance	Possible	High	Medium	• Section 11.2: Soil Environment	Unlikely	Moderate	Low

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
13	Erosion, compromised soil structure and undermining	Possible	Major	High	• Section 11.2: Soil Environment	Unlikely	High	Medium
14	Elevated soil salinity	Possible	High	Medium	• Section 11.2: Soil Environment	Unlikely	Moderate	Low
Biosecurity risks								
15	Weed competition / spread of weeds	Highly likely	High	High	• Section 11.3: Biosecurity, items 1-6, 11	Possible	Moderate	Medium
16	Native species herbivory	Possible	Moderate	Medium	• Section 11.3: Biosecurity, item 7	Possible	Minor	Low
17	Plant parasites or fungal pathogens	Possible	Major	High	• Section 11.3: Biosecurity, items 8-10	Possible	Moderate	Medium
18	Livestock intrusion from neighbouring properties	Possible	Minor	Low	• Acceptable risk, management not required	Rare	Minor	Low
Anthropogenic risks								
19	Unauthorised access to the site	Possible	High	Medium	• Section 11.4.1: Access	Rare	High	Low
20	Unapproved vegetation removal	Unlikely	High	Medium	• Section 11.1.3: Planting and Establishment	Rare	High	Low
21	Accidental damage to vegetation	Unlikely	Moderate	Low	• Acceptable risk, management not required	Rare	Minor	Low

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
22	New / existing land contamination	Unlikely	High	Medium	• Section 11.4.1: Access • Section 11.4.2: Waste	Rare	High	Low
23	New / existing waste	Likely	Moderate	Medium	• Section 11.4.1: Access • Section 11.4.2: Waste	Unlikely	Moderate	Low
24	Purposeful damage to property (i.e., recreational vehicle usage)	Possible	Moderate	Medium	• Section 11.4.1: Access	Rare	Moderate	Low
25	Delays associated with discovery of heritage / cultural values or artifacts	Possible	Moderate	Medium	• Section 11.4.1: Access, item 6	Possible	Minor	Low
Stochastic event risks								
26	Extended drought periods	Possible	Major	High	• Section 11.5, Stochastic events, items 1-4.	Possible	High	Medium
27	Uncontrolled bushfire	Rare	Critical	High	• Section 11.5, Stochastic events, items 10-14	Rare	High	Low
28	Inappropriate fire regimes	Unlikely	High	Medium	• Section 11.5, Stochastic events, items 10-14	Rare	High	Low
29	Weather events (e.g., storms, flood, etc.)	Likely	Moderate	Medium	• Section 11.5, Stochastic events, items 5-9, 15	Likely	Minor	Low
30	Irregular seasonality and associated	Possible	High	Medium	• Section 11.5, Stochastic events, all items.	Possible	Moderate	Medium

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
	phenological events							
31	Intensification / increased regularity of stochastic events due to climate change	Likely	High	High	• Section 11.5, Stochastic events, all items.	Likely	Moderate	Medium
Operational event risks								
32	Insufficient funding or cost increase	Possible	Major	High	• The proponent is expected to identify and manage their own operational risks, to ensure they do not interfere with achieving offset completion.	-	-	-
33	Delays or issues with approvals and permits	Possible	Moderate	Medium		-	-	-
34	Inadequate, unclear, or poorly implemented operational procedures	Possible	Moderate	Medium		-	-	-
35	Insufficient resources (e.g., staff, expertise, or infrastructure)	Unlikely	Moderate	Low		-	-	-
36	Insufficient legal protection or rights over land	Unlikely	High	Medium		-	-	-

Item	Risks	Likelihood	Consequence	Inherent Risk[14]	Management Actions	Likelihood	Consequence	Residual Risk[15]
37	Inconsistent monitoring and auditing	Possible	Moderate	Medium		-	-	-
38	Physical or logistical restrictions (e.g., terrain, transport)	Possible	Moderate	Medium		-	-	-

11 MANAGEMENT ACTIONS

Management actions have been identified for each risk to the achievement of the completion targets.

All offset activities will be undertaken by a suitably qualified person or organisation (the Offset Manager), with demonstrated experience and expertise in environmental or habitat offset delivery, revegetation, fire, weed and pest management. The OMP is to be administered by the Offset Manager and any nominated contractor(s) responsible for any works within the Offset Area or works outside of the Offset Area that may impact the habitat values of the Offset Area.

A copy of the OMP, together with a register of site personnel will be maintained by the Offset Manager for quality management, risk and safety purposes. The OMP will be included in all site inductions to ensure that employees, contractors and suppliers are aware of their responsibilities. Briefings for all relevant personnel will occur prior to any works and on each day that works take place to review risks, ensure quality management and manage safety and other hazards.

Evidence of management actions and assessment against the relevant performance outcomes will be monitored and reported annually to the proponent of the action. The following sections of the report contain a series of management plans that have been prepared to target the risks identified in Section 10 of the report. The management plans provide details of management actions, define the responsible person for the management action, indicate the timing and frequency for implementation of the action, as well as the monitoring and reporting requirements for each. Management success can be assessed through the performance measures identified in this section, and otherwise through monitoring, reporting and review (Section 11). Low risks do not require specific risk treatment or management actions and are not dealt with; however, they can be carried out according to the procedures contained in the management tables at the discretion of the Offset Manager (OM) if necessary.

Management measures have been assigned based on best-practice guidance material that is both relevant and appropriate for the Offset Area. Management measures have been guided by:

- Australian Standards per the International Organization for Standardization (ISO),
- State management guidelines and specifications, and
- Local Government management guidelines and specifications.

The management tables provide examples of contingencies and corrective actions to be implemented if management measures are not appropriately executed or if risks are realised. More guidance on the implementation of contingencies and corrective actions,

which are to be applied on a case-by-case basis, is provided in Section 13: Adaptive Management & Plan Review.

The management plans have been divided into logical categories based on the risk groups identified in Section 10 for efficiency when seeking measures to avoid, minimise and mitigate risk in the Offset Area, including:

- Vegetation management (Section 11.1), including:
  - Site preparation,
  - Planting and establishment,
  - Direct seeding,
- Soil environment (Section 11.2),
- Biosecurity (Section 11.3),
- Anthropogenic (Section 11.4), including:
  - Access management, and
  - Waste management,
- Stochastic events (Section 11.5).

11.1 VEGETATION & HABITAT MANAGEMENT

Vegetation management refers to measures or activities to create, enhance or maintain habitat on the Offset Area for the achievement of completion targets. Vegetation management measures include treatment options necessary to reduce or mitigate risks identified in the vegetation management risk group as part of Section 10 of this report. Vegetation management risks have been divided into key three groups, including:

- Canopy species selection,
- Site preparation,
- Planting and establishment, and
- Direct seeding.

Vegetation management measures specified in this section are based on, and make use, established environmental management and ecological restoration best practice guidelines, including industry, local and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs.

11.1.1 CANOPY SPECIES SELECTION

Canopy tree species planted on the offset site must be selected in accordance with ***priority species*** outlined below. The listed species are consistent with the RE or are already growing on the site, which increases management consistency, ecosystem resilience, and likelihood of tubestock recruitment and survival to maturity. It is critical that the planting regime utilise the priority species outlined in Table 18 below, because:

- The MHQAT considers the importance of tree species to MNES, and non-compliance may result in failure to meet the completion targets and satisfy the proponent's obligations.
- Canopy trees are the primary habitat component (comprising food and shelter) for all three target MNES.
- Target MNES are selective and have preferred food trees, and hence some species will provide more habitat benefits than others.

- A variety of suitable trees are preferred to maximise habitat structural complexity and the availability of resources.
- Koala populations are adapted to survive on tree species found in their locality and trees must be consistent with existing habitat.
- Listed trees provide comparatively better GHFF habitat, either providing blossom resources that are productive nectar sources, have reliable annual flowering, or are available in winter (Eby, 2008).
- As the Greater Glider may supplement a folivorous diet with buds and flowers, improved productivity and reliability may benefit this species in addition to the GHFF.
- Four trees are consistently present in known habitat of the Greater Glider in southeast Queensland and are therefore more likely to provide suitable habitat or be preferred (Department of Environment and Science, 2022).

Refer to Appendix 7 for more background information on the desirable traits of trees.

TABLE 18: LIST OF PRIORITY CANOPY SPECIES AND DETAILS OF DESIRABLE TRAITS.

Tree Species	Blossom Productivity	Flowering Reliability	Winter Flowering	Greater Glider Habitat
Corymbia citriodora	0.92	0.3	Yes	Yes
Eucalyptus crebra	Not assessed	Not assessed	Yes	Yes
Eucalyptus tereticornis	0.54 - 0.91	0.15 - 0.60	Yes	Yes
Eucalyptus moluccana	0.37 - 0.59	0.30 - 0.80	No	Yes
Corymbia tessellaris	0.61	0.15	No	No

11.1.2 SITE PREPARATION

Site preparation refers to measures to prepare the site for revegetation activities (direct seeding, or planting). Site preparation addresses vegetation management and soil environment risks. Site preparation is to be implemented prior to Planting and Establishment (11.1.3) as well as Direct Seeding (Section 11.1.4). The objective of site preparation is to contribute to the achievement of the completion targets by:

- Creating an optimal growth medium for establishment of new plants,
- Increasing the likelihood of seed germination (direct seeding),

- Reducing the likelihood of new plant mortality.

Site preparation measures specified in this section (Table 19) are based on, and make use, established environmental management and ecological restoration best practice guidelines, including industry and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- Best Practice Erosion and Sediment Control from the International Erosion Control Association (IECA Australia, November 2008),
- Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017),
- AS 4419 Soils for landscaping and garden use.

Performance criteria that ensure the site preparation is being managed successfully include the following measures:

- Soil quality in rehabilitation areas achieves and maintains characteristics suitable for native vegetation establishment.
- High survival rate (>90%) for rehabilitated (planted or seeded) native vegetation.

TABLE 19: SITE PREPARATION MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions – Site Preparation				
Item No.	Management Details	Responsibility	Timing	Frequency
	General requirements			
1	All vegetation management activities are to be performed by a suitably qualified contractor, with demonstrated experience in bushland rehabilitation. Relevant qualifications include a certificate in Conservation Land Management - Natural Area Restoration or a degree in a related field such as ecology or vegetation management. Contractors must hold ALL applicable licenses or permits such as: • Commercial operator's license (ground application of herbicides) issued under the Agricultural Chemicals Distribution Control Act 1966, • Senior First Aid certificate, • White Card i.e., General Safety Induction (Construction Industry), and,	OM	Prior to Contractor engagement	Once

Management Actions – Site Preparation				
Item No.	Management Details	Responsibility	Timing	Frequency
	• Relevant environmental permits issued by the relevant State Government department.			
	Non-native plant competition			
2	The following must be completed in rehabilitation areas containing non-native plant cover >25%: • Complete a cool burn prior to planting in accordance with the requirements of Bushfire (Section 11.5) management to reduce non-native plant cover/abundance. • Remove residual non-native plants per the requirements of Biosecurity management prior to rehabilitation efforts (Section 11.3).	OM	Prior to rehabilitation	As required (where >25% threshold exceeded)
	Soil structure			
3	Temporary erosion and sediment control fencing to be installed in accordance with Best Practice Erosion and Sediment Control (IECA Australia, November 2008) [16] where erosion risk is present.	OM	Prior to rehabilitation	As required (where erosion risk identified)
4	If anthropogenic disturbances, such as waste, are identified in planting areas, the following must be completed prior to planting: • All latent waste and encumbrances are removed from planting areas. • Decompaction of soil e.g., ripping and reinstatement of topsoil.	OM	Prior to rehabilitation	As required (where anthropogenic disturbance identified)
	Topsoil quality			
5	Bare topsoil and/or subsoil in rehabilitation areas will be appropriately prepared in accordance with Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017)[17], or other equivalent fit-for-purpose method.	Contractor	Prior to rehabilitation	Once

[16] Best Practice Erosion and Sediment Control (IECA Australia, November 2008) is an essential reference for erosion and sediment control professionals and will prevent ground disturbance from planting from causing knock on effects for soils and therefore plant establishment issues.

[17] Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works is a detailed document that covers a broad range of applicable rehabilitation considerations including planting, seeding, soil preparation, establishment and amelioration in a variety of applicable conditions and/or landscapes relevant to Queensland.

Management Actions – Site Preparation				
Item No.	Management Details	Responsibility	Timing	Frequency
6	If topsoil is required, utilise topsoil from the site as a first priority. If site topsoil is not available for use, import topsoil similar to naturally occurring topsoil, in accordance with Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017) or other equivalent fit-for-purpose method. Imported topsoil is to be suited to establishment and of the selected vegetation, free of weed propagules and contaminants, and which achieves the requirements of AS 4419 Soils for landscaping and garden use.	Contractor	Prior to rehabilitation	Once
7	Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following: • Smooth and free from stones or lumps of soil, • Graded to drain freely, without pending, to catchment points, • Graded to drain evenly into adjoining ground surfaces, and • Ready for planting.	Contractor	Prior to rehabilitation	Once
	Appropriate mulching			
8	Native organic mulch is to be imported in accordance with AS 4454-2012 and utilised to support tubestock plantings particularly in the presence of ground weeds or soil deficits. Composts, soil conditioners and mulches and achieve the requirements set out in Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017) or other equivalent fit-for-purpose method.	Contractor	Prior to planting / seeding	As required (i.e., top-up mulch where lacking)
	Habitat augmentation			

Management Actions – Site Preparation				
Item No.	Management Details	Responsibility	Timing	Frequency
9	Develop and implement a nest box trial management plan for the Greater Glider[18]. This is to be undertaken in the northern portion of the site where existing vegetation is most connected to surrounding / adjacent vegetation.	OM	Within 12 months of starting the offset	Once
	Contingency Actions			
	Planting location is unsuitably prepared			
10	• Report and investigate as an incident. • Identify the cause of unsuitability. • If the issue can be resolved, arrange for immediate amelioration, i.e., waste removal or weed / pest control by a suitably trained contractor. • Increase management and monitoring until the issue is resolved. • If required, retrain relevant personnel in regard to OMP procedures and controls.	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	In response to incidents, repeated when progress towards outcomes are not observed.
	Non-native plant cover increase from the baseline in excess of >25%			
11	• Compare with previous monitoring report (if existing), • Identify dominant non-native plant species and species-specific control methods, • Identify the full ground extent occupied by the dominant non-native plant species, • Conduct species specific controls and conduct follow-up weed management at the recommended interval for the species, • If species is new to the offset site, investigate and report as an incident and conduct an immediate review of biosecurity controls, • If required, retrain relevant personnel in regard to OMP procedures and controls.	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month of identification.	In response to incidents, repeated when progress towards outcomes is not observed.

[18] The installation of nest boxes is not required in order to achieve the required habitat quality uplift and conservation outcome. Given the unknown success, this management measure is a recommendation in order to test the suitability and success of various nest box types / styles. The trial is to investigate various nest box types to determine which are most likely to be successful for Greater Glider use in Queensland.

Management Actions – Site Preparation				
Item No.	Management Details	Responsibility	Timing	Frequency
	General contingency procedure (in response to unforeseen incidents).			
12	• Pause the relevant activity, make the area safe, and prevent escalation (isolate spills, stabilise exposed soil, block off pathways, establish exclusion zones), • Capture the facts (what/where/when, photos, GPS, weather, activity underway) and notify the Environmental Representative and Project Manager so the event is formally logged, • Confirm cause, extent, and risk to offset values and compliance. Implement pre-approved controls immediately; if the fix changes the approved footprint/method, document a Contingency Action Plan and obtain the required approvals before restarting, and • Check controls are effective, authorise restart, and complete close-out documentation (incident/non-conformance report, lessons learned, update method statements and maps/exclusion zones if needed).	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	In response to incidents, repeated when progress towards outcomes is not observed.

11.1.3 PLANTING AND ESTABLISHMENT

Planting and establishment refer to measures for the planting of tubestock in the Offset Area and management of tubestock establishment for successful rehabilitation activities. Planting and establishment address vegetation management and soil environment risks. Planting and establishment is to be applied on those areas of the Offset Area that already support native vegetation to supplement the canopy. Planting and establishment are to be implemented after Site Preparation (Section 11.1.2).

The objective of planting and establishment is to contribute to the achievement of the completion targets by:

- Restoring and enhancing habitat for the Koala, Grey-headed Flying-fox and Greater Glider by replanting native vegetation.

Planting and establishment measures specified in this section are based on, and make use, established environmental management and ecological restoration best practice guidelines, including industry, local and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- Regional Ecosystem Technical Descriptions for 12.12.5,
- Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017), and
- Section 11.3 of this report (Biosecurity).

Performance criteria that ensure the planting is being managed successfully include the following measures:

- Any required rehabilitation works are to commence no less than two months after weeds have been treated in the Offset Area.
- 90% survivorship of plants within rehabilitation areas.
- Rehabilitated vegetation will display signs of native vegetation growth at rates expected for those species.

TABLE 20: PLANTING AND ESTABLISHMENT MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
	Quality and appropriateness of plant procurement			
1	All canopy species used for revegetation must be in accordance with the relevant RE. When planting tubestock, at least five different canopy species must be cycled during planting. Planting must not plant one species continuously or risk the failure to satisfy offset completion targets.	OM	Prior to planting	Once
2	Canopy species must be consistent with the RE (or consistent with trees already growing on the site). Species must be selected in accordance with the priority tree species in Section 11.1. Substitution is not permitted, and if need arises for alternative native species, these must be confirmed with the Offset Manager and must be in accordance with the relevant RE[19].	OM		

[19] Regional Ecosystem Technical Descriptions provide a detailed description of the normal range in structure and floristic composition of remnant regional ecosystems.

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
3	Supplied plants are to be consistent with the following requirements: • Tubestock size to be min. 75mm container size. • Plants are to be clearly and correctly labelled (water-resistant labels) according to botanical name. • Plants are to be delivered to the site in fully enclosed trucks. • All plant material is to be sourced from local provenance stock. • Plants will be supplied in weed-free containers of the required size. • Open rooted stock is not to be supplied. • All plants are to be healthy and vigorous. Root bound, diseased and poor stock will not be accepted.	OM	Prior to planting	Once
4	Supplied plants are to have the following characteristics: • Foliage size, texture and colour at time of delivery consistent with the size, texture and colour shown in healthy specimens of the nominated species. Plants are to be showing signs of active growth relative to season and true to the form of the species. • With extension growth consistent with that exhibited in vigorous specimens of the species nominated. • Free from damage and from restricted habit due to growth in nursery rows. • Free from stress resulting from inadequate watering, excessive shade or excessive sunlight experienced at any time during their development. • Grown and hardened off to suit the conditions that could reasonably be anticipated to exist on site at the time of delivery. • Supply plants with foliage free from attack by pests or disease.	OM	Prior to planting	Once
	Suitable planting timing			
5	Planting must proceed within the specified timeframes to ensure progression towards completion targets as follows:	OM	Per *management details*	Once

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
	• Planting of vegetation on the site (seeding or tubestock) must begin in any area within at least (1) year of the commencement of the offset. • Planting should be prioritised in open space areas without canopies before conducting supplementary planting of vegetated areas. • Site-wide initial plantings should be prioritised to maximise time for vegetation maturity and the improvement of ecosystem complexity. • Planting should have regard to the species already existing in the planting location at the time of planting to maximise efficiency. • With regard to prevailing weather conditions, plant or seed in Autumn to Spring if feasible to maximise chances of recruitment. • Any planting activity must proceed within one (1) month of the conclusion of local site preparation. • Any discrete planting activity should be concluded in a timely manner and not be drawn out unnecessarily to protect stock and maximise recruitment.			
	Suitable planting procedure			
6	Planting is to be carried out in accordance with Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017) or other equivalent fit-for-purpose method. For example, planting of tubestock is to ensure that: • Planting holes for trees are to be a minimum of 1.5 times the diameter of the root ball and twice the depth of the root ball. • Planting pit is to have roughened sides and de-compacted base. • Install water retention crystals to manufacturer's specifications (approximately 5 grams per plant). • Remove the plant from the container with minimum disturbance to the root ball, ensure that the root ball is moist and place it in its final position, in the	OM	During planting	As required

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
	centre of the hole and plumb, and with the topsoil level of the plant root ball level with the finished surface of the surrounding soil. • Backfill with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball so that the plant stem remains the same height above ground as it was in the container.			
7	Planting in accordance with Planting Container Stock <25L Container specifications per Department of Transport and Main Roads planting design standards (Standard Drawing No. 1653) or other equivalent fit-for-purpose method in nominated planting areas.	Contractor	During planting	As required
8	Avoid planting in unsuitable weather conditions such as extreme heat, cold, wind or rain. Avoid excavation when the soil is wet (except sandy soils), or during frost periods.	OM	Prior to planting	As required
9	As far as practical: • Tubestock planting of tree (canopy or E/T1/T2) species is to be evenly spaced and at a density of one stem per 10 sqm (overall, allowing for existing stems of canopy or E/T1/T2) species. • Tubestock planting of shrub vegetation (S1/S2) species shall ensure that the overall density of stems is not greater than one stem per 10 sqm (allowing for existing stems of S1/S2 species). • Tubestock planting of ground strata (G1) species shall ensure that the density of stems is not greater than one stem per 2 sqm (allowing for existing stems of G1 species).	OM	During planting	As required
	Replacement planting (loss of tubestock)			
10	Establishment and monitoring of plants is to be in accordance with Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017) or other equivalent fit-for-purpose method.	OM	During planting and establishment	As required

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
11	Maintain appropriate planting densities and replace dead / dying / diseased stock.	OM	In response to incidents, to ensure completion targets are achieved	As required
12	Provide replacement plants as follows: • Of the same species as the plant that has been lost, • Of uniformly high-quality stock equal to the best commercially available, • Representative of optimum growth for the species as restricted by the container size, • With a balanced root system in relation to the size of the plant and conducive to successful transpiration. • Without signs of having been stressed at any stage during their development due to inadequate watering, excessive shade / sunlight, suffered physical damage or have restricted habit. • Healthy, well grown, hardened off specimens of good shape and free from pests and disease. • Been grown in their final containers for not less than twelve (12) weeks.	OM	In response to incidents, to ensure completion targets are achieved	As required
	Vegetation thinning			
13	Where regrowth or recruitment reaches densities that would hinder tree growth due to interspecies or intraspecific competition (i.e. overcrowding), density is to be managed.	OM	During planting and establishment	As required
	Contingencies and Corrective Actions			
	Target species fails to establish			
14	• Report and investigate as an incident. • Arrange for a suitably trained contractor. • Identify the cause of growth failure.	All personnel must escalate issues when observed.	Engage contractor within one month from identification of incident	In response to incidents.

Management Actions – Planting and Establishment				
Item No.	Management Details	Responsibility	Timing	Frequency
	• If the issue can be resolved, arrange for immediate amelioration, i.e., weed / pest control by a suitably trained contractor. • Increase management and monitoring until the issue is resolved.	OM responsible for contingency.		
	Priority species not planted			
15	• Report and investigate as an incident. • Review other planted locations for similar issues, • Review supply chain and order logs etc. for the source of the issue, • Order correct species and supplement any incorrectly planted area, • Increase management and monitoring until the issue is resolved, and • If required, retrain relevant personnel in regard to OMP procedures and controls.	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	In response to incidents.
	General contingency procedure (in response to unforeseen incidents).			
16	• Pause planting or maintenance where needed and prevent further losses (temporary shade, watering, re-staking/tree guards, protect from traffic, isolate any diseased stock). • Log what failed or is at risk, identify likely drivers (water stress, planting depth/technique, soil moisture/compaction, heat/frost, pests, weeds, herbicide drift, disease). • Apply fixes matched to the diagnosis. If changes affect approved outcomes (species composition, density, layout), document an action plan. • Confirm the corrective action improved performance, authorise continuation of works, update establishment monitoring triggers and thresholds.	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	In response to incidents.

11.1.4 DIRECT SEEDING

Direct seeding refers to measures for the direct seeding of disturbed areas in the Offset Area and management of species establishment for successful rehabilitation activities. Direct seeding management addresses vegetation management risks. Direct seeding can be applied on those areas of the Offset Area that are affected by exotic vegetation and support native vegetation at low densities. Direct Seeding is to be implemented after Site Preparation (Section 11.1.2). The objective of direct seeding is to contribute to the achievement of the completion targets by:

- Providing an effective method for the rehabilitation of disturbed areas,
- Restoring and enhancing habitat for the Koala, Grey-headed Flying-fox and Greater Glider,
- Restoring and enhancing forest.

Direct seeding measures specified in this section are based on, and make use, established environmental management and ecological restoration best practice guidelines, including industry and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- Regional Ecosystem Technical Descriptions for 12.12.5,
- Anticipated prescriptions of the direct seeding supplier and service expert (ecological / direct seeding expertise required),
- Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works (Department of Transport and Main Roads, 2017), and
- Section 11.3 of this report (Biosecurity).

Performance criteria that ensure the direct seeding is being managed successfully include the following measures:

- Any required direct seeding works are to commence no less than two months after weeds have been treated in the Offset Area.
- A 90% survival rate within rehabilitation areas after 12 months of planting.
- Regeneration areas will display signs of native vegetation growth at rates expected for those species.

TABLE 21: DIRECT SEEDING MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions – Direct Seeding				
Item No.	Management Details	Responsibility	Timing	Frequency
	Seed procurement			
1	Where direct seeding is required, seeding is to utilise tree, shrub and understory species consistent with the relevant RE. All tree species used for direct seeding must be in accordance with the target RE. Shrub and understory species are to be selected by the direct seeding contractor and within the constraints of the relevant RE[20]. Plant substitution is not permitted for canopy (E,T1 or T2) species, unless confirmed with a suitably qualified person who has assessed tree substitution in respect to the completion targets (Section 9.3).	OM	Prior to seeding	Once
2	Seeding application rate is to be determined by a suitably qualified person i.e., native seed supplier. Direct seeding application rate is designed to meet minimum plant densities target RE.	OM	Prior to seeding	Once
	Seeding			
3	All direct seeding activities are to be performed by a suitably qualified contractor, with demonstrated experience in bushland rehabilitation. Relevant qualifications include a certificate in Conservation Land Management - Natural Area Restoration or a degree in a related field such as ecology or vegetation management. Contractors must hold applicable licenses such as: • Commercial operator's license (ground application of herbicides) issued under the *Agricultural Chemicals Distribution Control Act 1966*, • Senior First Aid certificate, • White Card i.e., General Safety Induction (Construction Industry), and, • Relevant Eco-access permits issued by the relevant State department.	OM	Prior to Contractor engagement	Once
4	Do not seed in unsuitable weather conditions such as extreme heat, cold, wind, or rain.	OM	Prior to seeding	As required

[20] Direct seeding experts to allocate species based on a site assessment and determine the most suitable understory / shrub species to secure the site and support re-establishment of RE 12.12.5.

Management Actions – Direct Seeding				
Item No.	Management Details	Responsibility	Timing	Frequency
5	Seeding is to be undertaken in accordance with Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works, or other equivalent fit-for-purpose method, using all species in the seed supply proposal according to the seeding density or rate provided by the supplier.	OM	During seeding	As required
6	Install seed mix utilising the best practice methodology recommended by the direct seeding provider.	OM	During seeding	As required
	Vegetation thinning			
7	Thick regrowth hindering tree growth (i.e., resulting in crowding) due to interspecies or intraspecies competition is to be managed.	OM	During seeding and establishment	As required
	Suitable planting timeline			
8	Direct seeding must proceed within the specified timeframes to ensure progression towards completion targets as follows: • Direct seeding must proceed within one (1) year of the commencement of the offset. • Any scheduled direct seeding activity must proceed within one (1) month of the conclusion of site preparation. • Direct seeding must be concluded within six (6) months of commencement.	OM	Per *management details*	Once
	Contingencies and Corrective Actions			
	Seeding species do not germinate.			
9	• Report and investigate as an incident. • Arrange for a suitably trained contractor. • Investigate the extent of the substitution required. • Order relevant species as quickly as possible. • Once delivered, undergo tubestock planting of species per Section 11.1.	OM	Engage contractor within one month from identification of incident	As required
	General contingency procedure (in response to unforeseen incidents).			
10	• Pause seeding or maintenance where needed and prevent further losses. • Log what failed or is at risk and identify likely drivers.	All personnel must escalate issues	Engage contractor within one month from	In response to incidents.

Management Actions – Direct Seeding				
Item No.	Management Details	Responsibility	Timing	Frequency
	• Apply fixes matched to the diagnosis. If changes affect approved outcomes (species composition, density, layout), document an action plan. • Confirm the corrective action improved performance, authorise continuation of works, update establishment monitoring triggers and thresholds.	when observed. OM responsible for contingency.	identification of incident	

11.2 SOIL ENVIRONMENT

Soil environment refers to measures for stabilisation of soils. Soil environment management addresses soil environment, vegetation management and stochastic event risks. The objective of erosion management is to contribute to the achievement of the completion targets by:

- Maintaining site suitability and soil quality,
- Avoiding loss and damage to vegetation,
- Avoiding or minimising erosion,
- Managing the impacts of stormwater runoff, and
- Avoiding adverse impacts from and to adjacent properties.

Soil environment measures specified in this section are based on, and make use of, established environmental management and ecological restoration best practice guidelines, including industry and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- Regional Ecosystem Technical Descriptions for 12.12.5,
- Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia Queensland Division June 1996), and
- Best Practice Erosion and Sediment Control (International Erosion Control Association 2008).

Performance criteria that ensure the soil environment is being managed successfully include the following measures:

- No worsening of erosion in the Offset Area.
- Address all complaints regarding erosion and stormwater runoff.
- No irreparable collapse or destabilisation of the site from erosion.

TABLE 22: SOIL MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions – Soil Environment				
Item No.	Management Details	Responsibility	Timing	Frequency
	General requirements			
1	Where required, erosion and sediment control measures are to be installed in accordance with: • Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia Queensland Division June 1996) [21], • Best Practice Erosion and Sediment Control (International Erosion Control Association 2008), and, • Any relevant permit conditions.	OM	Prior to installation of erosion and sediment control measures.	As required
	Site use			
2	Erosion is to be avoided and minimised by implementing the following elements of best practice: • Stormwater drainage structures (if required) shall be designed so that there is 'no worsening' of runoff beyond that which occurs on the existing undeveloped site. • Avoid the use of any heavy machinery in or around waterways or any area identified as being subject to or vulnerable to erosion. • Ponding of stormwater must not occur on the subject land, adjoining allotments or road reserve. • All unlined open drains (if any) shall be stabilised with vegetation.	OM	At commencement of site use	Once
	Assessment			

[21] Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites provides best practice soil and sediment guidelines for engineering and construction in the context of Queensland.

Management Actions – Soil Environment				
Item No.	Management Details	Responsibility	Timing	Frequency
3	Visual inspection of drainage channels, gullies, and perimeter of site for signs of erosion, bank slumping, or the formation of rills and gullies.	OM	At commencement of site use and during monitoring	Inspect during monitoring events as per Section 12.1.
	Complaints management			
4	All complaints regarding erosion and stormwater runoff are to be recorded within a Complaints Register immediately. All complaints regarding erosion and stormwater runoff are to be addressed within 24 hours if severe, or within one week for minor complaints.	OM	In response to incidents	As required
5	Stabilise with suitable groundcover species characteristic of the relevant RE. If soil or substrate conditions are unsuitable for planting, soil amelioration is required. If required, topsoil is to be imported to planting areas in accordance with relevant guidelines and standards.	OM	In response to incidents	As required.
	Nutrient management			
6	Nutrient-related issues are to be identified and managed as follows: • Increase nutrients if required through the identification of plant or soil deficiency symptoms. • Reduce nutrient load by removing offending high-nutrient material, if possible, particularly when affected by exotic species out-competing native vegetation.	OM	At commencement of site use and during monitoring	Inspect during monitoring events as per Section 12.1.
	Examples of Contingencies and Corrective Actions			
	Signs of Erosion			
7	• Report and investigate as an incident. • Arrange for suitably qualified contractor to remediate and stabilise the erosion. • 'Make good' any damage or non-performing erosion control devices and clean up any sediment that has left the site or is on the roads within and external to the site.	OM	Engage contractor within one month from identification of incident	As required
	General contingency procedure (in response to unforeseen incidents).			

Management Actions – Soil Environment				
Item No.	Management Details	Responsibility	Timing	Frequency
8	In response to each incident affecting erosion, sediment control, or soil stability: • Stabilise and prevent off-site movement, pause the erosion-causing activity and stabilise the source area (for example install sediment controls, cover exposed soil). • Record and diagnose the location/extent/cause and confirm pathways and receptors (for example rill/gully development, discharge toward a drainage line). • Implement corrective actions and treat the source (for example reshape and stabilise, install check structures). If changes affect the approved footprint/method, document a contingency action plan and obtain approvals before restarting. • Confirm controls are effective, reinstate work with hold points, and update the erosion and sediment control approach (methods, drawings, inspection triggers).	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	As required

11.3 BIOSECURITY

Biosecurity refers to measures for protecting existing and rehabilitated vegetation in the Offset Area. Biosecurity addresses vegetation management and biosecurity risks. The objective of biosecurity management is to contribute to the achievement of the completion targets by:

- Minimising spread of weeds / non-native plant species and competition with native species.
- Ensuring trees remain free of pests, diseases or pathogens that have the potential to affect tree health.
- Preventing the spread or introduction of new weeds / non-native plant species, pests, diseases or pathogens.
- Controlling existing weeds / non-native plant species, pests, diseases or pathogens so as not to increase in prevalence.
- Avoidance, minimisation and mitigation of plant herbivory.

Biosecurity measures specified in this section are based on, and make use of, established environmental management and ecological restoration best practice guidelines, including industry and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works, and
- Queensland invasive plants and animals strategy 2019–2024.

Performance criteria that ensure the site preparation is being managed successfully include the following measures:

- No spread or introduction of weeds / non-native plant species, pests, diseases or pathogens on the site or neighbouring properties.
- No spread of pests, diseases or pathogens within the site.
- Herbivory, pests, diseases or pathogens that have the potential to affect tree health are controlled.
- No introduction of new weed / non-native plant species or pest species to the site or neighbouring properties.
- No spread of weeds / non-native plant species or pests within the site.
- To effectively control or eradicate existing weed / non-native plant species or pest species within the site.
- Achieve and maintain <25% non-native plant cover on the Offset Area.

TABLE 23: BIOSECURITY MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	General requirements			
1	The following weed management requirements apply to all site activities: • All weed technicians on site must be an accredited ACDC licensed operator. • Obtain weed free certificates from suppliers for materials such as sand and gravel which may be imported into the subject site. • Weed management is to be conducted in accordance with the *Biosecurity Act 2014* (Qld), Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works, or other equivalent fit-for-purpose method, and Queensland invasive plants and animals strategy 2019–2024[22].	OM	Prior to weed control works	As required
	Weed assessment			
2	Weed assessment provisions include: • Inspect the site to confirm weed species and extents requiring control. • Flag weed species and extents onsite where required. • Identify and record all weed species located onsite.	OM	At commencement of site use and during monitoring	Inspect during monitoring events as per Section 12.1.
	Weed control			
3	Weed control programs are to be implemented as follows: • Observed weed species are to be removed, including all exotic and non-endemic trees. • All Weeds of National Significance (WONS) within the site are to be treated before other weeds.	Contractor	At all times	As required

[22] Queensland invasive plants and animals strategy 2019–2024 provides a clear framework and practical actions for preventing and controlling harmful invasive species, thereby protecting the offset site.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	• Any weed regrowth is to be controlled through the ongoing maintenance program. • Weed management is to be undertaken at intervals suited to the target species, season, and extent of regrowth.			
	Weed removal			
4	Weed removal is to be conducted in accordance with: • The *Biosecurity Act 2014* (Qld), • Transport and Main Roads Specifications MRTS16 Landscape and Revegetation Works, or other equivalent fit-for-purpose method, • Transport and Main Roads Specifications MRTS51 Environmental Management, or other equivalent fit-for-purpose method. In addition to the above, ensure the following requirements are implemented (where relevant): • Manual removal of weeds required in areas adjacent to watercourses. • It is recommended that where possible, weed control is to be undertaken using non-mechanical manual methods. • Weed control will be undertaken in a manner which does not promote erosion or instability of soil, especially adjacent to the watercourse. • When applying weed control methods, due diligence will be used to maintain and preserve surrounding or existing native vegetation and plant communities.	Contractor.	During weed control works	As required
	Prevention of the introduction / spread of biosecurity risks			
5	Minimise the introduction, establishment and spread of non-native weeds through regular surveillance and treatment in accordance with Item No. 1-4, above.	OM	At all times	As required
6	Implement biosecurity control measures, including: • Ensure vehicles and equipment entering the site is washed down prior to entering the site.	Contractor	At all times	As required

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	• Equipment, boots and clothing have been inspected for weeds / pathogens and must be decontaminated prior to entering the site. • Ensure soil and mulch used on site is uncontaminated, and free of weeds and pests.			
	Herbivory control			
7	Assess existing vegetation for evidence and significance of herbivory. If likely to impact tree health, identify the origin and implement necessary controls e.g. herbicides, tree guards or protectors.	Contractor	At commencement of site use and during monitoring	Inspect during monitoring events as per Section 12.1.
	Plant parasites / fungal pathogen control.			
8	Assess existing vegetation for evidence of plant parasites and/or fungal pathogens that pose risk to tree health for consequence management.	Contractor	At commencement of site use and during monitoring	Inspect during monitoring events as per Section 12.1.
9	Remove dead or diseased parts of plants and dispose of off-site to minimise the spread of plant parasites or fungal pathogens. If pests are causing notable decline in tree health, apply fungicides or pesticides as necessary, following the application requirements of the treatment.	Contractor	In response to incidents	As required
	Examples of Contingencies and Corrective Actions			
	New weed infestation occurring onsite			
10	• Report and investigate as an incident. • Arrange for weed or pest control by a suitably trained contractor. • Increase monitoring frequency until weed or pest occurrence has been controlled. • Retrain relevant personnel in regard to OMP procedures and controls.	Contractor	Engage contractor within one month from identification of incident	As required
	General contingency procedure (in response to unforeseen incidents).			

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
11	• Pause the activity and isolate the risk area, vehicles, or materials (for example quarantine a section of track, stop moving soil off the affected area). • Log what was detected or suspected and how it could spread (for example new declared weed outbreak, soil-borne pathogen risk). • Apply controls matched to the pathway and organism and tighten hygiene requirements (for example washdown and disinfection, targeted removal or treatment in a defined containment zone). If changes affect approved methods or access arrangements, document a contingency action plan. • Confirm the issue is contained, reinstate works with updated hygiene hold points, and update biosecurity procedures (site access routes, clean-down locations, sequencing of works).	All personnel must escalate issues when observed. OM responsible for contingency.	Within one month of identification of the incident.	In response to evidence of weed incursion or biosecurity control lapses.

11.4 ANTHROPOGENIC

Anthropogenic impact management refers to measures to protect and maintain the Offset Area from risks of damage posed from anthropogenic sources. Anthropogenic management outlines best practice for site security and waste management, as well as management required to address risks identified in the anthropogenic risk group as part of Section 10 of this report.

Anthropogenic measures specified in this section are based on, and make use, established environmental management and ecological restoration best practice guidelines, including industry, local and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs.

Anthropogenic management has been divided into two groups, including:

- Access, and
- Waste.

11.4.1 ACCESS

Access refers to measures for the control of site access and site security measures to ensure the site is protected from damages or disturbances. Access management addresses anthropogenic risks. Access management contributes to the achievement of the completion targets by protecting the existing and rehabilitated habitat values in the Offset Area. The objective of access management is to contribute to the achievement of the completion targets by:

- Protecting the offset from accidental or purposeful damages related to site access and security.

Access measures specified in this section are based on, and make use of, established environmental management and ecological restoration best practice guidelines, local guidelines.

Performance criteria that ensure the site preparation is being managed successfully include the following measures:

- Only authorised personnel have access to and are able to modify the Offset Area.
- No intrusion of livestock or pests with the potential to damage the Offset Area.

TABLE 24: ACCESS MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions – Access				
Item No.	Management Details	Responsibility	Timing	Frequency
	Fencing			
1	The site boundary is identified and demarcated, and permanent fencing is erected along the perimeter of the site boundary. Permanent fencing is to: • Exclude domestic stock, • Have access gate/s and security (i.e., locked gates), • Prevent unauthorised access, • Be maintained in good condition, and, • Be fauna-friendly (i.e., allow for fauna movement from and into the site).	OM	At commencement of site use	Once
2	Complete regular inspections of the perimeter fencing to assess for damage or compromised integrity and amend fencing as required in response to identified issues.	OM	After fence construction	Inspect during monitoring events as per Section 12.1.
	Access			
3	Access management is to be implemented as follows: • Gates are to be installed in accordance with Department of Transport and Main Roads Standard Drawing 'Rural Fence and Gates CHS Posts and Stays' (Drawing No. 1601, Rev. B) or 'Rural Fence and Gates Timber Posts and Stays' (Drawing No. 1600), OR other equivalent fit-for-purpose gate. • Any access is to be designed and constructed in accordance with the 'Rural Property Access' (Drawing No. 1807) OR other equivalent fit-for-purpose access. • Restrict access to all areas outside of the approved works areas. • Maintain stabilised access roads and tracks.	OM	At commencement of site use	Once
	Signage			

Management Actions – Access				
Item No.	Management Details	Responsibility	Timing	Frequency
4	Signs are securely erected in prominent locations (i.e., access points) and will: • Identify that the site is private property, • Identify that access into the site is restricted to authorised personnel only, • Be installed prior to the commencement of rehabilitation, and, • Be maintained in good, readable condition.	OM	At commencement of site use After signage installation	Once Inspect during monitoring events as per Section 12.1.
	Vehicles			
5	The following specifications are mandatory for vehicle use on the Offset Area: • Vehicle access will be restricted to authorised vehicles only. • Vehicle movement will be limited to designated tracks and/or roads. • Speed limits of <30 km/h will be enforced on tracks and/or roads within the site through signage and vehicles will travel to tracks and/or road conditions.	OM	At all times	During any vehicle movement on site
	Heritage			
6	The management upon the discovery of heritage / cultural values or artifacts in the site is to be implemented as follows: • Cease activity and secure equipment. Also establish ≥50 m buffer (or as required). • Restrict moving or causing any disturbance to the heritage and keep a record of GPS location, photographs and short description. • Notify relevant authority and officers and proceed according to the proper protocols. • Conduct a field assessment to determine whether the site or item will be protected in situ, salvaged under permit, or addressed through project redesign to avoid or minimise impacts. • Resume the work on written clearance.	OM	At all times	As required
Examples of Contingencies and Corrective Actions				
	Unauthorised site access occurs (i.e., recreational use of site)			

Management Actions – Access				
Item No.	Management Details	Responsibility	Timing	Frequency
7	• Report and investigate as an incident. • Arrange for inspections of signs, site perimeter fencing, and access gate integrity. • Amend the point of entry. • Arrange for remediation of the site or infrastructure damages. • Implement MOU between third parties to ensure shared resource protection. • Inspect for development activities and land use changes in the surrounding sites. • Proceed proper protocols for discovery of heritage/ cultural artifacts.	OM	Engage contractor within one month from identification of incident	As required.
	General contingency response plan			
8	• Pause works if required and immediately control access to prevent further damage or risk (for example lock/close gates, install temporary barriers and signage). • Log the breach or issue (who/what/where/when, photos, entry points, damage) and assess risks to people, offset values, and compliance. • Repair or upgrade access controls and implement deterrents appropriate to the risk (for example repair fencing, reposition barriers, revise access routes/traffic management). • Confirm controls are effective, reinstate works with updated access rules and induction content, and update maps (approved routes, exclusion zones), procedures, and the site security register.	All personnel must escalate issues when observed. OM responsible for contingency.	Engage contractor within one month from identification of incident	As required

11.4.2 WASTE

This section addresses management measures. Waste management addresses contaminated soil removal, waste removal and storage, toxic waste management, tracking, landfill and recycling, removal timeframe, waste burning and sanitary standards. The objective of waste management is to contribute to the achievement of the completion targets by:

- Avoiding, minimising and managing waste during offset delivery activities.
- Having no contamination of soils as a result of offset delivery activities.
- Having no adverse waste impacts on adjacent properties.

Waste measures specified in this section are based on, and make use of, established environmental management and ecological restoration best practice guidelines, including industry and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- *Environmental Protection (Waste Management) Regulation 2000*, and
- Transport and Main Roads Specifications MRTS51 Environmental Management (Department of Transport and Main Roads 2023) (Section 8.13),
- Queensland Government guidance for Managing Contaminated Land (Queensland Government, 2025).
- Environmental Protection Authority (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act).

Performance criteria that ensure the site preparation is being managed successfully include the following measures:

- Waste management measures are being adhered to.
- No visible signs of waste on site.

TABLE 25: WASTE MANAGEMENT DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
General requirements				
1	Waste management will be undertaken in accordance with the *Environmental Protection (Waste Management) Regulation 2000*[23] and Transport and Main Roads Specifications MRTS51 Environmental Management (Department of Transport and Main Roads 2023) (Section 8.13), or other equivalent fit-for-purpose method, unless otherwise specified in this table.	Contractor	At all times.	At all times.
Contaminated soil				
2	Contaminated soil management is to comply with the following at all times: • Avoid soil contamination by never storing hazardous chemicals or other hydrocarbons on Offset Area. All hazardous chemicals or other hydrocarbons shall be stored at a secure off-site location. • Potential issues are to be assessed by engaging a suitably qualified person and carry out investigations and actions according to Queensland Government guidance for Managing Contaminated Land (Queensland Government, 2025). • The removal of any contaminated soil from the site requires prior approval from the Environmental Protection Authority (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act) under Section 424.	Offset Manager	At all times	As required
On site waste management, removal and storage				
3	Waste removal and storage is to comply with the following at all times: • All waste will be placed in appropriate disposal containers and areas during offset delivery activities.	Contractor	At all times	As required

[23] The *Environmental Protection (Waste Management) Regulation 2000* is useful for management because it provides clear guidelines and standards for handling waste, ensuring environmentally responsible practices and legal compliance.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	• All waste will be removed from site and disposed of appropriately. • Where possible ensure that waste on site is appropriately covered. • Covered bins are provided to collect waste and prevent fauna being attracted to the work site. • Adequately sized refuse bins will be made available on site and will have suitable lids to prevent access by animals. • An adequate number of an appropriate type of commercial and bulk waste containers shall be provided at a central location to accommodate all waste produced on the site. • All waste collected on the site to be removed not less than once per week. • Appropriate spill kits, personal protective equipment, operator instructions and emergency procedure guides for the management of wastes and chemicals must be in a place accessible to all employees. • Waste storage areas are to be signed and located away from environmentally sensitive areas.			
Toxic waste management				
4	All fuels and chemicals must be stored in an on-site containment system of a type suitable to prevent the spillage of the material and its discharge to the environment.	Contractor	At all times	As required
Waste tracking				
5	All general and regulated waste records, including transfer station dockets and waste tracking certificates, are to be retained.	Contractor	At all times	As required
Landfill and recycling				
6	Waste must be stored, pending its lawful disposal to landfill or to a recycling facility, in a location approved by offset manager that limits impacts on the offset site.	Contractor	At all times	As required

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
Removal timeframe				
7	Waste must be removed from the authorised place within the timeframe specified for the waste as follows: • If the waste is surplus from the offset delivery activities — within three (3) months after the activities are completed, or, • Otherwise — within three (3) months of the waste being generated.	Contractor	Per the *management details*.	As required
Waste burning				
8	Burning of waste is prohibited.	Contractor	At all times.	-
Sanitary standards				
9	Offset site is to be kept in an orderly and hygienic standard, free of litter and waste.	Contractor	At all times.	-
Examples of Contingencies and Corrective Actions				
Observation of incorrectly stored waste during work operations				
10	• Report and investigate as an incident. • Halt work within proximity of the area until waste is stored correctly. • Train relevant personnel in the correct waste management procedures.	Contractor	Within one month of identification of the incident	As required
General contingency procedure (in response to unforeseen incidents)				
11	• Contain and prevent release by pausing the activity and immediately containing waste or pollutants to stop migration (for example isolate a spill, secure loose waste from wind/runoff). • Log what occurred and identify waste type, quantity, and pathway risk (for example planting packaging and tubes, hydrocarbon or chemical spill). Confirm storage and disposal requirements. • Clean up and dispose via approved methods (segregate recyclables/general/regulated waste), remediate impacted material if	All personnel must escalate issues when observed. OM responsible for contingency.	Within one month of identification of the incident	In response to incidents.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	required, and fix the cause (for example improve storage, change refuelling/chemical handling method). • Confirm no residual contamination or waste remains, reinstate works with updated handling procedures (storage locations, segregation rules, spill response).			

11.5 STOCHASTIC EVENTS

Stochastic events refers to measures for drought, floods, storms and bushfire. Stochastic events address the potential consequences droughts, floods, storms and bushfire can have on site integrity and habitat values. The objective of stochastic events is to contribute to the achievement of the completion targets by:

- Avoiding and mitigating bushfire attack risks,
- Mitigating drought-related risks,
- Mitigating climate change risks, and
- Being suitably prepared to respond to the consequences of stochastic events.

Stochastic measures specified in this section are based on, and make use of, established environmental management and ecological restoration best practice guidelines, including industry, local and State guidelines. The OMP measures do not duplicate these measures, but rather, adopt or tailor them to site-specific risks and management needs. Management measures have been guided by:

- The Queensland Herbarium,
- Clearing for Bushfire Management (Queensland Government, 2021),
- Climate Risk Management Guide - Technical Guidance 9 (Commonwealth of Australia, 2023).

Performance criteria that ensure the site preparation is being managed successfully include the following measures:

- Bushfire management is preventative and performed ahead the fire season (August – November).
- Bushfire management is responsive to site conditions, including vegetation structure, condition and age.
- Quick and effective responses to stochastic events are employed.

TABLE 26: STOCHASTIC EVENTS DETAILS, RESPONSIBLE PERSON, TIMING FREQUENCY AND MONITORING.

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
Drought				
1	Where restoration / revegetation fails due to drought, steps must be taken to mitigate the impacts (e.g. replanting).	Contractor	In response to drought conditions	As required
2	Where informal monitoring indicates evidence of plant failure or poor growth, replacement planting is to be carried out.	Contractor	In response to drought conditions	As required
3	During the establishment period, water plants subject to prevailing weather conditions.	Contractor	In response to drought conditions	As required (in addition to planting / seeding watering requirements)
4	Where non-native plant species recolonise the area first, follow the appropriate biosecurity mitigation measures.	Contractor	In response to drought conditions	As required
Storms				
5	To minimise the threat of storm damage (i.e. stochastic event), it is suggested that the initial planting be undertaken mid to late autumn so that they have the best likelihood of establishing before the summer storm months.	Contractor	During rehabilitation	As required
6	Assess damage to vegetation after severe storm events. Where monitoring indicates evidence of plant failure or poor growth, replacement planting is to be carried out.	Contractor	In response to severe storms	As required
Flood				
7	Temporary barriers / fencing will be placed around vegetation / habitat features that will be retained to minimise damage (where appropriate).	Contractor	At commencement	As required

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
8	Develop and implement an appropriate flood management strategy for the management area based on topography, vegetation type, structure, age, and size.	Contractor	At commencement	Update as required
9	Where restoration / revegetation fails due to flood, steps must be taken to mitigate the impacts (e.g. replanting, weed removal).	Contractor	In response to flood events	As required
Bushfire				
10	Develop and implement an appropriate fire management strategy for the management area based on topography, vegetation type, structure, age, and size, including maintaining firebreaks relative to the management area, if appropriate.	Contractor	At commencement	Update as required
11	Construct a fire break around the Offset Area in accordance with Queensland government guidance for Clearing for Bushfire Management (if recommended by fire management strategy).	Contractor	At commencement	Maintain at all times
12	Monitor and maintain fire management in the area following guidelines outlined in Fire and Biodiversity Monitoring Manual published by South East Queensland Fire and Biodiversity Consortium 2002.	Contractor	At commencement	Maintain at all times
13	Manage fuel loads and fire risk in accordance with the Queensland government fire management guidelines for the relevant RE.	Contractor	At commencement	Maintain at all times
14	Rectify any areas of lost vegetation with supplementary planting after each fire event.	Contractor	In response to incidents	As required
Climate Change				
15	Ensure climate risk is well understood in accordance with the Climate Risk Management Guide - Technical Guidance (Commonwealth of Australia, 2023). Integrate an understanding of climate risk and opportunity management into	OM	At commencement	As required

Management Actions				
Item No.	Management Details	Responsibility	Timing	Frequency
	Offset Area decision making. Ensure that climate projections and risk drivers are well understood and the responsive measures in place for stochastic events are sufficient to respond to current conditions and projected changes.			
Examples of Contingencies and Corrective Actions				
Extreme weather event				
16	• Track credible extreme weather warnings and site trigger thresholds (for example severe storm forecast). • Pre-position controls and adjust sequencing to reduce exposure (for example pause soil disturbance, secure loose materials). Suspend or modify high-risk activities and secure the site to prevent damage or off-site impacts (for example stop soil disturbance before heavy rain, stop spraying in high wind). • As soon as it's safe, implement immediate containment and safety actions (for example isolate affected areas, reinstate priority controls). Repair the source of impact and stabilise exposed or failing areas to prevent escalation. • Check progress against performance goals, identify gaps created by the event, and implement additional actions to get back on track (for example supplementary planting or reseeding where losses exceed thresholds), then update methods and triggers. • Confirm issues have been amended and create any updates to protocols accordingly.	OM responsible for monitoring weather, preparation and response planning.	Diagnose damage within one month. Respond only when safe to do so.	Immediately after severe weather event.

12 MONITORING & REPORTING

This section outlines the monitoring and reporting requirements of the Offset Area. These activities ensure work conducted within the Offset Area is compliant with all federal legislative requirements and will ensure identification of all non-conformance issues. A significant risk can be the failure or ineffectiveness of the management measures. Monitoring needs to be an integral part of the risk treatment plan to give assurance that the measures remain effective.

Monitoring and reporting of the OMP is to be implemented by all site personnel and contractors and is to be administered by the Offset Manager or their agent, and the contractor(s) responsible for any works within the Offset Area or works outside of the Offset Area that may impact the habitat values of the Offset Area. In the case of non-conformance with any aspect of monitoring and reporting, the Offset Manager is to be notified immediately.

The following sections provide more information on:

- Monitoring requirements, and
- Reporting requirements.

12.1 MONITORING REQUIREMENTS

Monitoring shall be completed through two key monitoring methods. The first, including general monitoring, will monitor the success of management measures. The second will include habitat quality monitoring, including application of a BioCondition assessment, as well as the additional species-specific measures utilising the MHQAT, to determine the overall habitat quality score.

The purpose of monitoring is to assess the progress and commit to the achievement of the completion targets and interim targets described in Section 9. Where relevant, management actions (described in Section 11) are referenced in the sections below.

The following sections include further information on the monitoring approaches, including:

- Management monitoring, and
- Habitat quality monitoring.

12.1.1 MANAGEMENT MONITORING

This section contains guidance on the monitoring of the management measures required to achieve the interim targets and completion targets.

To ensure sufficient progress is being made, monitoring will be performed for each management task. The implementation of the monitoring will be the responsibility of the Offset Manager, or delegate for review and enforcement and will include:

- Coordinating sample collection and documentation,
- Coordination of sample and monitoring equipment,
- Ensuring monitoring frequency is in accordance with all approvals, permits, Australian Standards (AS), and any other industry standards,
- Data management and representation of results,
- Reporting non-conformance or incidents related to monitoring,
- Responsible parties for implementing any corrective actions related to non-conformance or incidents,
- Training of personnel in monitoring procedures, and,
- Arranging specialist consultants to conduct monitoring duties, as required.

All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated in the following way:

- If a statutory instrument or standard made under a law of the State prescribes standards for calibrating the equipment — in accordance with that statutory instrument or standard, or,
- Otherwise — according to any relevant AS applicable to the calibration of the equipment.

When on-site actions are completed (such as inspections, plantings or maintenance), written documentation from the contractor or the Offset Manager should be maintained to confirm that the management actions set out in Section 11 have been reviewed and complied with. The purpose of this record is to enable monitoring of the implementation of management actions to support offset outcomes and reporting requirements (Section 12.2). This documentation may take the form of a checklist or another format agreed by the Offset Manager and the contractor and completed each day offset activities are undertaken on the site. At a minimum, the checklist must include:

- Date and time,
- Identification of the relevant persons/organisations,
- Confirmation that the relevant OMP documents have been reviewed,
- A statement confirming or describing how each applicable management measure was implemented on site, and
- Identification of any observed issues or incidents and response plan.

The following table outlines the monitoring requirements for each of the management groups identified in Section 11.

TABLE 27: MANAGEMENT MONITORING REQUIREMENTS AND SCHEDULE.

Management Group / Sub-group	Monitoring Frequency	General Monitoring Requirements
Vegetation Management – Site Preparation	1. Half yearly until completion of site preparation.	To assess vegetation, photo-point monitoring, GPS locational and extent survey techniques, will be utilised for offset monitoring for general success of management and maintenance activities. The following monitoring procedures shall be included in the monitoring program for GPS photo point monitoring: • The coordinates of the photo monitoring points will be recorded using a handheld GPS to assist locating the monitoring points when undertaking subsequent monitoring, and permanently marked using star-pickets hammered into the ground. Photo-point monitoring is to occur at the same time of year at each monitoring site. • Record the time of year, weather conditions, and any other useful data that may assist monitoring and comparison of habitat management against previous years monitoring data. • For each photo-point image include photographic records, including: o GPS coordinates of the photo point, o Date, time and photo number, o Direction in which the photo was taken (north, east, south and west aspects) across the rehabilitation or regeneration site. • Monitoring data will be used to compare changes in habitat quality against previous monitoring results. • Monitoring data shall be used to create up to date mapping to assist ongoing offset management practices. • Any other monitoring requirements deemed necessary by the appointed Contractor.
Vegetation Management – Planting and Establishment	1. Half-yearly until completion of planting and establishment. 2. Annually thereafter until completion targets are met. 3. Every two (2) years thereafter until permit expiry (9 April 2059).	
Vegetation Management – Direct Seeding	1. Half-yearly until completion of direct seeding. 2. Annually thereafter until completion targets are met. 3. Every two (2) years thereafter until permit expiry (9 April 2059).	
Soil Environment Management	1. Annually until completion targets are met. 2. Every two (2) years thereafter until permit expiry (9 April 2059).	The presence of erosion, stormwater runoff, and siltation within the Offset Area will be monitored and undertaken at the same time of year as the initial erosion baseline survey to ensure consistency across erosion monitoring. The following erosion monitoring procedures shall be included in the erosion monitoring program: • The location(s) of erosion, siltation or sedimentation are to be mapped using GPS waypoint locations for areas of erosion within or at the boundaries of the Offset Area. Where large areas are found to be impacted by erosion, the use of GPS polygons or tracks shall be used to mark out the extent of the erosion.

Management Group / Sub-group	Monitoring Frequency	General Monitoring Requirements
		• Record the time of year, weather conditions, and any other useful data that may assist monitoring and comparison of erosion and siltation management against previous years monitoring data. • For each data entry (e.g., erosion or sedimentation location and/or notes) include photographic records, consisting of four photographs (in the order of north, east, south and west aspects) of the surrounding environment, and make notes of erosion extent and possible direction of erosion/water flow across the property. Also include a photograph of the soil/ground layer to provide information on soil/sediment type and condition. • Monitoring data will be used to compare changes in erosion management against previous monitoring results. • Monitoring data shall be used to create up to date mapping to assist ongoing erosion management practices.
Biosecurity Management	1. Half-yearly until completion of planting and establishment and/or direct seeding. 2. Annually thereafter until completion targets are met. 3. Every two (2) years thereafter until permit expiry (9 April 2059).	The presence of non-native plants within the Offset Area will be monitored and will be undertaken at the same time of year as the initial baseline survey to ensure consistency. The following weed / non-native plant monitoring procedures shall be included in the weed monitoring program: • The location(s) of WONS and Category Two or Three restricted invasive plants of Queensland are to be mapped using GPS waypoint locations for individual plants or clusters. Where a large weed infestation is present, the use of GPS polygons for the extent of the infestation shall be used. • The identification and general location of all other weeds / non-native plants, other than WONS and Category Two or Three restricted invasive plants of Queensland, shall be recorded and described. • Record the time of year, weather conditions, and any other useful data that may assist monitoring and comparison of weed management against previous monitoring results. • For each monitoring site, include photographic records, consisting of four photographs (in the order of north, east, south and west aspects) of the surrounding environment, and make notes of weed identification(s), density, and coverage. Also include a photograph of the soil/ground layer to provide information on soil type and condition.

Management Group / Sub-group	Monitoring Frequency	General Monitoring Requirements
		• Monitoring data will be used to compare changes in weed / non-native plant infestations and densities against previous monitoring results. • Monitoring data shall be used to create up to date mapping to assist ongoing weed / non-native plant management practices.
Anthropogenic - Access	1. Annually until completion targets are met. 2. Every two (2) years thereafter until permit expiry (9 April 2059).	• Inspections for the integrity of physical access restrictions to be completed, i.e., inspections of all perimeter fencing and signage. Otherwise, monitoring of access shall be conducted as part of general inspections and recorded if/when issues are observed.
Anthropogenic – Waste	1. Annually until completion targets are met. 2. Every two (2) years thereafter until permit expiry (9 April 2059).	• Inspections for waste accumulation across the site are to be completed. Otherwise, monitoring of waste shall be conducted as part of general inspections and recorded if/when issues are observed.
Stochastic Events	1. Annually until completion targets are met OR as required. 2. Every two (2) years thereafter until permit expiry (9 April 2059) OR as required.re	• Monitoring of the effects of storms and floods will be conducted in response to the occurrence of the extreme weather event after which the impacts of the event, if requiring remediation, will require further regular monitoring. • Monitoring requirements for drought will be conducted in response to recorded drought conditions, to assess the health of vegetation and for evidence of drought stressors. • Monitoring requirements for fire management will include review of access tracks, fire breaks, fuel loads and outcomes of controlled ecological burns or other management techniques such as the use of livestock. Fire management monitoring will also include surveys of vegetation composition within the Offset Area, which will be conducted to ensure the habitat(s) are not negatively affected by the fire regime.

12.1.2 HABITAT QUALITY MONITORING

Assessment of the habitat quality score in the Offset Area will be completed at set intervals to assess progress against time-based markers until the habitat quality uplift has been achieved. At each review of habitat quality, the progress toward the goal will be re-assessed such that efforts can be tailored, and adaptive management measures can be implemented to ensure the habitat quality uplift will be achieved prior to the conclusion of the currency period (20-year time horizon to deliver ecological benefit). Monitoring results will be used to determine if offset targets are being met.

Habitat quality monitoring will be completed within the Offset Area, coinciding with the anniversary of commencement of the offset to assess progress of the offset against the interim targets (Section 9.4). Habitat quality will be assessed by conducting MHQAT BioCondition transects to ensure progression towards completion targets.

The Modified Habitat Quality Assessment Tool (MHQAT) is an assessment tool for assessing habitat quality for MNES that is an adaptation of the *BioCondition Assessment Manual: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual* (Eyre et al., 2015).

For the methodology of assessing habitat quality on the Offset Area, refer to:

- Appendix 5: MHQAT methodology – Koala,
- Appendix 6: MHQAT methodology – Grey-headed Flying-fox, and,
- Appendix 7: MHQAT methodology – Greater Glider.

Habitat quality monitoring will be completed at the following intervals in accordance with interim targets to assess progression towards completion targets. If interim targets are not met, adaptive management measures must be implemented as per Section 13.

For the schedule of habitat quality monitoring, refer to Table 28.

TABLE 28: HABITAT QUALITY MONITORING SCHEDULE.

Habitat quality monitoring	Timing	Outcome of Monitoring & Follow-up Action	
		Interim Targets Achieved	Interim Targets Not Achieved
Baseline monitoring	Completed as part of the offset assessment.	N/A	N/A
Progress monitoring	Five (5) years after commencement	Continue management actions and monitoring as per OMP.	Implement the contingency plan outlined in the below section, utilising an adaptive management approach (Section 13) that responds to the specific issues identified. Complete a follow-up habitat quality
Progress monitoring	Ten (10) years after commencement		
Progress monitoring	Fifteen (15) years after commencement		

Habitat quality monitoring	Timing	Outcome of Monitoring & Follow-up Action	
		Interim Targets Achieved	Interim Targets Not Achieved
			assessment after two (2) years to assess the effectiveness of intervention.

CONTINGENCY PROCEDURE

This section outlines the framework to be applied where monitoring indicates that interim performance targets are not being achieved by required deadlines. The response actions described below are intended to be applied adaptively and, in a risk,-based manner, recognising that site performance can vary spatially and temporally due to stochastic events, seasonal conditions, and localised constraints.

1. Review the field procedure and whether the MHQAT was correctly implemented.
2. Diagnose the cause of the missed criteria (microclimate, soil, drought, disease, competition, etc.) and identify if the issue can be controlled.
3. If the issue can be controlled (for example, recruitment failure resulting in species richness shortfalls) apply corrective actions that are tailored to the identified shortfall (such as supplementary planting and increased establishment monitoring). Protect existing habitat first before implementing additional habitat augmentation.
4. Complete weekly reviews of the effectiveness of corrective action and document progress.
5. Conduct follow-up habitat quality monitoring every six months after the first monitoring that resulted in a shortfall. Ensure adaptive management, such as review of management successes and failures or effective/ineffective treatments are conducted at each six month reporting period.
6. Continue to escalate corrective action based on the outcomes of six-monthly monitoring periods.
7. If the criteria are still not achieved within three years of the initial monitoring event, the proponent should consider the following options based on the MHQAT data, in consultation with DCCEEW:
    a. If the raw habitat quality scores remain on track despite missed completion criteria, provide detailed MHQAT results and projections to demonstrate that other passive gains in habitat quality are contributing to habitat quality goals.
    b. Alternatively, if the raw habitat quality scores are not improving at the required rate, select additional offset completion criteria to satisfy the minimum two point habitat quality uplift.

12.1.3 TARGET MNES DETECTION

The MHQAT's Species Stocking Rate assessment considers the presence of an active population of the species on the offset site, and this is also part of the completion criteria (Item 4) supporting offset success. In accordance with the baseline BioCondition assessment on the offset site and the Species-Specific Methodology (Appendix 6), at each habitat quality monitoring interval[24], the proponent will complete targeted field surveys for the species. In accordance with survey methods completed at the impact site and the offset site for MHQAT reliability:

- **Koala – Spot Assessment Technique:** The presence of the Koala must be assessed following the Spot Assessment Technique (SAT) Methodology. The SAT method detects koalas by having trained observers systematically scan habitat along predefined transects (often from the ground) for koala presence indicators such as sightings and fresh scats, recording detections in a standardised way to estimate occupancy/abundance. The SAT assessment are to be completed at each BioCondition Assessment transect.
- **Grey-headed Flying-fox – Incidental / Spotlighting:** Federal guidelines state that surveys based on sightings are unlikely to be reliable, as the Grey-headed Flying-fox occupies most areas in their distribution in highly irregular patterns. A more effective survey method is to search appropriate databases and other sources for the locations of camps, and to conduct vegetation surveys to identify feeding habitat. As a result, the Species Stocking Rate assessment does not consider direct species sightings rather than the presence and abundance of food trees. The Grey-headed Flying-fox may be spotted during diurnal spotlighting, though this is not relied upon to achieve the offset completion criteria.
- **Greater Glider – Spotlighting:** The presence of the Greater Glider must be assessed through repeat nocturnal spotlighting surveys along designated transects in mapped and potential habitat, consistent with the methods applied at the impact and offset sites and relevant survey standards, following federal guidance where available supplemented with State guidance where relevant. Transects are to be traversed slowly (approximately 100 m per 10 minutes) within 25 m of the centre line and noting the tree used by species (including hollow features where observed). Refer to the following guidance material:
  - *Queensland terrestrial vertebrate fauna survey guidelines* (Eyre et al., 2022).
  - Victorian Greater Glider survey standard, the *Forest Protection Survey Program Survey Guideline - Spotlighting and Owl Call Playback (v5.0)* (Chick et al., 2023),
  - The draft Ecological Monitoring System Australia (EMSA) *Ecological Field Monitoring Protocols Manual Using the Ecological Monitoring System Australia Fauna Ground Counts Module* (McCallum et al., 2023).

[24] Detection surveys only required until such time as a species has been confirmed on site.

12.2 REPORTING REQUIREMENTS

The Offset Manager is responsible for maintaining accurate records and substantiating all activities associated with, or relevant to, the conditions of approval.

No later than 60 days after the conclusion of every five (5) year period after the commencement of the offset until the completion targets have been achieved, a report shall be prepared and submitted to the Commonwealth Government, which includes details of the following:

- Progress reporting,
- Reporting of non-conformance issues,
- Incident reporting,
- Complaint reporting, and,
- Reporting of any necessary corrective actions.

Following achievement of the completion targets, reporting must be undertaken and submitted to the Commonwealth Government every five (5) year period (no later than 60 days after a 5-year period) until the expiry of the EPBC approval (2022/09397) (9 April 2059), outlining any necessary corrective actions. The following sections outline the requirements of the various reporting.

12.2.1 PROGRESS REPORTING

The Offset Manager is responsible for preparing Progress Reports and providing them to DCCEEW no later than 60 days after the conclusion of every year stipulated for interim target assessment. The Progress Report will address:

- General management monitoring per Section 11.1.1, and,
- Habitat quality monitoring per Section 11.1.2.

Progress Reports must include as a minimum:

- Details of management actions undertaken,
- Results of management monitoring,
- Results of habitat quality monitoring,
- Assessment against interim targets and/or completion targets (as relevant), and,
- Details of any adaptive management measures.

12.2.2 NON-CONFORMANCE PROCEDURE

Non-conformance with the OMP will be immediately reported to the Offset Manager for corrective action. Actions taken shall reflect the magnitude of environmental impact.

For minor non-conformance incidents, the Offset Manager shall specify appropriate corrective actions. An example of a minor incident is the inadequate maintenance of erosion control structures.

For major non-conformance:

- Works will immediately cease,
- The applicable authority will be notified of extent of non-conformance, and,
- Corrective actions to be carried out in consultation with relevant officers and Offset Manager as necessary.

An example of major non-conformance is the unapproved removal of vegetation within the Offset Area.

If, at any time, monitoring identifies that there has been a decrease in the extent or habitat quality of baseline condition within the Offset Area, the approval holder must report to DCCEEW in writing within 20 business days of becoming aware. The report must state the cause, the response measures (including timeframes for reporting the success of those measures to DCCEEW) and the actions to prevent further occurrences. Additionally, the Offset Manager, or delegate, must report any potential or actual contravention of the conditions to the Commonwealth Government in writing within 5 business days of the approval holder becoming aware of the potential or actual contravention.

12.2.3 INCIDENT REPORTING

Ongoing monitoring includes the assessment of incidents and hazards identified by site personnel. It is the responsibility of all personnel to report any incidents to the Offset Manager. An environmental incident is any unplanned action detrimental to the environment.

All environmental incidents must be recorded using an Incident Reporting Form along with any corrective and preventative actions taken to address the environmental incident. The details of the incident are to be recorded by the Offset Manager, or delegate, in a Corrective Actions Register.

As reports are submitted, it is the Offset Manager's role to ensure that the forms are completed, and management measures are initiated or updated accordingly to reflect the information provided. The OMP is to be updated to reflect any changes or additions to management measures.

If the incident results in a severe impact on MNES, the Offset Manager, or delegate, is to provide an incident investigation report to the Commonwealth Government within one (1) week of being notified of the incident. Examples of a severe incident include impacts on a species or community listed as an MNES, for example fauna injury or mortality, or unapproved clearing of critical fauna habitat.

12.2.4 COMPLAINT REPORTING

The Offset Manager will maintain a register of complaints. Complaints relating to environmental aspects will be treated as environmental incidents in terms of investigation and will include a record of any action taken with respect to the complaint.

The person undertaking the activity to which this approval relates must record the following information for each complaint received about the activity:

- Time, date, name and contact details of the complainant,
- Reasons for the complaint,
- Any investigations undertaken by the person undertaking the activity to which this approval relates,
- Conclusions formed by the person undertaking the activity to which this approval relates following the investigation, and,
- Any actions taken by the person undertaking the activity to which this approval relates to resolve the complaint(s).

12.2.5 CORRECTIVE ACTIONS

All corrective actions identified for incidents, complaints and non-conformance audit results are to be recorded in a Corrective Actions Register, administered by the Offset Manager. The register will be monitored weekly by the Offset Manager to ensure that corrective actions listed in the register are completed.

The register is to include the following details:

- Date and location of incident / complaint / non-conformance,
- Details of incident / complaint / non-conformance,
- Actions taken to control the incident / complaint / non-conformance and prevent any future occurrence,
- Date by which the corrective action will be completed (unless ongoing), and,
- Appropriate sign-off, indicating that the incident / complaint / non-conformance was investigated and followed up appropriately.

13 ADAPTIVE MANAGEMENT & PLAN REVIEW

The offset management actions respond not only to existing threatening processes and risks but have also been designed to change over time due to a range of factors both internal and external to the offset site, including climate and weather factors, changing condition of vegetation on site and the reduction of threatening processes over time. Further, it is anticipated that new techniques and management practices may become available over the life of the offset.

The offset shall be managed via a best-practice adaptive environmental management (AEM) approach. The AEM approach not only helps to manage project delivery risk but also allows for improved techniques and resources to be incorporated into the offset management regime. Adaptive management allows for monitoring of the offset and for best practice environmental management to be implemented as technologies develop over time.

The AEM approach is compatible with, and complementary to, project risk mitigation and management described in AS ISO 31000:2018 Risk management – Guidelines (Standards Australia, 2018). The AEM process is shown in Figure 9.

The OMP will be reviewed by the project manager as required if any additional activities are to be carried out. Each review period will investigate:

- Potential gaps between the OMP management measures and on-site offset delivery activities,
- Assessment of any incidents or near misses that occurred since the previous review, and,
- Employee and workplace compliance.

Ongoing audit and review of the OMP ensures that risk identification and management measures are constantly assessed, ensuring the efficiency and effectiveness of the OMP.

Adaptive management will be used to incorporate changes in any of the following areas:

- Incorporation of information or advice related to the OMP,
- Updates to conservation advice or new threat abatement plans relevant to the MNES,
- New techniques to monitor vegetation and habitat quality, MNES presence/absence and abundance, or weed presence etc.,
- To update management actions where performance criteria are not being met,
- To manage unforeseen disruptions to monitoring and works scheduling such as inclement weather disruptions, and,

- To ensure the most effective and suitable mitigation measures are in place if new threats are identified, or if a severe weather event such as unplanned fires or floods occur.

Any updates to the OMP that do not result in changes to environmental outcomes or performance criteria can be made without informing DCCEEW. If updates to the OMP do result in changes to environmental outcomes or performance criteria, the amendments and justification for the changes must be provided to DCCEEW.

The revised OMP must be published on the approval holder's website at least 10 business days before being implemented and must remain on the approval holder's website until the end date of the project. Any changes to the OMP as a result of the audit and review process must also be published.

FIGURE 9: ADAPTIVE MANAGEMENT PROCESS (CSIRO).

14 LEGALLY SECURED OFFSET AREA

The Department of Health (the proponent) under the legal entity 'The State of Queensland (represented by Queensland Health)' is now the registered landowner of Lot 6 on CP BON456 and Lot 7 on CP BON419[5]. The aforementioned land will be used for the purposes of providing the offset outlined in this OMP. With regard to the legal security of the Offset Site:

- Queensland Health will control the offset site by way of ownership of the offset site.
- Queensland Health will legally secure the offset site via a Declared Area Application under s19E the *Vegetation Management Act 1999* (Qld) (VMA).
    - To achieve outcomes sought by a Declared Area Application, there must be a measurable biodiversity outcome that is declared in accordance with the VMA.
    - To conclude, the Declared Area Application management intent shall include the achievement of Remnant definition, which is the achievement of at least 70% of the undisturbed predominant canopy height and 50% of the undisturbed predominant canopy cover determined by way of BioCondition assessment plots.
    - The management outcome sought by the Declared Area Application is to be considered separate from outcomes sought by the OMP for the purposes of satisfying the Offset Completion Criteria.
- Queensland Health has held prelodgement meetings with the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (held on 2 August 2024) and received support for a forthcoming Declared Area Application.
- This OMP will accept a condition that the Offset Site must be legally secured in this way within nine months of receipt of a final decision. The approval holder will provide written notification and evidence to DCCEEW within five (5) business days of the offset site being legally secured.

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