

Caloundra Transport Corridor Upgrade

Offset Proposal EPBC 2024/09956

Sunshine Coast Regional Council

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1 Introduction

1.1 Project background

The Sunshine Coast Council (SCC), in partnership with the Department of Transport and Main Roads (TMR), proposes to construct and operate a new integrated transport corridor in Caloundra, Queensland (Qld) referred to as the Caloundra Transport Corridor Upgrade Project (the 'Project').

On 1 August 2024, the Project was referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and was declared a 'controlled action' (EPBC 2024/09956) on 30 October 2024.

Subsequently, on 14 November 2024, a request for additional information required for assessment by preliminary documentation was issued by DCCEEW under Section 95A(2) of the EPBC Act. Specifically, Section 6 (proposed offsets) of the request for additional information required the preparation of an Offset Proposal (OP) and Offset Management Plan (OMP) to inform DCCEEW's assessment of potential Project impacts to matters of national environmental significance (MNES). Further Attachment B of the request for additional information provided specific requirements for both the OP and the OMP. This document (the OP) has been prepared in response to Section 6 and Attachment B of the request for additional information (refer Section 1.3).

1.2 Findings of significant residual impacts on MNES

The Project EPBC Act preliminary documentation (Aurecon, 2025) identified three protected matters that are likely to be subject to significant residual impacts to which offsets are required, consisting of:

- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland Threatened Ecological Community (Coastal Swamp Sclerophyll Forest TEC)
- Koala (*Phascolarctos cinereus*) habitat
- Grey-headed flying-fox (GHFF) habitat

It is noted that whilst the proposed offset site does provide for GHFF habitat, GHFF habitat has been formally excluded from the OP, following advice received from DCCEEW on 12 November 2025.

Consequently, this document does not address any further offset requirements for the GHFF. The target MNES for this OP is the Coastal Swamp Sclerophyll Forest TEC and Koala habitat.

SCC is committed to providing direct offsets to compensate for the significant residual impacts associated with the proposed clearing of Coastal Swamp Sclerophyll Forest TEC and Koala habitat for the Project.

Offsets are required to achieve a conservation outcome that counterbalances any significant residual impact on a MNES from proposed Project works. Offsets must replicate the environmental values which are subject to loss, minimise the time between the impact and the delivery of the offset, and offer additional protection or management actions to improve the environmental values at risk (Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), 2012).

1.3 Purpose of this document

The purpose of this OP is to detail the compensatory offsets that will be delivered to fully acquit the proposed action offset requirements on the three protected matters identified in Section 1.2. This OP has been prepared to respond to the DCCEEW RFI and forms part of the Project preliminary documentation (refer Table 1.1).

It should be noted that details regarding the management, monitoring and reporting actions associated with delivering the compensatory offsets for the proposed action are contained within the OMP, which has been prepared as a separate document in accordance with the DCCEEW RFI.

Table 1.1 DCCEE RFI cross reference table – Offset Proposal

Item	DCCEE requested matter	Location within this Offset Proposal
ATTACHMENT A – Request for additional information required for assessment by preliminary documentation:		
6.1	Offset Proposal – The offset proposal must provide:	Sections 2 and 4
	a) Baseline habitat survey information, baseline pest and weed survey information, habitat or vegetation quality scores at both the impact site and offset site	
	b) How the offset will be managed, and evidence that the protected matter is present or uses the offset site	Sections 3 and 4
	c) Demonstration of how the proposed offset is suitable and meets the principles of the EPBC Act Offsets Policy and must include sufficient information for the department to assess it using the EPBC Act <i>Offsets Assessment Guide</i> (DSEWPC, 2012).	Section 6
ATTACHMENT B - Offset Proposal: Further to section 6 of the preliminary documentation request, the offset proposal must include, but not be limited to, the following:		
1.1	A detailed project description, including a site description and how and to what extent your action will impact on protected matters.	Sections 1 and 2
1.2	Details of the protected matters being impacted by the proposed action, including the total number of individuals and/or extent of habitat being impacted.	Section 2.1
1.3	Details about the offset proposal/offset site, including:	Sections 3 and 4
	a) A description of the proposed offset site(s) including location, size, and relevant ecological/species habitat features, landscape context and cadastral boundaries of the offset site(s) (supported by mapping).	
	b) Information about how the proposed offset/s area will provide connectivity with other relevant habitats and biodiversity corridors.	Section 5.4
	c) Information how the proposed offset site/s contribute to relevant State and/or regional plan/s or initiatives for the conservation of the protected matter.	Section 5.4
	d) Evidence of the presence of, or usage by, relevant MNES on, or adjacent to the proposed offset site(s)	Section 5.2 and 5.3
	e) Evidence that the location of the offset site is suitable and provides a conservation benefit to the impacted protected matter. Note: The EPBC Offsets Policy states that in most cases, the offset site should be as close to the impact as possible.	Sections 3.3, 4 and 6
	f) Up to date surveys and baseline data confirming the current condition/quality of vegetation on site (including number of hollow bearing trees if relevant), the extent and presence of weeds, and the extent of threats.	Section 4
	g) Information about the ecosystems present, current usage of the site, its general condition and location in the landscape/region	Section 4
	h) An assessment of how the offset and impacts sites are like-for-like, i.e., the environmental values for the MNES at the offset are of the same type or equivalent to that affected by the proposed action.	Sections 4 and 6
	i) The methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to the offset site for each relevant MNES, including: <ul style="list-style-type: none"> a. Total area of habitat (in hectares) b. Habitat quality (as discussed in section 8) c. Time over which loss is averted (max. 20 years) d. Time until ecological benefit e. Risk of loss (%) without offset f. Risk of loss (%) with offset g. Confidence in result (%). 	Appendix E
j) Details and execution timing of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide enduring protection for the potential offset area/s against development incompatible with conservation.	Section 3.2	

Item	DCCEEW requested matter	Location within this Offset Proposal
1.4	The Offset Proposal must demonstrate how the offset meets the principles of the <i>EPBC Act Environmental Offsets Policy</i> and <i>Offsets Assessment Guide</i> to inform the Minister's decision on whether or not the project should be approved under the EPBC Act.	Section 6
1.5	Details of the actual or estimated cost of the offset proposal including costs associated with proposed mitigation and management measures onsite.	Section 7
1.6	Details of the protective mechanism proposed to be applied at any offset site/s to provide enduring protection to the site for at least the duration of the impact, including a draft of the protective mechanism and its terms.	Section 3.2

1.4 Structure of the Offset Proposal

The OP contains the following material:

- Introduction to the Project and offset drivers (refer Section 1)
- A summary of the significant residual impacts associated with the proposed action (refer Section 2)
- An overview of the proposed offset (refer Section 3)
- A description of the characteristics of the proposed offset site (refer Section 4)
- An assessment of compliance of the proposed offset with the EPBC Act offset principles (refer Section 6)
- A cost estimate to deliver the proposed offset (refer Section 7)
- A conclusion (refer Section 8).

2 Summary of significant residual impacts associated with the proposed action

2.1 Impacted MNES and area extents

A summary of the likely significant residual impacts from the proposed action and the proposed quantum of offsets are provided in Table 2.1. Further detail regarding the potential impacts to listed threatened species and communities, and the ecological character of the declared Ramsar wetland as a result of the proposed action, including significant impact assessments undertaken in accordance with the EPBC Act *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Department of the Environment, 2013), are provided in the *Caloundra Transport Corridor Upgrade – Preliminary Documentation* (Aurecon, 2025).

Table 2.1 The MNES and area extents likely to result in a significant residual impact by the proposed action, and the quantum of proposed offsets

MNES	Status	Habitat type impacted	Significant residual impact associated with proposed action (ha)	Proposed offset site area (ha)
Coastal Swamp Sclerophyll Forest TEC	Endangered	-	2.09	18.5
Koala habitat	Endangered	Foraging and breeding, shelter and dispersal	4.65	18.5

2.2 Impact area – habitat quality

Habitat quality assessments were undertaken in the Project disturbance footprint (i.e. impact area) using the modified habitat quality assessment (MHQA) Tool (refer Appendix C for methodology).

A summary of the target offset MNES habitat quality scores for the Assessment Units (AUs) and total scores are provided in Table 2.2. Where fauna habitat quality inputs differed from default methodology of the *Guide to determining terrestrial habitat quality* (Version 1.2) and MHQA, their justification is provided in Appendix E.

Table 2.2 Weighted habitat quality scores for the MNES in the impact area

Habitat quality	Total score	Rounded score
Coastal Swamp Sclerophyll Forest TEC	7.15	7
Koala habitat	5.20	5

3 Proposed Project offset overview

This section provides an overview of the proposed Project offset associated with the following:

- Location, tenure and ownership of offset site (refer Section 3.1)
- Timing and offset protection mechanism (refer Section 3.2)
- Quantum and intent of environmental offset (refer Section 3.3).

3.1 Location, area, tenure and ownership of proposed offset

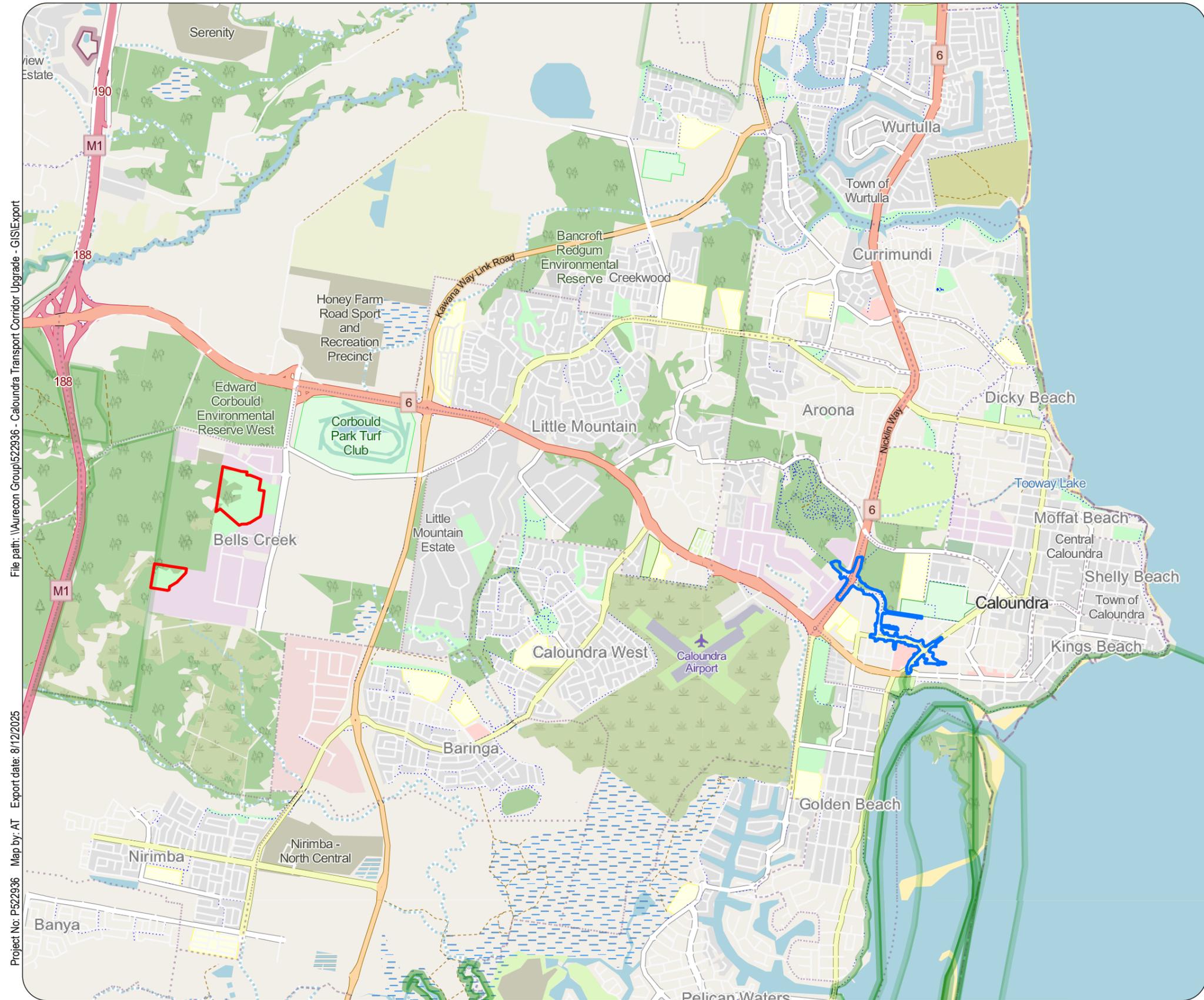
An assessment to determine suitable Project offset areas within the region was completed by SCC in 2024. The assessment identified the proposed offset property (i.e. Lot 900 on SP209288) which is located directly adjacent to the Bobbie Sattler Nature Refuge, within the Racecourse Road Environmental Reserve within the locality of Corbould Park, Queensland (refer Figure 3.1 and Figure 3.2). The proposed offset property is located approximately 6 km west of Caloundra and has been historically cleared as a result of previous land management activities.

The proposed offset property, which includes the entirety of the Racecourse Road Reserve, has an area of approximately 37.1 ha. The proposed offset site is located within the proposed offset property which has at least 18.5 ha. Shapefiles to clearly define the location and boundaries of the proposed offset site, accompanied by the offset attributes (e.g. physical address of the proposed offset site, coordinates of the boundary points in decimal degrees, the relevant MNES that the environmental offset/s compensates for, and the size of the environmental offset/s in hectares) have been provided as a separate attachment to this document.

The proposed offset site is located on land that is owned by the Queensland State Government (represented by the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) under control of SCC as Trustee. No current exploration permits, mining or petroleum leases occur over the proposed offset property.

An assessment to determine the suitability of the proposed offset site was conducted by Aurecon in 2024. Vegetation within the proposed offset site mostly consists of unmapped regrowth considered to be analogous to the Coastal Swamp Sclerophyll Forest TEC. The presence of the Coastal Swamp Sclerophyll Forest TEC within the significant residual impact area forms the first requirement for proposed offsets. This protected matter is listed as Endangered under the EPBC Act and is identified within the Commonwealth conservation advice for the community as being analogous to Regional Ecosystem (RE) 12.3.4 as mapped by the Queensland Government. This community is known to provide foraging and shelter habitat for the Koala.

The assessment of the suitability of the proposed offset site identified that the necessary conditions (i.e. habitat types and area) occur to meet the Project offset obligations.

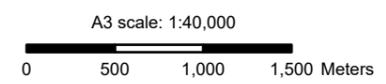


Legend
█ Project disturbance footprint
█ Proposed offset site

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 Project No: P522936 Map by: AT Export date: 8/12/2025

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Date: 8/12/2025



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Figure 3.1: Proposed offset site locality map



Service layers: City of Moreton Bay, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community; Data sources: Queensland Spatial Catalogue - 2023



Legend

— Road

▭ Proposed offset site

Revision: A

Date: 8/12/2025

A3 scale: 1:6,000



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Figure 3.2: Proposed offset site

3.2 Timing and offset protection mechanism

Prior to the commencement of the action, a voluntary declaration (VDec) will be made and registered under section 19F of the *Vegetation Management Act 1999* (Qld) over the proposed offset site. A VDec is a legally binding protection mechanism that is registered in title and is binding on all current and future owners of the land. Once declared, a property map of assessable vegetation displaying the area as a Category A area will be made.

Within 20 business days of securing the VDec, SCC as trustee of the land will advise DCCEEW in writing and provide legal security documentation. The VDec protections upon the proposed offset site will be enforced for the life of the Project. A declaration can only be ended under Section 19L of the *Vegetation Management Act 1999* by the chief executive if:

- The management outcomes of the management plan have been achieved
- It is not in the interests of the State, having regard to public interest
- Another environmental offset is provided in accordance with the *Environmental Offsets Act 2014* (Qld) for an activity impacting the original offset area covered by the VDec.

Within 12 months of securing the VDec, SCC will establish a legally binding Environmental Statutory Covenant, securing the site for the life of the Project's EPBC Act Controlled Action Approval under the *Land Title Act 1994* (Qld).

Legal protection via the VDec and the Covenant will cover the extent of offset area within Lot 900 on SP209288.

Given SCC is the current landholder (trustee), there is no requirement to obtain consent from the State for the offset.

3.3 Intent of environmental offset

The overarching environmental outcome for the proposed offset site is to improve habitat quality of the Coastal Swamp Sclerophyll Forest TEC, as well as Koala habitat. In accordance with the EPBC Act, the environmental outcomes to be achieved for the proposed offset site through the implementation of the OMP are:

- Improve habitat quality of the ecological community Coastal Swamp Sclerophyll Forest TEC across the proposed offset site
- Improve Koala habitat quality and carrying capacity across the proposed offset site
- Improve connectivity with adjacent habitat in the greater landscape
- Allow the area to be appropriately managed to reduce threatening processes
- Reduce the extent and cover of weeds, the occurrence of pests.

To have successfully restored the habitat in the proposed offset site, the interim milestones and management plan contained within the OMP, must result in an increase in habitat quality of 1 point after 20 years. Therefore, for each matter this will result in an uplift in the habitat quality scores, including:

- Koala from 6 to a 7
- Coastal Swamp Sclerophyll Forest TEC from 7 to an 8.

Active management will be undertaken within the proposed offset site targeted to the Coastal Swamp Sclerophyll Forest TEC and Koala habitat and designed to achieve offset outcomes that benefit the matters, beyond what would have been achieved without the offset. The proposed offset site provides offset opportunities to improve habitat through increased funding from the Project and targeted species-specific management, beyond that which could be provided by SCC conservation funding alone.

4 Baseline survey methodology

The following sections outline the methodology used for conducting baseline surveys within the proposed offset site.

4.1 Baseline pest monitoring survey

Baseline monitoring for pest species was conducted through the strategic deployment of remote cameras at four locations within the proposed offset site. The cameras were active continuously from the 31 October to the 25 November 2025, capturing evidence to establish the presence and activity patterns of pest animals such as feral cats or foxes. The purpose of this surveillance was to establish a pre-disturbance baseline for pest animal populations, which will inform subsequent pest management strategies and allow for the quantitative assessment of control program efficacy.

4.2 Baseline weed assessment

A baseline weed assessment was carried out to identify and map weed species capable of resulting in competition or alterations to the habitat within the proposed offset site. This assessment involved systematically traversing the site to delineate and map infestations, establishing weed survey Points within representative areas, and assigning a Weed Severity score which utilised the defined classification system at each point:

- Major (>80%)
- High (50 to 80%)
- Moderate (20 to 80%)
- Low (5 to 20%)
- Very Low (<5%)

This severity scoring quantified the extent and impact of existing weed infestations, thus providing a foundation for future weed management prioritisation and the monitoring of control success.

4.3 Koala surveys

A targeted spotlighting survey was conducted specifically to detect the presence of Koalas (*Phascolarctos cinereus*) within the proposed offset site. This involved two 200 m surveys undertaken with a spotlight, searching for 10 metres per minute for a total time of 20 minutes per transect. During the survey, systematic searches of the canopy were conducted to inform species presence and approximate density.

SPOT assessment techniques were also undertaken to assess the level of koala activity/presence at the site. This involved undertaking three separate SPOT Assessment Technique surveys, conducting a 1 m radial search around the base of one tree for two person minutes and repeating surveys for the nearest 29 trees.

4.4 Habitat quality

The unpublished MHQA methodology was chosen as the preferred and most thorough method of assessing habitat quality within the impact area and proposed offset site. MHQA adapts the methodology outlined in the Queensland *BioCondition Assessment Manual* (Version 2.2) (Eyre *et al.* 2015) and the *Guide to determining terrestrial habitat quality* (Version 1.2) (DEHP 2017). MHQA introduces an additional habitat factor, species stocking rate, in order to satisfy the requirements of EPBC Act Offset Policy Principles.

The method utilises benchmark scores to ensure assessments are measured to a known standard, repeatable and consistent in determining habitat quality. Two rounds of habitat quality assessments were

conducted within the offset site by two suitably qualified ecologists in December 2024, and January/February 2025, and November 2025.

Habitat quality assessments were undertaken within the proposed offset site using the MHQA Tool. The methodology adopted for assessing habitat quality is detailed in the Preliminary Documentation (section 3.7.5 of the Preliminary Documentation) as well as Appendix C.

Appendix C provides the detailed methodology associated with the MHQA for the proposed offsite site, and Appendix D provides the results of the MHQA assessment for the proposed offsite site.

5 Proposed offset site description

This section provides a description of the proposed offset site, in relation to the following:

- General description (refer Section 5.1)
- Vegetation communities and flora (refer Section 5.2)
- Habitat/vegetation suitability for the offsetable matters (refer Section 5.3)
- Connectivity (refer Section 5.4)
- Baseline condition (refer Section 5.5).

5.1 General description

Current environmental values present within the proposed offset site include alluvial systems, fine-grained sedimentary rocks and coarse-grained sedimentary rocks. Extensive areas of regrowth and non-remnant vegetation containing areas infested by weeds are also present. Weed infestations occur throughout the proposed offset site and pose a significant fire risk and impede the recruitment of native flora species. The protection and management (particular weed management) of the proposed offset site will increase and improve the quality of habitat, and carrying capacity for the target offset MNES.

5.2 Vegetation communities and flora

The vegetation within the proposed offset site has historically been cleared and currently consists of unmapped high-value regrowth (refer Figure 5.1) analogous to RE 12.3.4 in terms of species diversity and abundance.

Extant onsite vegetation is analogous (in relation to species diversity and abundance) to the Coastal Swamp Sclerophyll Forest TEC (refer Section 5.3.1) and is dominated by Eucalypt/Melaleuca open forest and woodland and occurs on Quaternary alluvial systems. Typical canopy species include *Melaleuca quinquenervia*, *Melaleuca sieberi* and *Eucalyptus robusta*. Non-native flora species (e.g. *Setaria sphacelata* (South African Pidgeon Grass)) are well represented throughout much of the proposed offset site (refer Photograph 1).



Photograph 1 Representation of vegetation located at the proposed offset site

Project No: P522936 Map by: AT Export date: 8/12/2025 File path: \\Aurecon Group\622936 - Caloundra Transport Corridor Upgrade - GIS\Export

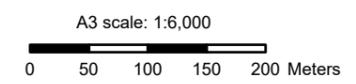


- Legend**
- Road
 - Monitoring Sites
 - ▭ Proposed offset site
- Assessment Unit**
- ▭ AU3
 - ▭ AU4

Service layers: City of Moreton Bay, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community; Data sources: Queensland Spatial Catalogue - 2023

Revision: A

Date: 8/12/2025



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Figure 5.1: Ground truthed vegetation and assessment units

5.3 Habitat/vegetation suitability

The proposed offset site provides habitat for Coastal Swamp Sclerophyll Forest TEC as well as the Koala. Habitat requirements for TEC and fauna species, derived from the Commonwealth conservation advice, is provided within Appendix B. The sections below indicate how the proposed offset site provides suitable habitat or is analogous to the Coastal Swamp Sclerophyll Forest TEC applicable to this OP.

5.3.1 Coastal Swamp Sclerophyll Forest TEC

The Coastal Swamp Sclerophyll Forest TEC has been confirmed as occurring within the proposed offset site (refer Section 5.2). The key diagnostic characteristics and condition thresholds criteria outlined in the Coastal Swamp Sclerophyll Forest TEC (Department of Agriculture, Water and the Environment (DAWE), 2021a) were used to confirm presence of the TEC within the proposed offset site.

AU3 of the TEC consists of 4.83 ha in the northern section of the proposed offset site, and 3.72 ha in the southern section of the proposed offset site. AU4 of the TEC consists of 7.83 ha in the northern section of the proposed offset site and 2.15 ha in the southern section of the proposed offset site. A total of 18.5 ha (rounded) of the TEC was identified within the proposed offset site.

Condition classes and Key diagnostic characteristics of the TEC within the offset site were assessed and addressed in Table 5.1.

Table 5.1 Assessment of offset site characteristics against the key diagnostic characteristics and condition thresholds for the Coastal Swamp Sclerophyll Forest TEC

Key diagnostic characteristic	Assessment criteria description	Assessment of criteria characteristics within the disturbance footprint
Geographic location	<ul style="list-style-type: none"> Restricted to coastal catchments. Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern New South Wales (NSW) within Interim Biogeographic Regionalisation for Australia Bioregions South East Queensland (SEQ), NSW North Coast, Sydney Basin, South East Corner (Bateman subregion). 	Yes – Occurs in SEQ within 1 km of the coast.
Elevation	<ul style="list-style-type: none"> Typically below 20 m above sea level (ASL), occasionally up to 220 m ASL on hill slopes with perched swamps or high-water table. 	Yes – Area of interest is between 8 to 15 m ASL.
Soil type	<ul style="list-style-type: none"> Hydric soils that are waterlogged or intermittently inundated for 1 to 3 months per year (seasonally). Formed by unconsolidated alluvial, marine or aeolian sediments, stained black/dark grey by humus. Soil type aids but biological composition is primary for identification. 	Yes – Area of interest reflective of RE 12.3.4, which is landzone 3 (alluvium) and intermittently inundated.
Hydrology	<ul style="list-style-type: none"> Inundation patterns ranging from intermittent to episodic; natural hydrological regime intact or managed to maintain ecology. 	Yes – Natural hydrological regime appeared intact.
Vegetation structure	<ul style="list-style-type: none"> Varies from tall closed to open forest or woodland to dense shrubland; minimum crown cover at least 10%, typically 50-70%. 	Yes – Tall open forest. Cover ranges from 17 to 53%
Canopy dominance	<ul style="list-style-type: none"> From SEQ to Sydney Basin Bioregion: canopy dominated or co-dominated by <i>Melaleuca quinquenervia</i> and/or <i>Eucalyptus robusta</i>. Other <i>Melaleucas</i> may dominate locally (<i>M. dealbata</i>, <i>M. biconvexa</i>, <i>M. ericifolia</i>). 	Yes – Canopy dominated by <i>M. quinquenervia</i> .
Other canopy/ sub-canopy Species	<ul style="list-style-type: none"> May include species like <i>Casuarina glauca</i>, <i>Banksia</i> spp., <i>Callistemon salignus</i>, <i>Corymbia intermedia</i>, <i>E. tereticornis</i>, <i>E. longifolia</i>, <i>E. botryoides</i>, <i>Livistona australis</i>, <i>Lophostemon</i> spp. 	Yes – Some of these species are present but not dominant across a patch.

Key diagnostic characteristic	Assessment criteria description	Assessment of criteria characteristics within the disturbance footprint
Understorey composition	<ul style="list-style-type: none"> Typically diverse hydrophytic ground layer with tall sedges (e.g. <i>Gahnia</i> spp.), ferns, graminoids, herbs e.g. <i>Imperata cylindrica</i>. Halophytic species may be present near estuarine sites but should not dominate. 	Yes – Ground layer composition varies but contains <i>Gahnia</i> spp., ferns, graminoids and herbs.
Presence of halophytic species	<ul style="list-style-type: none"> Ecological community is not present if halophytic species dominate the ground layer such as <i>Apium prostratum</i>, <i>Atriplex cinerea</i>, <i>Chenopodium glaucum</i>, <i>Rhagodia candolleana</i>, <i>Samolus repens</i>. Halophytic dominance typically indicates estuarine or saltmarsh vegetation, not this forest type. 	No – Not dominant if present.
Condition class thresholds		
Patch size (thresholds)	<p>The smallest patch size identifiable is 0.25 ha; breaks up to 30 m between vegetated areas can be included as one patch. Breaks greater than 30 m indicate separate patches.</p> <p>Patch size in the decision-matrix is divided into:</p> <ul style="list-style-type: none"> Large: ≥ 5 ha Medium: ≥ 2 ha and < 5 ha Small–contiguous: ≥ 0.25 ha and < 2 ha and contiguous (within 30 m) to another ≥ 5 ha remnant Small–isolated: ≥ 0.5 ha and < 2 ha, but not contiguous to a ≥ 5 ha remnant. 	<p>Patch extends beyond the boundaries of the offset site into the neighbouring Bobbie Sattler Reserve. Patch is >40 ha in size.</p> <p>Patch size is considered to be large.</p>
Biotic thresholds	<p>Ground-layer non-native cover in the decision-matrix is divided into:</p> <ul style="list-style-type: none"> High condition: < 20 % non-native Good condition: 20 to 50 % non-native Moderate condition: 50 to 80 % non-native Low condition: > 80 % non-native. 	<p>0.78 ha of AU4 had severe (75%) non-native species coverage, however still met the threshold for low condition (<80%). 2.16 ha of non-native cover were between 50 to 80% of total ground layer vegetation cover, making this in “moderate condition”. 15.06 ha of the remaining patch within the offset site was in “high condition” with less than 5% condition. Patch areas outside the offset were observed to have low non-native cover and were in “high condition”.</p>

It was observed that no buffer existed between the existing development surrounding the proposed offset site, however the TEC patch intersecting the 100 m buffer zone of the edge of development still met the key diagnostic characteristics and the minimum condition threshold for the TEC as per the conservation advice.

Information regarding the Coastal Swamp Sclerophyll Forest TEC and how it is to be impacted within and adjacent to the Project disturbance footprint is detailed in the significant impact assessment provided as part of the preliminary documentation (Aurecon, 2025).

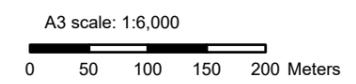
Project No: P522936 Map by: AT Export date: 8/12/2025 File path: \\Aurecon Group\522936 - Caloundra Transport Corridor Upgrade - GIS\Export



- Legend**
- Road
 - Proposed offset site
- TEC condition**
- Class A
 - Class B1
 - Class C1
 - Class C2

Service layers: City of Moreton Bay, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community; Data sources: Queensland Spatial Catalogue - 2023

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Figure 5.2: Location of the TEC patch and condition

5.3.2 Koala habitat

Koalas naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species and their habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland with emergent food trees. In addition, in coastal lowland areas of Queensland, Koalas are found in vegetation communities dominated by Melaleuca or Casuarina species (Youngentob et al., 2021).

As identified in Section 5.2 and shown in Figure 5.1, the majority of the proposed offset site contains vegetation dominated by Melaleuca species, with low levels of Eucalypt species present. Extant vegetation is considered analogous to the RE 12.3.4 as defined by the Queensland Regional Ecosystem Description Database, and the Coastal Swamp Sclerophyll Forest TEC in relation to species diversity and abundance (refer Section 5.3.1). Within Queensland, RE 12.3.4 has been identified by the State government as providing essential habitat for the Koala. It is therefore concluded that the proposed offset site provides suitable habitat for the Koala for dispersal habitat (with the potential for providing critical foraging habitat in the future) as it is consistent with the DCCEEW approved conservation advice for the species.

5.4 Connectivity

The placement of the proposed offset site is important in maintaining connectivity between habitats of non-remnant and remnant vegetation for areas considered analogous to the Coastal Swamp Sclerophyll Forest TEC (i.e. RE 12.3.4).

The proposed offset site provides medium ecological connectivity with ecological connectivity with remnant vegetation communities bounding the western edge of the area and partial connectivity to the east (refer Figure 5.1).

The proposed offset site is contained within a State wide biodiversity corridor as defined under the Biodiversity Planning Assessment for South-east Queensland. The proposed offset site is a key connection point linking extant vegetation corridors that occur to the west of the site (i.e. Racecourse Rod Conservation Reserve, Bobbie Sattler Nature Reserve, Edward Cor Environmental Reserve West, Caloundra Conservation Park and Brannock's Environmental Reserve) and those that are located to the east (i.e. Pierce Avenue Bushland Reserve, Koala Court Park, Bells Reach Conservation Reserve and Lamerough Creek West Environment Reserve). The proposed offset site is contiguous with the remnant vegetation (including RE 12.3.4) located to the east and west and at the completion of the offset delivery, the proposed offset site would consolidate surrounding vegetation to provide enhanced fauna movement opportunities throughout the region, including consolidating a fauna movement corridor extending approximately 15 km in an east-west direction, linking Dularcha National Park in the west, to Lamerough Creek West Environment Reserve in the east. The proposed offset site provides strategic connectivity with State mapped Koala priority areas and Core Koala Habitat areas within Bobbie Sattler Nature Reserve, providing Koalas with additional areas to disperse, shelter and forage, in line with the Action Areas of the South East Queensland Koala Conservation Strategy 2020–2025.

Whilst it is noted that Racecourse Road presents a partial barrier for connectivity (i.e. pavement and hard surfaces that are raised above natural surface levels to reduce flooding), Racecourse Road is not bound by fauna or human exclusion fencing (e.g. chain link fencing or barbed wire fencing). Therefore, this road is not considered to constitute a major barrier to the movement of species that are known to cross cleared areas (i.e. Koala, macropods, birds and other mobile species).

5.5 Baseline condition

Field-based investigations have indicated that the habitat quality score for the proposed offset site is 6 out of 10 (refer Appendix C and Appendix D for methodologies and assessment outcomes related to the habitat quality scoring and Section 5.5.1 for a summary of assessment outcomes).

Other factors that may impact on site condition such as weeds and pests (refer Sections 5.5.2 and 5.5.3, respectively) are also discussed in this section.

5.5.1 Habitat quality

Habitat quality assessments were undertaken within the proposed offset site using the MHQA Tool. Appendix C provides the methodology associated with the MHQA for the proposed offsite site, and Appendix D provides the results of the MHQA assessment for the proposed offsite site.

The Coastal Swamp Sclerophyll Forest TEC habitat received a weighted habitat quality score of 7 (rounded), and the Koala received a score of 5 (rounded) at the proposed offset site. A summary of the target offset MNES habitat quality scores (AUs and total scores) are provided in Table 5.2. Where fauna habitat quality inputs differed from default methodology of the *Guide to determining terrestrial habitat quality* (Version 1.2) and MHQA, the scoring justification for Koala habitat is provided in Appendix E.

Table 5.2 Weighted habitat quality scores for the MNES in the offset site

Habitat quality	Total score	Rounded score
Coastal Swamp Sclerophyll Forest TEC	7.15	7
Koala	5.20	5

5.5.2 Weeds

Historic flora surveys of the proposed offset site have been undertaken in 2013 (Shaw, 2013), with the following 26 non-native flora species identified:

- *Ageratum houstonianum* (Purple top)
- *Andropogon virginicus* (Whiskey Grass)
- *Aster subulatus* (Wild Aster)
- *Axonopus affinus* (Narrow-leaf Carpet Grass)
- *Axonopus compressus* (Broad-leaved Carpet Grass)
- *Baccharis halimifolia* (Groundsel Bush)
- *Bidens pilosa* (Cobbler's Pegs)
- *Briza minor* (Lesser Quaking Grass)
- *Conyza canadensis* (Canadian Fleabane)
- *Desmodium uncinatum* (Silver-leaf Desmodium)
- *Emilia sonchifolia* (Emilia)
- *Euphorbia prostrata* (Red Caustic-Creeper)
- *Gamochaeta americanum* (Cudweed)
- *Lotononis bainesii* (Lotononis)
- *Ludwigia longifolia* (Long-leaf Willow Primrose)
- *Macroptilium atropurpureum* (Siratro)
- *Macroptilium lathyroides* (Phasey Bean)
- *Paspalum conjugatum* (Sour Grass)
- *Paspalum dilatatum* (Paspalum)
- *Paspalum mandiocanum* (Broad Leaf Paspalum)
- *Paspalum urvillei* (Vasey Grass)
- *Pinus elliotii* (Slash Pine)
- *Setaria sphacelata* (South African Pigeon Grass)
- *Sida cordifolia* (Flannel Weed)
- *Solanum torvum* (Devil's Fig)
- *Urena lobata* (Urena Burr).

In addition to Shaw's (2013) flora surveys, weed surveys were incorporated into the habitat quality assessment conducted in 2024 and 2025 and a baseline weed assessment was conducted in November 2025. Weeds of National Significance (WoNs), restricted plants under the *Biosecurity Act 2014* (Qld) or locally significant invasive plants species identified by the *Sunshine Coast Biosecurity Plan 2024* were identified within the proposed offset site, including:

- *Baccharis halimifolia* (Groundsel bush) – restricted under the *Biosecurity Act 2014* (Qld)
- *Senecio madagascariensis* (Fireweed) – restricted under the *Biosecurity Act 2014* (Qld)
- *Senna pendula* (Easter cassia) – listed as a locally significant invasive plant.

A baseline weed assessment identified the following weeds that may result in competition or alterations to habitat present within the proposed offset site:

- *Ageratum conyzoides* (Billygoat weed)
- *Ageratum houstonianum* (Blue billygoat weed)

- *Passiflora suberosa* (Corky passion flower)
- *Setaria sphacelata* var. *sericea* (South African pigeon grass).
- *Sphagneticola trilobata* (Singapore daisy) Restricted under the *Biosecurity Act 2014* (Qld).

The results of the extent and severity of the baseline weed survey is displayed in Figure 5.3.

5.5.3 Pest animals

During initial surveys and desktop assessment incidental observations or desktop records were found of the following pest species:

- Cane toad (*Rhinella marina*) – observed directly within the proposed offset site
- Dog (*Canis familiaris*) – likely present as either a wild dog or unrestrained domestic dog given the proposed offset site proximity to urban areas and WildNet records within 2 km of the proposed offset site
- Cat (*Felis catus*) – likely present as a wild cat or unrestrained domestic cat. Observed in 2015 in Bobbie Sattler Reserve Fauna surveys
- European red fox (*Vulpes vulpes*) – observed directly within the proposed offset site
- Black rat (*Rattus rattus*) – observed directly within the proposed offset site.

Baseline pest monitoring was carried out prior to commencement of the proposed action through remote camera deployment at four sites within the proposed offset site from 31 October to 25 November 2025. Camera traps recorded 4 separate fox sightings (refer Photograph 2), 3 cane toad sightings and one black rat sighting. Camera trap locations are displayed in Figure 5.3.



Photograph 2 European red fox (*Vulpes vulpes*) captured at one of the camera locations within the proposed offset site

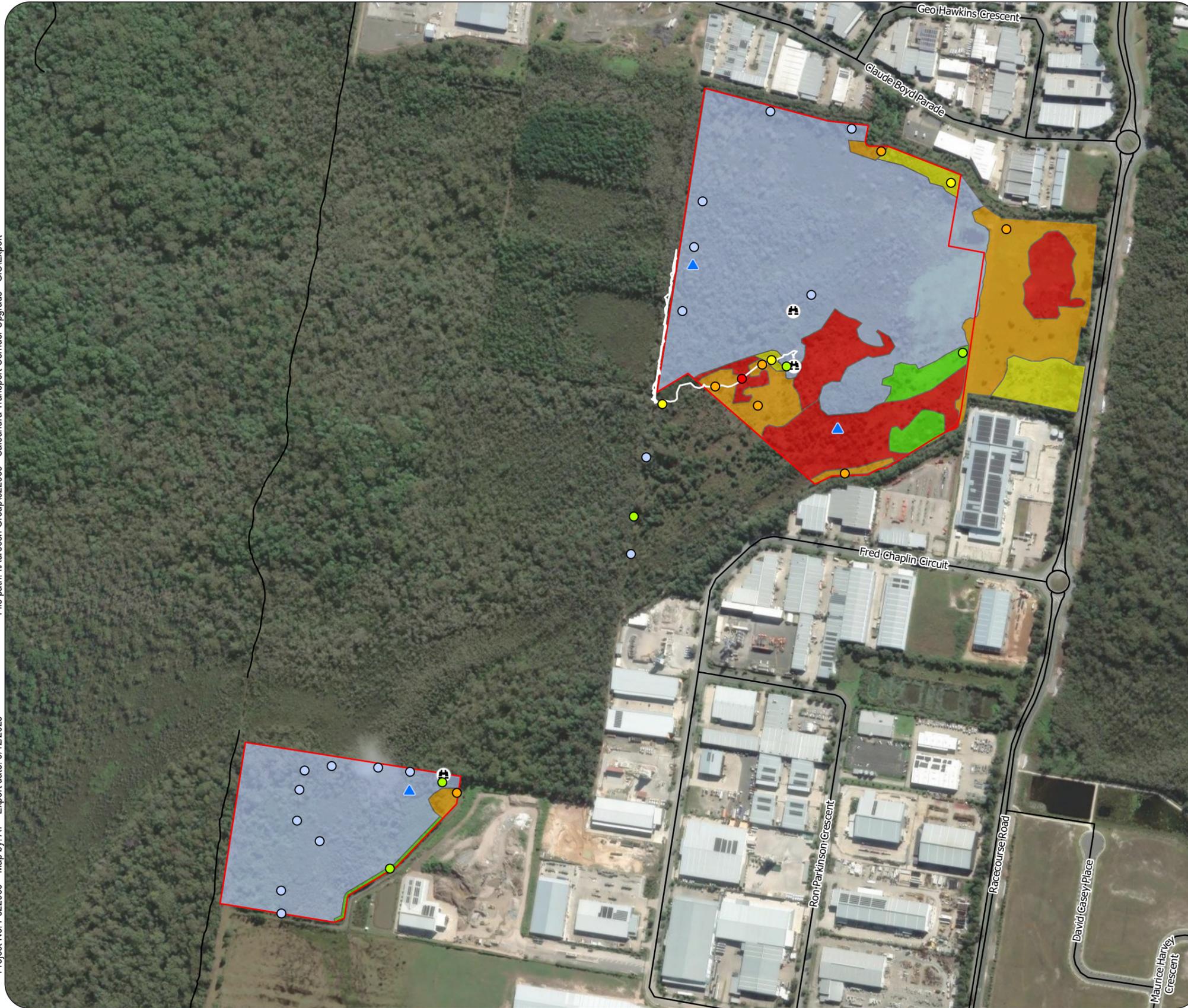
5.5.4 Koala presence

Following SPOT Assessment Technique and spotlighting surveys (refer Section 4.3) conducted in November 2025, no Koalas or Koala scats were observed within the proposed offset site which is consistent to the impact site findings (Aurecon, 2025). Suitable Koala habitat was observed within the offset site as dispersal habitat, and whilst abundance of LIKT foraging trees was low (<5% cover), the site will have the potential to meet suitable foraging habitat with the revegetation of eucalypt species. The weather conditions experienced during spotlighting were clear and 26 °C.

5.6 Condition of offset site without offsets

The current Offset Calculator (refer Appendix A) projects that without the offset, the future quality of the impacted ecological communities will decline. Specifically, in the case of South African pigeon grass (*Setaria sphacelata*), there is an anticipated increase in this invasive species at the offset site if it is not secured and treated with active management. In the chance there is an uncontrolled burn that goes through the offset site, due to the current height and fuel profiles of the canopy, in that event there is a high risk that damage could occur to the canopy height and cover values and set back recovery of the vegetation. As the management actions of the OMP provide mitigating actions against risk of bushfire and weed incursion, prevention of this scenario it has been taken into account in the future scenario without offset. Attributes likely to be impacted have been displayed in the MHQA summary scores in Appendix E.

Project No: P522936 Map by: AT Export date: 9/12/2025 File path: \\Aurecon Group\622936 - Caloundra Transport Corridor Upgrade - GIS\Export



Service layers: City of Moreton Bay, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community; Data sources: Queensland Spatial Catalogue - 2023



Legend

- Camera points
- SAT locations
- Road
- Spotlighting track
- Proposed offset site
- Weed severity points**
- High
- Major
- Moderate
- Low
- Very Low
- Weed severity**
- High
- Major
- Moderate
- Low
- Very Low

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Date: 9/12/2025

A3 scale: 1:6,000



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Figure 5.3: Pest camera and weed survey locations and the extent and severity of weed cover

6 Assessment of compliance with offset principles

The EPBC Act *Environmental Offsets Policy* outlines 10 overarching offset principles to be applied in determining the suitability of offsets, both in terms of offset selection as well as government assessment and decision-making. A summary of the Project OP compliance with these principles for the proposed action is provided in Table 6.1.

Table 6.1 Project Offset Proposal compliance with the EPBC Act Environmental Offset Policy principles

Offset principle	Offset Proposal compliance
Suitable offsets must:	
1. Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The offset prioritises improving habitat quality and condition for the Coastal Swamp Sclerophyll Forest TEC and Koala habitat, thereby supporting their long-term viability in accordance with national recovery plans and conservation advice. In addition, the quantum of the proposed offset exceeds that required to meet legislative compliance as determined by the Project EPBC Act Offset Assessment Guide (refer Section 3.1 and Appendix A) which has been calculated to achieve a like for like offset. Management actions such as habitat restoration, pest and weed control, and fire management are designed to enhance and sustain the ecological values affected by the proposed action. These management actions are scheduled, assigned to qualified providers, and supported by ongoing monitoring and adaptive responses to ensure ecological objectives are met effectively and sustainably. Specific management actions are outlined in the OMP which has been prepared as a separate document.
2. Be built around direct offsets but may include other compensatory measures	The offset is wholly constructed around direct ecological offsets, with a dedicated allocation of 18.5 ha each for the target offset MNES, including: <ul style="list-style-type: none"> ■ 18.5 ha for the Coastal Swamp Sclerophyll Forest TEC ■ 18.5 ha for Koala habitat.
3. Be in proportion to the level of statutory protection that applies to the protected matter	The proposed offset site provides more than the minimum compensatory ¹ requirements for the target offset MNES as identified in Section 3.1, as determined by the EPBC Offset Assessment Guide (refer Appendix A). The offset proposed to dedicate 18.5 ha each for the target offset MNES, including: <ul style="list-style-type: none"> ■ 18.5 ha for the Coastal Swamp Sclerophyll Forest TEC, with a direct offset of 159.64% (as shown in the Project EPBC Act Offsets Assessment Guide (refer Appendix A) ■ 18.5 ha for Koala habitat, with a direct offset of 100.45% (as shown in the Project EPBC Act Offsets Assessment Guide (refer Appendix A)).
4. Be of a size and scale proportionate to the residual impacts on the protected matter	Management activities and habitat restoration measures have been designed to deliver habitat uplift beyond baseline legal obligations for the Coastal Swamp Sclerophyll Forest TEC and Koala habitat (refer Section 3.1), thereby providing a quantifiable net gain consistent with the conservation priorities for the target offset MNES. The size of the offset quantum was determined using the Project EPBC Act Offset Assessment Guide (refer Appendix A) that identified that the proposed offset exceeded the minimum requirements in relation to size and scale of the significant residual impacts.
5. Effectively account for and manage the risks of the offset not succeeding	A risk assessment related to the delivery of the offset has been undertaken and is provided within the OMP (provided as a separate document to the OP). Risk management including ongoing monitoring, adaptive management and corrective actions are embedded within the OMP to adequately manage risk throughout the delivery of the offset.

Offset principle	Offset Proposal compliance
<p>6. Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action)</p>	<p>The offset demonstrates clear additionality by delivering conservation gains that would not occur in the absence of the offset commitment. For example, similar to other approved OMPs, it incorporates:</p> <ul style="list-style-type: none"> ■ Legally securing the proposed offset site, which will be linked to the protection mechanism on the property title ■ Ongoing compliance with the OMP which incorporates risk management ■ Active restoration of degraded habitat areas that are not under any formal conservation covenant or management, thereby increasing habitat extent and condition beyond baseline levels ■ Implementation of targeted pest and weed control programs that exceed general biosecurity obligation practices, improving viability of threatened species populations ■ Long-term ecological monitoring and adaptive management frameworks to ensure ongoing improvement in site condition, surpassing regulatory requirements.
<p>7. Be efficient, effective, timely, transparent, scientifically robust and reasonable</p>	<p>The action complies with this principle in the following ways:</p> <ul style="list-style-type: none"> ■ Efficient/effective: Actions will be delivered by qualified practitioners, guided by best practice standards. Offset quantum has been determined using the EPBC Act Offset Assessment Guide (refer Appendix A). The proposed offset will be effective in terms of its proportion and will be delivered efficiently. ■ Timely: The proposed offset will be delivered over a 20 year timeframe. Actions required to deliver the offset are detailed within the OMP which has been prepared separately from this OP. ■ Transparent: Actions to deliver the offset are contained within the OMP which has been prepared as a separate document to the OP. Offset quantum has been determined using the EPBC Act Offset Assessment Guide which ensure transparency and reproducibility. Reporting protocols as defined within the OMP, ensure transparency and accountability in implementation. Corrective actions guided by interim performance criteria will allow for adaptive strategies and reduce chances of failure. ■ Scientifically robust: Actions will be delivered by qualified practitioners, guided by best practice standards. Offset quantum has been determined using the EPBC Act Offset Assessment Guide which ensures that it is scientifically robust and can be reproduced. In addition, the baseline assessment has used DCCEE approved conservation advice for defining habitat and draws upon peer reviewed information to support claims. ■ Reasonable: The OMP (provided as a separate document), identifies reasonable management, monitoring and reporting requirements to deliver the offset.
<p>8. Have transparent governance arrangement including being able to be readily measured, monitored, audited and enforced</p>	<p>The OMP includes defined responsibilities, scheduled annual compliance reporting to Commonwealth authorities, and measurable criteria such as habitat quality scores and pest activity levels. These facilitate effective governance, with auditing and enforcement enabled through compliance reporting and adaptive management frameworks.</p>

Table note:

1 Full acquittal of the offset requirements for the Project is achieved at 100% direct offsets as per the EPBC Act *Environmental Offset Policy 2012*.

7 Cost estimates

The effective delivery of the OMP requires comprehensive management activities aimed at achieving the proposed environmental outcomes and ensuring protection and improvement of the proposed offset site. These activities comprise initial baseline assessments, ongoing habitat restoration, pest and weed control, fire management, and monitoring and reporting to evaluate progress and inform adaptive management.

Table 7.1 and Table 7.2 provide a preliminary estimate of the anticipated costs associated with implementing the key management actions and follow-up monitoring outlined in the OMP. These cost estimates are intended to support financial planning and budgeting processes and reflect typical expenditure ranges based on comparable offset projects of similar scale and complexity.

It is important to note that actual costs may vary depending on site-specific conditions, contractor availability, regulatory requirements, and the intensity of management necessary to achieve offset objectives. Cost projections include allowances for adaptive management responses to address unforeseen challenges that may arise during the life of the offset.

This cost framework is designed to ensure that sufficient resources are allocated to support the effective and timely delivery of the management measures essential for offset success over the proposed 20-year timeframe.

Table 7.1 Implementation of the OMP

Management activity	Description	Frequency	Notes
Baseline surveys and assessments	Pest and weed surveys to establish baseline data	Once (Year 0)	-
Weed control and management	Targeted weed control, herbicide application, follow-up treatments	Annual	Intensive during early years, may taper later
Pest animal control	Pest trapping, baiting, monitoring of foxes, cats, dogs and cane toads	Ongoing annual programs	Includes trapping equipment, labour and monitoring
Habitat restoration	Planting, direct seeding, infill planting and canopy enhancement	Initial intensive (Years 1 to 5)	Includes plant stock, labour and site preparation
Planting maintenance	Maintenance planting and infill	Every 2 to 3 years (Years 6 to 20)	Repeat treatments to ensure survival
Fire management	Development and implementation of prescribed burning plans	2030, 2036, 2042	Fire management contractor and monitoring
Monitoring and reporting	Annual compliance monitoring, 5-yearly ecological condition surveys	Annual monitoring	Includes data collection, analysis and reporting
Adaptive management actions	Contingency responses from monitoring (e.g. targeted pest outbreak response)	As required	Estimated average over duration
Administration and management	Project management, stakeholder engagement, compliance reporting	Annual	Includes staff time, meetings and compliance reporting

Table 7.2 Estimated costs over 20 years

Category	Low estimate (AUD)	High estimate (AUD)
Baseline surveys	\$35,000	\$65,000
Weed management	\$300,000	\$425,000
Pest control	\$350,000	\$425,000
Vegetation restoration	\$175,000	\$300,000
Fire management	\$100,000	\$125,000
Monitoring and reporting	\$350,000	\$450,000
Adaptive management	\$200,000	\$325,000

Category	Low estimate (AUD)	High estimate (AUD)
Administration and management	\$200,000	\$350,000
Overall total	\$1,710,000	\$2,465,000

8 Conclusion

The OP has been developed in full accordance with the requirements set under the EPBC Act and the EPBC Act *Environmental Offsets Policy*. The OP presents an approach to compensating for the significant residual impacts on MNES arising from the Project, including the Coastal Swamp Sclerophyll Forest TEC and Koala habitat. The OP includes the provision of 18.5 ha for the proposed offset site.

Through the identification and protection of the Racecourse Road Reserve as the proposed offset site, the OP commits to delivering measurable and enduring conservation outcomes. By implementing targeted site management through an OMP, including habitat restoration, pest and weed control, and adaptive fire management, the offset will enhance and secure critical habitat values, connectivity, and ecological function beyond current baseline conditions.

The proposed offset exceeds the minimum legal requirements in terms of size, habitat quality improvement, and management intensity, thereby ensuring the principle of additionality is met. The establishment of a legally binding VDec under the *Vegetation Management Act 1999* (Qld) provides enduring protection for the proposed offset site for the life of the Project. Within 12 months of securing the VDec, SCC will establish a legally binding Environmental Statutory Covenant, securing the site for the life of the Project's EPBC Act Controlled Action Approval under the *Land Title Act 1994* (Qld). Ongoing monitoring and adaptive management strategies will safeguard offset success, mitigate risks, and provide transparent accountability to regulatory authorities.

The OP demonstrates that the Project significant residual impacts can be appropriately and effectively offset, supporting the long-term conservation and viability of the affected Coastal Swamp Sclerophyll Forest TEC and Koala habitat within the region.

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Appendix A

EPBC Act Offset Assessment Guide calculations for the MNES applicable to this Offset Proposal

Offsets Assessment Guide

For use in determining offsets under the Environment Protection and Biodiversity Conservation Act 1999
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	CSSF TEC
EPBC Act status	Endangered
Annual probability of extinction <small>Based on IUCN category definitions</small>	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	Yes		Area	2.09	Hectares	
			Quality	7	Scale 0-10	
			Total quantum of impact	1.46	Adjusted hectares	
<i>Threatened species habitat</i>						
Area of habitat	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species</i>						
Protected matter attributes						
Number of features e.g. Nest hollows, habitat trees						
Condition of habitat Change in habitat condition, but no change in extent						
Birth rate e.g. Change in nest success						
Mortality rate e.g. Change in number of road kills per year						
Number of individuals e.g. Individual plants/animals						

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
<i>Ecological Communities</i>																				
Area of community	Yes	1.46	Adjusted hectares	18.53	Risk-related time horizon (max. 20 years)	20	Start area (hectares)	18.53	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	2.34	159.64%	Yes	
						Future area without offset (adjusted hectares)	18.5	Future area with offset (adjusted hectares)	18.5											
						Time until ecological benefit	20	Start quality (scale of 0-10)	7	Future quality without offset (scale of 0-10)	6	Future quality with offset (scale of 0-10)								
<i>Threatened species habitat</i>																				
Area of habitat	No				Time over which loss is averted (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset		Risk of loss (%) with offset									
						Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0											
						Time until ecological benefit		Start quality (scale of 0-10)		Future quality without offset (scale of 0-10)		Future quality with offset (scale of 0-10)								
<i>Threatened species</i>																				
Protected matter attributes																				
Number of features e.g. Nest hollows, habitat trees																				
Condition of habitat Change in habitat condition, but no change in extent																				
Birth rate e.g. Change in nest success																				
Mortality rate e.g. Change in number of road kills per year																				
Number of individuals e.g. Individual plants/animals																				

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	0				\$0.00		\$0.00
Area of community	1.463	2.34	159.64%	Yes	\$0.00	N/A	\$0.00
					\$0.00	\$0.00	\$0.00

Offsets Assessment Guide

For use in determining offsets under the Environment Protection and Biodiversity Conservation Act 1999
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Koala
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes		Area	4.65	Hectares	
			Quality	5	Scale 0-10	
			Total quantum of impact	2.33	Adjusted hectares	
<i>Threatened species</i>						
Protected matter attributes						
Number of features e.g. Nest hollows, habitat trees						
Condition of habitat Change in habitat condition, but no change in extent						
Birth rate e.g. Change in nest success						
Mortality rate e.g. Change in number of road kills per year						
Number of individuals e.g. Individual plants/animals						

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
<i>Ecological Communities</i>																				
Area of community	No				Risk-related time horizon (max. 20 years)	Start area (hectares)	Risk of loss (%) without offset		Risk of loss (%) with offset											
							Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0										
							Time until ecological benefit		Start quality (scale of 0-10)		Future quality without offset (scale of 0-10)		Future quality with offset (scale of 0-10)							
<i>Threatened species habitat</i>																				
Area of habitat	Yes	2.33	Adjusted hectares	18.53	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	18.53	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%								
									Future area without offset (adjusted hectares)	18.5	Future area with offset (adjusted hectares)	18.5								
									Time until ecological benefit	20	Start quality (scale of 0-10)	5	Future quality without offset (scale of 0-10)	4	Future quality with offset (scale of 0-10)	6	2.00	80%	1.60	1.26
<i>Threatened species</i>																				
Protected matter attributes																				
Number of features e.g. Nest hollows, habitat trees																				
Condition of habitat Change in habitat condition, but no change in extent																				
Birth rate e.g. Change in nest success																				
Mortality rate e.g. Change in number of road kills per year																				
Number of individuals e.g. Individual plants/animals																				

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	2.325	2.34	100.45%	Yes	\$0.00	N/A	\$0.00
Area of community	0				\$0.00		\$0.00
					\$0.00	\$0.00	\$0.00

Appendix B

Profiles of protected matters applicable to the proposed offset site

Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland Threatened Ecological Community

The Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland threatened ecological community (Coastal Sclerophyll Swamp Forest TEC) includes the plants, animals and other organisms typically associated with forested palustrine wetlands, or swamp forests, found in the temperate to subtropical coastal valleys of Australia's east coast. The Coastal Sclerophyll Swamp Forest TEC often has a layered canopy, dominated by melaleucas and/or *Eucalyptus robusta*. The ecological community occurs between the Great Dividing Range and the coastline from near Gladstone in Queensland, through to the south coast of New South Wales.

The structure of the Coastal Swamp Sclerophyll Forest TEC varies from open woodland to closed forest with a crown cover of at least 10% and typically no more than 70%. The understorey has a diverse range of hydrophytic plants ranging from freshwater sedges, ferns and grasses.

The following key diagnostic characteristics from the Coastal Swamp Sclerophyll Forest TEC conservation advice (Department of Agriculture, Water and the Environment (DAWE) 2021a) identify the ecological community:

- Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW
- Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.
- Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.
- The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover is at least 10%, but it is more typically in the range 50% to 70%.
- The canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*.
- Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch
- The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period.

The main ongoing threats to this TEC include changed hydrological regimes, vegetation clearance, invasive fauna, impacts associated with fragmentation of remnants, disturbance from urbanisation and recreational activity, diseases and pathogens, altered fire regimes and weeds.

The Coastal Swamp Sclerophyll Forest TEC has been extensively cleared for development purposes because it primarily occurs on flat and relatively fertile soils. Clearing has dramatically decreased its extent, and the resulting fragmentation has made the TEC more vulnerable to threats such as weed invasion.

Weeds compete with native species for space, light, water and nutrients. They also suppress and out-compete mid-storey and canopy trees. Transformer weeds are highly invasive plants with the potential to seriously alter the structure and function of the TEC they invade, thereby 'transforming' them into a different system.

Urbanisation results in impacts such as the invasion of bushland by domestic dogs and cats, rubbish dumping, trampling, garden escapes, firewood collection, impacts from vehicles, the creation of informal trails, and arson. Urbanisation also increases pressure to reduce bushfire fuel loads that may be detrimental to the ecological community.

Koala

The Koala is a medium-sized, arboreal marsupial endemic to Australia, with a range from north-eastern Queensland to the southeast corner of South Australia.

Within Queensland, the highest density of the Koala population occurs in South East Queensland. Lower densities occur through central and eastern areas (Youngentob et al., 2021).

Koalas naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species and their habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland with emergent food trees. The distribution of this habitat is largely influenced by land elevation, annual temperature and rainfall patterns, soil types and the resultant soil moisture availability and fertility. Preferred food and shelter trees are naturally abundant on fertile clay soils.

In coastal lowlands in Queensland, Koalas are also found in vegetation communities dominated by Melaleuca or Casuarina species (Youngentob et al., 2021).

The following habitat critical to the survival of the species has also been defined in the species' conservation advice (DAWE 2022a):

- Whether the habitat is used during periods of stress (examples: flood, drought or fire)
- Whether the habitat is used to meet essential life cycle requirements (examples: foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes)
- The extent to which the habitat is used by important populations
- Whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development
- Whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements
- Whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation, and
- Any other way in which habitat may be critical to the survival of a listed threatened species or a listed threatened ecological community.

Koalas are folivores, feeding primarily during the dawn, dusk or night periods. The Koala's diet is restricted mainly to *Eucalyptus* spp.; however, they may also consume foliage of related genera (Family: Myrtaceae), including *Corymbia* spp., *Angophora* spp. and *Lophostemon* spp. (Youngentob et al., 2021).

Whilst Koalas maintain a defined home-range, they are not considered to be territorial, and there may be significant overlap in the distribution of home-ranges. Home range size is also variable with those occurring within poorer quality habitat, being relatively larger in size, when compared to those that are located within higher quality habitat.

Koalas have naturally low fecundity, with females potentially producing a single offspring a year, with births occurring within the warmer months of the year (e.g. October through to May). The estimated lifespan of wild Koalas is generally greater than 15 years in females and 12 years in males.

The main threats to the Koala include:

- Habitat loss and fragmentation
- Mortality associated with dog attacks and vehicle strikes
- Disease (i.e. Chlamydiosis)
- Climate change and drought
- Other threats such as Bell Miner Associated Dieback and Myrtle rust, both of which impact the health and quantity of available forage (DAWE, 2022).

Appendix C

Methodology to assess habitat quality

Modified Habitat Quality Assessment

For land-based offsets, the proposed offset site is measured by undertaking a habitat quality assessment in accordance with the EPBC Act Offset Assessment Guide (DCCEE 2023) and *How to use the Offsets Assessment Guide* (DSEWPC, 2012). The unpublished MHQA methodology (DCCEE 2024) was chosen as the preferred and most thorough method of assessing and comparing impact area and the proposed offset site. The MHQA adapts the methodology outlined in the Queensland *BioCondition Assessment Manual* (Version 2.2) (Queensland Herbarium, 2015) and the *Guide to determining terrestrial habitat quality* (Version 1.2) (Department of Environment and Science, 2020). The MHQA introduces an additional habitat factor, the species stocking rate, in order to satisfy the requirements of EPBC Act Offset Policy Principles. Further modifications include the changes to categorisation of the assessment criteria for species habitat indexes, as presented and justified in Appendix E and F.

The method utilises benchmark scores to ensure assessments are measured to a known standard, repeatable and consistent in determining habitat quality. Two rounds of habitat quality assessments were conducted at the impact area and at the proposed offset site by two suitably qualified ecologists in December 2024, and January/February 2025.

This MHQA approach is appropriate for Koala habitat as it quantifies available habitat features. Attributes such as the density of large trees, the quality and extent of foraging and shelter habitat, are weighted in scoring within each Assessment Unit (AU). Surveys for the Koala were incorporated into justification for species stocking rate attributes in accordance with *A review of Koala habitat assessment criteria and methods* (Youngentob et al., 2021). The specific methods deployed for Koala surveys located at the disturbance footprint included thermal drone surveys, bioacoustics monitoring and Koala scat detection dogs.

Initial confirmation that the Coastal Swamp Sclerophyll Forest TEC occurs within the proposed offset site was undertaken using the criteria identified in the key diagnostics and condition threshold outlined in the conservation advice (DAWE, 2021). The location of appropriate habitat for the Coastal Swamp Sclerophyll Forest TEC subject to this OP within the proposed offset site boundary is mapped in Figure C-1.

Assessment Units

In determining habitat quality scores, habitat areas are first delineated into AUs. An AU refers to an area or a group of areas within the target offset MNES (i.e. the proposed offset site or impact area) that is homogenous in vegetation community classification (i.e. Regional Ecosystem (RE)) and broad condition state (i.e. remnant, regrowth or non-remnant). Each AU reflects a particular community with similar structure, function and quality of habitat. Sampling sites were then selected for each AU and site-based attribute data and species habitat attribute data was collected at each sampling site.

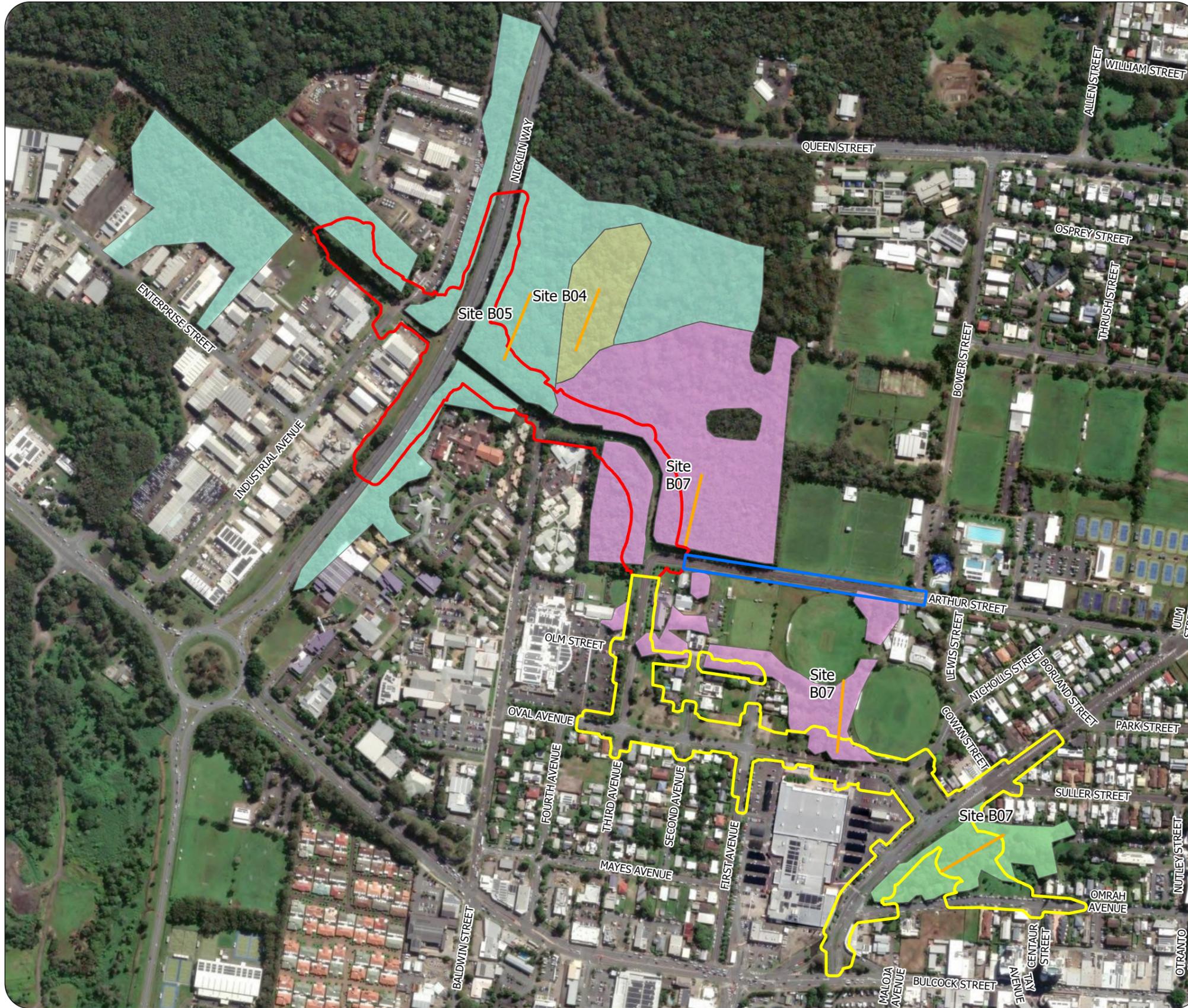
Vegetation assessments were undertaken in accordance with Neldner et al. (2022) and comprised quaternary assessments to determine REs and broad condition status. Sample site locations were chosen within a representative assessment unit. Assessment units consist of relatively homogeneous vegetation patches characterised by a distinct RE and broad condition state. For the impact area the following two AUs were observed:

- AU1 (2.31 ha) – representative of RE 12.9-10.14 (*Eucalyptus pilularis* tall open forest on sedimentary rocks) in a remnant broad condition status.
- AU 2 (1.43 ha) – representative of RE 12.2.7 (*Melaleuca quinquenervia* open forest on sand plains) in a remnant broad condition status

The broad condition status in both AU1 and AU2 was observed to be consistent throughout the boundary of the AUs respective extent (refer Figure C-1). The highest quality sections of the AU (e.g. areas away from edge effects and with little disturbance) were chosen to represent via the sampling transect sites. In accordance with the 'streamlining field sampling sites' of the *Guide to determining terrestrial habitat quality* (Version 1.2), photos were taken of the whole AU to demonstrate uniformity of condition. As a result, only one sampling transect site was conducted for each AU. In areas where habitat quality was lower than the sampling transect sites, the precautionary principle was employed and habitat quality for poorer quality areas were given the same values as the sampling transect site.

Within Racecourse Road Reserve, three assessment units were identified (refer Figure C-2). One of these units was found to be inconsistent with the habitat needed for the protected matters, and was therefore excluded from the proposed offset site. The other two assessment units were observed to be in alignment with the required habitat for the target offset MNES within the proposed offset site and are described as follows:

- AU3 (8.56 ha) – representative of RE 12.3.4 (*Melaleuca quinquenervia*, *Eucalyptus robusta* woodland on coastal alluvium) in a remnant broad condition status – two sampling transects were conducted in this AU
- AU4 (9.98 ha) – representative of RE 12.3.4 in a regrowth broad condition status – two sampling transects were conducted in this AU.



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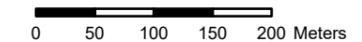


- Legend**
- Monitoring Sites
 - Assessment Unit
 - AU1
 - AU2
 - AU5
 - AU6
 - Disturbance Footprint
 - Work Package A
 - Work Package B
 - Work Package C

Revision: A

Date: 21/11/2025

A3 scale: 1:6,000



Caloundra Transport Corridor Upgrade

Figure C.1: Assessment Units in the Project Disturbance Footprint

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Project No: P522936 Map by: AT Export date: 21/11/2025



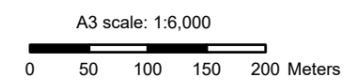
Service layers: City of Moreton Bay, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Data sources: Queensland Spatial Catalogue - 2023



- Legend**
- Monitoring Sites
 - Assessment Unit**
 - AU3
 - AU4
 - Proposed Offset site

Revision: A

Date: 21/11/2025



A3 scale: 1:6,000



Caloundra Transport Corridor Upgrade

Figure C.2: Assessment Units in the Proposed Offset Site

Habitat quality scoring

Sampling were completed using the methodologies described by the *Guide to determining terrestrial habitat quality* (Version 1.2) (Department of Environment and Science, 2017). The approach for assessing habitat quality for the Koala weighs habitat quality for species using three key indicators, including site context, site condition and species stocking rate, with the default ratios being 30%, 30% and 40%, respectively. The ratio at which these indicators make up a species overall habitat quality were adjusted based on a variety of factors, including:

- The cryptic nature and detectability of the species
- The species' stochastic or intermittent use of habitat
- The significance of specific attributes within the indicators (e.g. the quality and availability of food and foraging habitat, threats, patch size, and connectivity).

Table C.1 presents a summary of the indicator weightings with associated justification used in the assessment of habitat quality for each of the target offset MNES subject to this OP.

Table C.1 Habitat quality indicator weightings

Matter	Ratio	Justification
Coastal Swamp Sclerophyll Forest TEC	70% Site condition 30% Site context	Default weightings considered suitable based on community requirements.
Koala habitat	30% Site condition 30% Site context 40% Species stocking rate	Default weightings provided by DCCEEW for MHQA considered suitable based on species habitat requirements and detectability.

Site condition

Site condition data was collected within 100 m x 50 m areas (including various sub-plots) for each AU, weighted in accordance with the Terrestrial Habitat Quality Guide and compared to BioCondition benchmark values for the relevant RE benchmark (Queensland Herbarium, 2025). Quality and availability of food, foraging habitat and shelter was also incorporated into the assessment of site condition.

The quality assessments measured the following site-based condition attributes:

- Large trees
- Tree canopy height
- Recruitment of canopy species
- Tree canopy cover (%)
- Shrub layer cover (%)
- Coarse woody debris
- Non-native plant cover
- Native perennial grass cover (%)
- Native plant species richness for four lifeforms (trees, shrubs, grasses, forbs and other)
- Litter cover
- Quality and availability of food and foraging habitat (for fauna values only)
- Quality and availability of shelter (for fauna values only).

It should be noted that these attributes vary from the BioCondition framework and terrestrial habitat quality guidelines, as DCCEEW (2024) provides guidance to include 'Quality and availability of food and foraging habitat' and 'Quality and availability of shelter' (both for fauna values only) under the site condition assessment.

As the Project location occurs in South East Queensland, the subregion is considered as fragmented and therefore, landscape attributes, over distance to permanent water, were used to determine the landscape attribute score.

Site context

The habitat quality assessments measured the following landscape attributes for site context:

- Size of patch
- Context
- Connectivity
- Ecological corridors
- Role of site location to TEC overall population in the State
- Threats to the species.

It should be noted that these attributes vary from the BioCondition framework and terrestrial habitat quality guidelines, as DCCEEW (2024) provides guidance to include 'Threats', 'Role of the site location' and 'Species mobility capacity' under the site context assessment.

The landscape attributes were calculated and measured using the geospatial systems. The score was derived using calculations provided as prescribed in the *Guide to determining terrestrial habitat quality* (Version 1.2) (Department of Environment and Science, 2017). Site context examples of spatial extent are displayed in Appendix

Species stocking rate

Species stocking rates are established using results from surveys conducted with best-practice techniques designed to maximise detectability of the target species, as well as information about the species derived from peer reviewed studies and conservation advice. Surveys were deployed in optimal conditions and applied a survey effort in accordance with the relevant species' survey guidelines. For species with adequate population data, estimated density ranges were derived from database records. The following attributes were assessed for the species stocking rates:

- Presence detected on or adjacent to the site
- Species usage on the site
- Approximate density (per ha)
- Role/importance of species population on site, this attribute was broken down into the following sub-attributes:
 - Key source population for breeding
 - Key source population for dispersal
 - Necessary for maintaining genetic diversity
 - Near the limit of the species range.

The species stocking rate assessments are detailed in DCCEEW (2024). Justification of scores used for the assessment are provided in Appendix E and F.

Offset assessment guide

Information derived from the habitat quality assessment, together with an assessment of threatening process and estimates of time to achieve the offset objectives was used to inform the offset assessment guide for the target offset MNES subject to this OP. The EPBC Act *Environmental Offsets Policy* also applies habitat quality scores that:

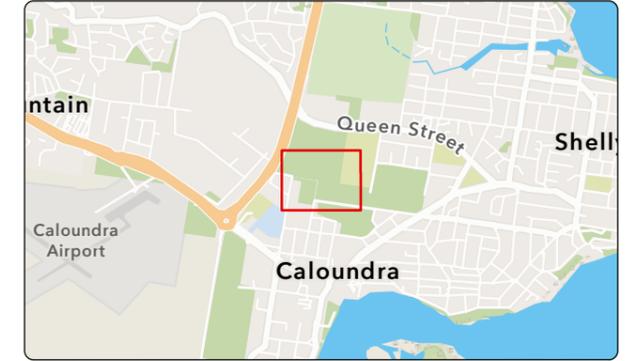
- Represent the quality of a defined area of threatened flora or species habitat using indicators that measure and combine relevant habitat attributes which influence the viability of the species.
- Are rounded to the nearest whole number (scores between 0 to 10).

Under the EPBC Act *Environmental Offsets Policy* framework, habitat quality score at both impact and land-based offset site(s) are applied in the offset calculation, using habitat quality score values which represent:

- The quality of the impact area – representing the impact area habitat quality score at the time of the EPBC Act controlled action assessment.
- The start quality of the offset site – representing the offset site habitat quality score at the time of the EPBC Act controlled action assessment (or commencement date in the case of advanced offsets).



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Legend

- - Connected to habitat vegetation
- - Connected to non-remnant vegetation
- Biocondition B07
- Assessment Unit 4
- Connected vegetation

Total Perimeter of the Assessment Unit:
1312.88 m

Length connected to habitat vegetation:
395.24 m (30% of the Assessment Unit)

Length connected to non-remnant vegetation:
917.65 m (70% of the Assessment Unit)

Revision: A

Date: 17/12/2025

A3 scale: 1:2,000



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Site context: Connectedness for transect B07



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Legend

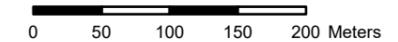
- Biocondition B07
- Koala home range - 100ha
- Assessment Unit 4
- Habitat vegetation

**Area of habitat within the buffer zone:
27.55 ha (27.55% of the buffer zone)**

Revision: A

Date: 17/12/2025

A3 scale: 1:5,184



Caloundra Transport Corridor Upgrade

Site context: Context for transect B07



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Legend

— Biocondition B07

▨ Patch Area for Transect B07

▭ Assessment Unit 4

Revision: A

Date: 17/12/2025

A3 scale: 1:3,500



Caloundra Transport Corridor Upgrade

Site context: Size of patch for transect B07



Legend

- Biocondition sites
- Connected to habitat
- Connected vegetation

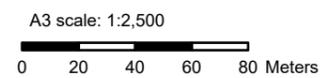
Total Perimeter of the Assessment Unit:
1,104.82 m
Length connected to habitat vegetation:
1,104.82 m (100% of the Assessment Unit)

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Revision: A

Date: 17/12/2025



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Site context: Connectedness for site B01



Legend

- Road
 - Biocondition sites
 - 1km buffer zone of site B01
 - ▨ Habitat within the buffer zone
- Assessment Unit**
- AU3
 - AU4

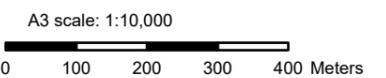
Area of B01 - 1km buffer zone: 314.16 ha
Area of habitat within the buffer zone: 190.82 ha (60.73% of the buffer zone)

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Revision: A

Date: 17/12/2025



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Site context: Context for site B01

Coordinate system: GDA2020 MGA Zone 56

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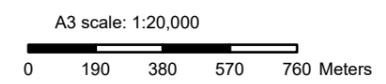


- Legend**
- Road
 - Biocondition sites
 - Patch area of site B01
- Assessment Unit**
- AU3
 - AU4

Project No: P522936 Map by: WF Export date: 17/12/2025 File path: \\Aurecon Group\522936 - Caloundra Transport Corridor Upgrade - GIS\Export

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Revision: A Date: 17/12/2025



Caloundra Transport Corridor Upgrade

Site context: Size of patch for site B01

Appendix D

Modified Habitat Quality Assessment results

IMPACT- Threatened Ecological Community
CSSF

Assessment Unit - Regional Ecosystem Site Reference	AU2				AU2			
	Benchmark 12.2.7	B07			Benchmark 12.2.7	B12		
		Raw Data	% Benchm.	Score		Raw Data	% Benchm.	Score
Site Condition								
Recruitment of woody perennial species in EDL	100	75	75%	3	100	33.3	33%	3
Native plant species richness - trees	3	3	100%	5	3	12	400%	5
Native plant species richness - shrubs	4	21	525%	5	4	3	75%	2.5
Native plant species richness - grasses	3	2	67%	2.5	3	1	33%	2.5
Native plant species richness - forbs	12	22	183%	5	12	9	75%	2.5
Tree canopy height (average of emergent, canopy and sub-canopy)	14	18			14	18		
Subcanopy height	9	10			9	0		
Tree Height	11.5	14	122%	5	11.5	9	78%	5
Tree canopy cover (average of emergent, canopy and sub-canopy)	60	40			60	73.5		
Subcanopy cover	21	25			21	0		
Tree Cover	40.5	32.5	80%	5	40.5	36.75	91%	5
Shrub canopy cover	15	50	333%	3	15	0.8	5%	0
Native grass cover	15	40.5	270%	5	15	2	13%	1
Organic litter	30	46	153%	5	30	44.4	148%	5
Large trees (euc plus non-euc)	125	116	93%	10	125	208	166%	15
Coarse woody debris	900	790	88%	5	900	0	0%	0
Non-native plant cover		0	0%	10		70	70%	0
Site Condition Score				68.5				46.5
MAX Site Condition Score				80				80
Site Condition Score - out of 7				5.99				4.07
Site Context & Species/TEC habitat index								
Size of patch				2				2
Connectedness				2				2
Context				2				2
Ecological Corridors				6				6
Role of site location to TEC overall population in the state				5				5
Changed hydrological regime (17%)				15				15
Native vegetation clearing (17%)				7				7
Fragmentation of remnants and habitats (16%)				7				15
Invasive fauna (5%)				15				15
Disturbance from urbanisation and recreational activity (10%)				1				1
Weed (10%)				7				1
Diseases and pathogens (5%)				7				7
Grazing pressures (5%)				15				15
Increased frequency of Bushfire (15%)				7				15
Threats to the species				7.44				8.04
Site Context Score				24.44				25.04
MAX Site Context Score				46				46
Site Context Score - out of 3				1.59				1.63

Final habitat quality score (weighted)	AU2	Final
Biocondition	B07	
Site Condition score (out of 7)	5.03	
Site Context Score (out of 3)	1.61	
Habitat Quality score (out of 10)	6.64	
Assessment Unit area (ha) in disturbance footprint	1.43	
Total impact area (ha) for this MNES	1.43	
Size Weighting	1.00	
Final score	6.64	7.00

rounded

IMPACT - Fauna Species
Koala

Assessment Unit - Regional Ecosystem	AU1					AU2					AU6									
Site Reference	Benchmark		B05			Benchmark		B07			Benchmark		B12			Benchmark		B11		
	12.9-10.14	Raw Data	% Benchmark	Score		12.2.7	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score	12.3.1a	Raw Data	% Benchmark	Score			
Recruitment of woody perennial species in EDL	100	100	100%	5		100	75	75.00%	5		100	33.3	33%	3	100	25	25%	3		
Native plant species richness - trees	7	7	100%	5		3	3	100.00%	5		3	12	400%	5	11	28	255%	5		
Native plant species richness - shrubs	12	23	192%	5		4	21	525.00%	5		4	3	75%	2.5	17	8	47%	2.5		
Native plant species richness - grasses	6	2	33%	2.5		3	2	66.67%	2.5		3	1	33%	2.5	1	0	0%	0		
Native plant species richness - forbes	16	24	150%	5		12	22	183.33%	5		12	9	75%	2.5	16	5	31%	2.5		
Tree canopy height	33	30				14	18				14	18			28	15.2				
Subcanopy height	16	18				9	10				9	0			8	0				
Tree Height	24.5	24	98%	5		11.5	14	122%	5		11.5	9	78%	5	18	7.6	42%	3		
Tree canopy cover	68	60				60	40				60	73.5			80	57				
Subcanopy cover	13	20				21	25				21	0			40	0				
Tree Cover	40.5	40	99%	5		40.5	32.5	80%	5		40.5	36.75	91%	5	60	28.5	48%	2		
Shrub canopy cover	14	20	143%	5		15	50	333.33%	3		15	0.8	5%	0	28	0.35	1%	0		
Native grass cover	36	8	22%	1		15	40.5	270.00%	5		15	2	13%	1	1	1	100%	5		
Organic litter	25	42	168%	5		30	46	153.33%	5		30	44.4	148%	5	30	33	110%	5		
Large trees (euc plus non-euc)	50	136	272%	15		125	116	92.80%	15		125	208	166%	15	150	20	13%	5		
Coarse woody debris	527	565	107%	5		900	790	87.78%	5		900	0	0%	0	295	0	0%	0		
Non-native plant cover		10	10%	5			0	0.00%	10			70	70%	0		63	63%	0		
Abundance of locally important koala habitat trees (LIKT) combined cover (sub-c		10					6					4				4				
Large trees		5					10					10				5				
Quality and availability of food and foraging habitat				9					6.8					5.2				4.2		
Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree) ≥10 cm DBH		10					7					4				4				
Large trees		5					10					10				5				
Quality and availability of shelter				9					7.6					5.2				4.2		
Site Condition Score				86.5					89.9					56.9				41.4		
MAX Site Condition Score				100					100					100				100		
Site Condition Score - out of 3				2.60					2.70					1.71				1.24		
Site Context																				
Size of patch				2					2		10.00		2		10			0		
Connectedness				2					2		5.00		2		5			0		
Context				2					2		5.00		2		5			2		
Ecological Corridors				6					6		6.00		6		6			6		
Role of site location to species overall population in the state				5					5		5.00		5					5		
Area occupied by predators (i.e. dogs) or vehicles (33.34%)		1					1					1			1					
Broadscale clearing/fragmentation or selective removal of canopy trees (33.33%)		7					7					7			7					
Increased frequency of Bushfire (33.33%)		7					7					15			15					
Threats to the species				5					5				7.666667					7.666667		
Species mobility capacity				4					4				4					4		
Site Context Score				26					26				28.66667					24.66667		
MAX Site Context Score				56					56				56					46		
Site Context Score - out of 3				1.39					1.39				1.54					1.61		

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5	10	0
		No	Yes - adjacent	Yes - on site	
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	
Approximate density (per ha)	Score	0	10	20	30
		0%			
Role/importance of species population on site*	Score (Total from supplementary)	0	5	10	15
		0	5 - 15	20 - 35	
Total SRR score (out of 70)					25
SRR Score (out of 4)					1.43

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	0
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Final habitat quality score (weighted)	AU1	AU2	AU6		
Site Condition score (out of 3)	2.60	2.20	1.24		
Site Context Score (out of 3)	1.39	1.46	1.61		
Species Stocking Rate Score (out of 4)	1.43	1.43	1.43		
Habitat Quality score (out of 10)	5.42	5.09	4.28		
Assessment Unit area (ha) in disturbance footprint	2.31	1.43	0.91		
Total impact area (ha) for this MNES	4.65	4.65	4.65		
Size Weighting	0.50	0.31	0.20		
Weighted Habitat Quality Score	2.69	1.57	0.84	5.09	5.00

ROUNDED

OFFSET - Threatened Ecological Community (meets TEC listing thresholds)

CSSF																
Assessment Unit - Regional Ecosystem																
Site Reference	Benchmark 12.3.4	AU3						AU4						B10		
		Site B01			Site B03			Site B02			Site B06					
		Raw Data	% Benchmark	Score	Raw Data	% Benchm.	Score	Raw Data	% Benchm.	Score	Raw Data	% Benchm.	Score	Raw Data	% Benchmark	Score
Site Condition																
Recruitment of woody perennial species in EDL	100	100	100%	5	50	50%	3	50	50%	3	100	100%	5	33.3	33%	3
Native plant species richness - trees	5	3	60%	2.5	2	40%	2.5	2	40%	2.5	5	100%	5	6	120%	5
Native plant species richness - shrubs	7	10	143%	5	15	214%	5	8	114%	5	13	186%	5	9	129%	5
Native plant species richness - grasses	1	1	100%	5	3	300%	5	2	200%	5	3	300%	5	1	100%	5
Native plant species richness - forbs	11	11	100%	5	10	91%	5	23	209%	5	13	118%	5	8	73%	2.5
Tree canopy height	17	11			15			9			12			3		
Subcanopy height	9	8			0			9			0			0		
Tree Height	13	9.5	73%	5	7.5	58%	3	9	69%	3	6	46%	3	1.5	12%	0
Tree canopy cover	59	10			15			24			25			31.15		
Subcanopy cover	25	45			0			0			0			0		
Tree Cover	42	27.5	65%	5	7.5	18%	2	12	29%	2	12.5	30%	2	15.575	37%	2
Shrub canopy cover	21	42.5	202%	3	60	286%	3	20	95%	5	40	190%	5	7.4	35%	3
Native grass cover	10	33.5	335%	5	61	610%	5	3	30%	1	5	50%	1	33.5	335%	5
Organic litter	33	48.5	147%	5	20	61%	5	2	6%	0	26	79%	5	9	27%	3
Large trees (euc plus non-euc)	141	10	7%	5	24	17%	5	42	30%	5	42	30%	5	2	1%	5
Coarse woody debris	508	225	44%	2	88	17%	2	0	0%	0	0	0%	0	0	0%	0
Non-native plant cover		0	0%	10	0	0%	10	6	6%	5	80	80%	0	50	50%	3
Site Condition Score				62.5			55.5			41.5			46			41.5
MAX Site Condition Score				80			80			80			80			80
Site Condition Score - out of 7				5.47			4.86			3.63			4.03			3.63
Site Context																
Size of patch				10			10			10			10			10
Connectedness				5			5			5			5			5
Context				4			4			4			4			4
Ecological Corridors				6			6			6			6			6
Role of site location to TEC overall population in the state				5			5			5			5			5
Changed hydrological regime (17%)		7			7			7			7			7		
Native vegetation clearing (17%)		7			7			7			7			7		
Fragmentation of remnants and habitats (16%)		1			1			1			1			1		
Invasive fauna (5%)		7			7			7			7			7		
Disturbance from urbanisation and recreational activity (10%)		1			1			1			1			1		
Weed (10%)		7			7			7			7			7		
Diseases and pathogens (5%)		15			15			15			15			15		
Grazing pressures (5%)		15			15			15			15			15		
Increased frequency of Bushfire (15%)		1			1			1			1			1		
Threats to the species				12.09			12.09			12.09			12.09			12.09
Site Context Score				42.09			42.09			42.09			42.09			42.09
MAX Site Context Score				46			46			46			46			46
Site Context Score - out of 3				2.75			2.75			2.75			2.75			2.75

UPDATED CALCS

Final habitat quality score (weighted)	AU3	AU4	Final
Site Condition score (out of 7)	5.16	3.76	
Site Context Score (out of 3)	2.75	2.75	
Habitat Quality score (out of 10)	7.91	6.51	
Assessment Unit area (ha)	8.56	9.98	
Total offset area (ha) for this MNES	18.54	18.54	
Size Weighting	0.46	0.54	
Weighted Habitat Quality Score	3.65	3.50	7.15

rounded

OFFSET - Fauna Species

Koala

Assessment Unit - Regional Ecosystem	AU3									AU4								
Site Reference	B.mark	Site B01			Site B03			Site B02			Site B06			B10				
	12.3.4	Raw Data	% B.mark	Score														
Site Condition																		
Recruitment of woody perennial species in EDL	100	100	100%	5	50	50%	3	50	50%	3	100	100%	5	33.3	33%	3		
Native plant species richness - trees	5	3	60%	2.5	2	40%	2.5	2	40%	2.5	5	100%	5	6	120%	5		
Native plant species richness - shrubs	7	10	143%	5	15	214%	5	8	114%	5	13	186%	5	9	129%	5		
Native plant species richness - grasses	1	1	100%	5	3	300%	5	2	200%	5	3	300%	5	1	100%	5		
Native plant species richness - forbes	11	11	100%	5	10	91%	5	23	209%	5	13	118%	5	8	73%	2.5		
Tree canopy height	17	11			15			9			12			3				
Subcanopy height	9	8						9			0			0				
Tree Height	13	9.5	73%	5	7.5	58%	3	9	69%	3	6	46%	3	1.5	12%	0		
Tree canopy cover	59	10			15			24			25			31.15				
Subcanopy cover	25	45			0			0			0			0				
Tree Cover	42	27.5	65%	5	7.5	18%	2	12	29%	2	12.5	30%	2	15.575	37%	2		
Shrub canopy cover	21	42.5	202%	3	60	286%	3	20	95%	5	40	190%	5	7.4	35%	3		
Native grass cover	10	33.5	335%	5	61	610%	5	3	30%	1	5	50%	1	64.4	644%	5		
Organic litter	33	48.5	147%	5	20	61%	5	2	6%	0	26	79%	5	9	27%	3		
Large trees (euc plus non-euc)	141	10	7%	5	24	17%	5	42	30%	5	42	30%	5	2	1%	5		
Coarse woody debris	508	225	44%	2	88	17%	2	0	0%	0	0	0%	0	0	0%	0		
Non-native plant cover	0	0	0%	10	0	0%	10	6	6%	5	80	80%	0	50	50%	3		
Abundance of locally important koala habitat trees (LIKT) combined cover (sub-canopy, ca		4			4			4			4			4				
Large trees (20%)		5			5			5			5			5				
Quality and availability of food and foraging habitat				4.2			4.2			4.2			4.2			4.2		
Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree) ≥10 cm DBH within ass		4			4			7			7			7				
Large trees (20%)		5			5			5			5			5				
Quality and availability of shelter				4.2			4.2			6.6			6.6			6.6		
Site Condition Score				70.9			63.9			52.3			56.8			52.3		
MAX Site Condition Score				100			100			100			100			100		
Site Condition Score - out of 3				2.13			1.92			1.57			1.70			1.57		
Site Context																		
Size of patch				10			10			10			10			10		
Connectedness				5			5			5			5			5		
Context				4			4			4			4			4		
Ecological Corridors				6			6			6			6			6		
Role of site location to species overall population in the state				5			5			5			5			5		
Area occupied by predators (i.e. dogs) or vehicles (33.34%)				7			7			7			7			7		
Broadscale clearing/fragmentation or selective removal of canopy trees (33.33%)				7			7			7			7			7		
Increased frequency of Bushfire (33.33%)				1			1			1			1			1		
Threats to the species				5			5			5			5			5		
Species mobility capacity				7			7			7			7			7		
Site Context Score				42			42			42			42			42		
MAX Site Context Score				56			56			56			56			56		
Site Context Score - out of 3				2.25			2.25			2.25			2.25			2.25		

Species Stocking Rate (SSR)				Site score		
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5	10	5	
		No	Yes - adjacent	Yes - on site		
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15	5
		Not habitat	Dispersal	Foraging	Breeding	
Approximate density (per ha)	Score	0	10	20	30	10
		0				
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5	10	15	0
		0	5 - 15	20 - 35	40 - 45	
Total SRR score (out of 70)					20	
SRR Score (out of 4)					1.14	



*SSR Supplementary Table				Score
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	0
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Final habitat quality score (weighted)	AU3	AU4	Final
Site Condition score (out of 3)	2.02	1.61	
Site Context Score (out of 3)	2.25	2.25	
Species Stocking Rate Score (out of 4)	1.14	1.14	
Habitat Quality score (out of 10)	5.41	5.00	
Assessment Unit area (ha)	8.56	9.98	
Total offset area (ha) for this MNES	18.54	18.54	
Size Weighting	0.46	0.54	
Weighted Habitat Quality Score	2.50	2.69	5.19

rounded

Appendix E

Modified Habitat Quality Assessment attribution documentation and justification

CSSF TEC Scoring Methodology

Key Habitat Values	KHV Weighting	Criteria	Criteria Weighting	Indicator	Indicator Weighting	Components	Component Weighting	Score options	Scoring Guidance	Score	Justification	
Site condition	70%	BioCondition	100%	Recruitment of woody perennial species in EDL	According to maximum scores	-	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	As per MHQA	/5	As per MHQA	
				Native plant species richness - trees		-	-			/5		
				Native plant species richness - shrubs		-	-			/5		
				Native plant species richness - grasses		-	-			/5		
				Native plant species richness - forbs		-	-			/5		
				Tree Height		Tree canopy height	50%			/5		
						Subcanopy height	50%			/5		
				Tree Cover		Tree canopy cover	50%			/5		
						Subcanopy cover	50%			/5		
				Shrub canopy cover		-	-			/5		
				Native grass cover		-	-			/5		
				Organic litter		-	-			/5		
				Large trees		-	-			/15		
				Coarse woody debris		-	-			/5		
Non-native plant cover	-	-	/10									
Site Context & TEC habitat index	30%	Site Context	56.52%	Size of patch	According to maximum scores	-	-	In accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017) and BioCondition Assessment Manual (Eyre et al. 2015)	Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017)	/10	Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017)	
				Connectedness		-	-			/5		
				Context		-	-			/5		
				Ecological Corridors		-	-			/6		
				Role of site location to TEC overall population in the state	According to maximum scores					1	/5	Where the site meets the Key diagnostic criteria and condition thresholds it will be critical to the community survival. Where it does not meet either , but has the potential to meet it will be likely to be critical to the species' survival. Where it does not have the potential to meet either KDC or condition threshold it will be classed as unlikely to be critical to the species survival.
										4		
										5		
				Habitat index	43.48%	Threats to the TEC	According to maximum scores	Changed hydrological regime	17%	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017) and Threats identified in the Conservation advice for the CSSF (DAWE 2021)	/15	As per MHQA and the threats to the species as per the conservation advice for the CSSF TEC. Threats such as climate change that do not relate to the proposed action have not been considered for the site. Threats have been weighted according to their level of threat for the TEC
		Native vegetation clearing	17%									
		Fragmentation of remnants and habitats	16%									
		Invasive fauna	5%									
		Disturbance from urbanisation and recreational activity	10%									
		Weed	10%									
		Diseases and pathogens	5%									

					Grazing pressures	5%		
					Increased frequency of Bushfire	15%		

Koala Scoring Methodology

Key Habitat Values	KHV Weighting	Criteria	Criteria Weighting	Indicator	Indicator Weighting	Components	Component Weighting	Score options	Scoring Guidance	Score	Justification			
Site condition	30%	BioCondition	80%	Recruitment of woody perennial species in EDL	According to maximum score	-	-	As per the MHQA (Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))		/5	As per MHQA			
				Native plant species richness - trees		-	-			/5				
				Native plant species richness - shrubs		-	-			/5				
				Native plant species richness - grasses		-	-			/5				
				Native plant species richness - forbs		-	-			/5				
				Tree Height		Tree canopy height	50%			/5				
						Subcanopy height	50%			/5				
				Tree Cover		Tree canopy cover	50%			/5				
						Subcanopy cover	50%			/5				
				Shrub canopy cover		-	-			/5				
				Native grass cover		-	-			/5				
				Organic litter		-	-			/5				
				Large trees		-	-			/15		As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017). Raw data values have been doubled to be able to compare to the benchmark value per BioCondition Assessment Manual (Eyre et al. 2015)		
		Coarse woody debris	-	-	/5	As per the MHQA (Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))								
		Non-native plant cover	-	-	/10									
				Species habitat condition	20%	Quality and availability of food and foraging habitat	50%		80%	0	No LIKTs present	/10	As described by Youngentob et al. (2021), LIKTs within the south east Queensland bioregion. Cover of LIKT is in relation to only the LIKT's and not the cover of the Ecologically dominant layer.	
										2	LIKT species present but only juvenile trees (less than 10cm Diameter at Breast Height) present			
										4	LIKT species present with <20% cover			
										6	LIKT species present with ≥ 20-50% cover			
										10	LIKT tree species present with ≥ 50% cover			
Large trees	20%					0		no large trees	/10	Larger trees provide greater quality of foraging opportunities for the Koala. Larger trees will provide a greater abundance and better-quality foliage for foraging.				
						5		0-50% of BioCondition benchmark						
						10		>50% of BioCondition benchmark						
Quality and availability of shelter	50%							50%	0		0-10% cover of LIKT and ancillary tree species	/10		The > 10cm DBH threshold and list of ancillary species was derived from a review of koala habitat assessment criteria and methods (Youngentob et al., 2021). Cover should be the combined LIKT and Ancillary habitat tree cover and excluding the cover of all other species. Where LIKT and Ancillary cover is likely to exceed 80% habitat type is unlikely to be either woodland or forest which typically have 5-
									4		10-20% cover of LIKT and ancillary tree species OR >80% cover of LIKT and ancillary tree species			
				7	21-50% cover of LIKT and ancillary tree species									
				10	>50% cover of LIKT and ancillary tree species									
Large trees	50%					0	no large trees	/10	Larger trees offer more shelter opportunities for koalas, with bigger limbs and more branches available for them to shelter in (for example, koalas can use the trunk and branches to protect themselves from sun and wind) (Moore and Foley 2005, Gallahar et al 2021, Callahan et al 2011).					
		5	0-50% of BioCondition benchmark											
		10	>50% of BioCondition benchmark											

Koala Scoring Methodology

Key Habitat Values	KHV Weighting	Criteria	Criteria Weighting	Indicator	Indicator Weighting	Components	Component Weighting	Score options	Scoring Guidance	Score	Justification			
Site Context & species habitat index	30%	Site Context	51%	Size of patch	38.46%	-	-	In accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017) and BioCondition Assessment Manual (Eyre et al. 2015)	/10	/5	As per MHQA			
				Connectedness	19.23%	-	-							
				Context	19.23%	-	-							
				Ecological Corridors	23.08%	-	-							
		Habitat index	49%			Role of site location to species overall population in the state	17%	-	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	/5	/10	As per MHQA	
						Species Mobility Capacity	33.34%	1	-	-	1			Severely Restricted - The site is functionally isolated from all other suitable Koala habitat in the landscape. 76-100% reduction in capacity by major, continuous barriers such as wide, high-speed roads or rail without crossing structures, large areas of permanent clearing (2km wide), barbwire fencing, or major water bodies.
								4	-	-	4			Highly Restricted - Movement is partially restricted by one or more significant barriers that reduce connectivity and increase mortality risk (51-75% reduction in capacity). Barriers are present (e.g., busy secondary roads, buildings or wide cleared paddocks) that periodically or incompletely restrict movement but do not completely isolate a population.
								7	-	-	7			Movement is mostly unconstrained, but minor barriers or limiting factors exist. Connectivity is generally good. Barriers are typically low-impact (e.g., narrow, low-traffic roads, tracks, or minor fencing) that may pose a low-level reduction to mobility (26-50%). Movement paths may contain dense groundcover or have low canopy cover but are still utilised.
								10	-	-	10			The site is fully connected and forms an integral part of a larger, viable Koala habitat network. Movement is unconstrained by natural or artificial barriers (e.g., 0-5% reduction in capacity). Movement corridors are wide, continuous, and safe, allowing for full dispersal and genetic exchange with the broader Koala population.
								-	-	-	-			

Koala Scoring Methodology

Key Habitat Values	KHV Weighting	Criteria	Criteria Weighting	Indicator	Indicator Weighting	Components	Component Weighting	Score options	Scoring Guidance	Score	Justification
Site Context & species habitat index (cont'd)	30%	Habitat index	49%	Threats to species*	26.79%	Encounter mortality with predators (i.e. dogs) or vehicles	33%	1	High risk in the region (1km radius). High-density urban/peri-urban area. Numerous database records of wild dogs. Numerous or high-speed (80km+) roads without koala fencing.	/15	Weightings for each threat have been determined as per the risk rating of each threat from Table 1 of the Conservation Advice for Koala (DCCEEW, 2022) and with consideration of the local area (including impact and offset area)
						7		Moderate risk in the region (1km). Low-to-medium density residential or peri-urban fringe area. Koala movement corridors are near established residential areas with moderate dog ownership/density. Infrequent wild dog sightings. Secondary or low-speed (60km) streets present in the area.			
						15		Low risk in the region (1km). Rural/ conservation area with very low human/ dog density. Low to no wild dog records; large, contiguous, safe habitat. Few or no roads or quiet/low speed (50 or below streets).			
						Broadscale clearing/fragmentation or selective removal of canopy trees	33%	1	High risk in region (1km) Pervasive Clearing / Fragmentation. The site is/surrounded by isolated patches (<1 ha) with a high edge-to-area ratio, completely surrounded by non-habitat (e.g., intensive agriculture, urban development, or extensive clearing). The canopy has been heavily and selectively cleared. No protected areas (National Parks).	/15	
						7		Moderate risk in region (1km). Fragmentation is widespread but not pervasive (25-75%). Some potential fauna corridors exist and connect the site. The surrounding area contains a mix of non-habitat and smaller, fragmented patches (1-5 ha). Selective clearing has created gaps in the canopy, but key structural trees are mostly retained. Some protected areas may occur.			
						15		Low Risk in Region (1km). Broadscale clearing is minimal and primarily historic. The site is part of a large, contiguous habitat patch (e.g., >50 ha) or is well-connected to such a block by corridors. Selective clearing is absent or historic. Protected areas occur or are contiguous with the site. Protections exist on site to prevent development.			

Koala Scoring Methodology

Key Habitat Values	KHV Weighting	Criteria	Criteria Weighting	Indicator	Indicator Weighting	Components	Component Weighting	Score options	Scoring Guidance	Score	Justification	
Site Context & species habitat index (cont'd)	30%	Habitat index	49%	Threats to species	26.79%	Increased frequency of Bushfire	20%	1	High risk in the region (1km radius). Extreme Fire Risk and Consequence. The site is located in an area with a historically high frequency of severe, high-intensity fires (e.g., on a cycle of <5 years), or the habitat type (e.g., dry sclerophyll forest) is highly fire-susceptible (e.g. stringbark presence). No recent or existing fire management strategy or mitigation is in place (e.g., no fire breaks/fuel reduction). Fuel within and surrounding the site is high.	/15		
								7	Moderate risk in the region (1km radius). The site is in an area with a moderate fuel load and unplanned bushfire frequency (e.g., on a cycle of 10–20 years). A basic fire management strategy is in place, but may not cover the entire site effectively. Refugia areas (e.g., riparian zones) are limited or not highly accessible during a severe fire event.			
								15	Low risk in the region (1km radius). The site is in an area with historically low fire frequency (e.g., >25 years between major unplanned bushfire events), is within a wet forest/rainforest habitat type with low combustibility, or a built up urban area with low tree cover and maintained gardens. A comprehensive and actively maintained fire management plan (e.g., fire breaks, managed burns) is in place, refugia areas are easily accessible to koalas.			
Stocking Rate	40%	Presence detected on or adjacent to site (neighbouring property with connecting habitat)	14.29%	As per the MHQA							/10	
		Species usage of the site (habitat type)	21.43%								/15	
											0	

Species		42.86%					
	Approximate density (per ha)				20	10-20 koalas records on site or within 5 km ² (ALA, 2025) or 2 to 3 koalas recorded within or immediately surrounding the offset area	/30
	Role/importance of species population on site	21.43%	As per the MHQA		30	>20 koala desktop records within site or 5 km ² (ALA, 2025), or ≥4 koalas within or immediately surrounding the offset area	/15

Koala Habitat Quality Scoring

Impact Site -Koala

Key habitat value	Habitat Criteria	Indicator	Scoring guidance	Indicator weighting	Indicator score per assessment unit			Justification
					AU1	AU2	AU6	
Koala								
Species habitat condition	Quality and availability of food and foraging habitat	Abundance of locally important koala habitat trees (LIKT) combined cover (sub-canopy, canopy, emergent)	<ul style="list-style-type: none"> ■ 0 = No LIKTs present ■ 2 = LIKT species present but only juvenile trees (less than 10cm Diameter at Breast Height) present ■ 4 = LIKT species present with <20% cover ■ 6 = LIKT species present with ≥ 20-50% cover ■ 10 = LIKT tree species present with ≥ 50% cover 	80%	10	5	4	Eucalyptus pilularis was dominant in AU1, whilst AU2 had more Melaleuca. AU6 have less than 20% cover
		Large trees	<ul style="list-style-type: none"> ■ 0 = no large trees ■ 5 = 0-50% of benchmark ■ 10 = >50% of benchmark 	20%	5	10	5	Larger trees provide greater quality of foraging opportunities for the Koala. Larger trees will provide a greater abundance and better-quality foliage for foraging.
	Quality and availability of shelter habitat	Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree) ≥10 cm DBH within assessment area	<ul style="list-style-type: none"> ■ 0 = 0-10% cover of LIKT and ancillary tree species ■ 4 = 10-20% cover of LIKT and ancillary tree species (>10cm DBH). OR >80% cover of LIKT and ancillary tree species ■ 7 = 21-50% cover of LIKT and ancillary tree species (>10cm DBH). ■ 10 = 50-80% cover of LIKT and ancillary tree species (>10cm DBH). 	80%	10	5	4	Eucalyptus pilularis was dominant in AU1, whilst AU2 had more Melaleuca. AU6 have less than 20% cover of LIKT and ancillary trees
		Large trees	<ul style="list-style-type: none"> ■ 0 = no large trees ■ 5 = 0-50% of benchmark ■ 10 = >50% of benchmark 	20%	5	10	5	Tall trees (>10 m) were available on the impact area site.
	Threats to species	Area occupied by predators (i.e. dogs) or vehicles	Each individual threat was scored in accordance with Guide to determining terrestrial habitat quality Version 1.2, where threats are categorised as follows: <ul style="list-style-type: none"> ■ High level of threat = 1 ■ Moderate level of threat = 7 ■ Low level of threat = 15 	30%	1	1	1	Domestic dogs are common in the area within residential dwelling surrounding the impact area. High traffic vehicle use due to the State-controlled road of Nicklin Way and local roads.
		Broadscale clearing/fragmentation or selective removal of canopy trees		30%	7	7	7	Broadscale clearing has occurred in the area.
Weed infestations that restrict movement			20%	7	11	1	Currently the impact area has weed coverage, including presence of potentially invasive species such as ochna and green panic	

Koala Habitat Quality Scoring

		Increased frequency of Bushfire	20%	7	7	15	Currently the impact area has had no recent burns and contains large amounts of fuel loads, being that it is close to an urban area, it could be subject to deliberate or accidental ignitions.
Habitat index	Species mobility capacity	-	<ul style="list-style-type: none"> ■ 1 = Severely Restricted - The site is functionally isolated from all other suitable Koala habitat in the landscape. 76-100% reduction in capacity by major, continuous barriers such as wide, high-speed roads or rail without crossing structures, large areas of permanent clearing (2km wide), barbwire fencing, or major water bodies. 	100%	4		The area surrounding the impact area is highly fragmented, with roads and urbanisation.
			<ul style="list-style-type: none"> ■ 4 = Highly Restricted - Movement is partially restricted by one or more significant barriers that reduce connectivity and increase mortality risk (51-75% reduction in capacity). Barriers are present (e.g., busy secondary roads, buildings or wide cleared paddocks) that periodically or incompletely restrict movement but do not completely isolate a population. ■ 7 = Movement is mostly unconstrained, but minor barriers or limiting factors exist. Connectivity is generally good. Barriers are typically low-impact (e.g., narrow, low-traffic roads, tracks, or minor fencing) that may pose a low-level reduction to mobility (26-50%). Movement paths may contain dense groundcover or have low canopy cover but are still utilised. ■ 10 = The site is fully connected and forms an integral part of a larger, viable Koala habitat network. Movement is unconstrained by natural or artificial barriers (e.g., 0-5% reduction in capacity). Movement corridors are wide, continuous, and safe, allowing for full dispersal and genetic exchange with the broader Koala population. 				

Koala Habitat Quality Scoring

Species stocking rate	Approximate density (per ha)	Koala records on ALA within the last 5 years and 5km ² or koalas recorded within or properties adjacent to the offset area ² .	<ul style="list-style-type: none"> ■ 0 = no koala records ■ 10 = 1-10 koala desktop records within 5 km² (ALA, 2025), or 1 koala recorded within the offset area or immediately surrounding the offset area ■ 20 = 10-20 koalas desktop records within 5 km² (ALA, 2025) or 2 to 3 koalas recorded within or immediately surrounding the offset area ■ 30 = >20 koala desktop records within 5 km² (ALA, 2025) or ≥4 koalas or immediately surrounding the offset area 	100%	10	Within a 5 km radius of the impact area there is only 1 Koala sighting within the last 5 years. No Koalas have been recorded within or surrounding the impact area
	Presence detected on or adjacent to site (neighbouring property with connecting habitat)	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	100%	0	The following targeted surveys were conducted for the species: thermal drone surveys, Koala detection dog surveys, and spotlighting. No Koalas were observed occupying the habitat within or surrounding the impact area.
	Species usage of the site (habitat type and evidenced usage)	-		100%	15	The impact area will be removing potential foraging and breeding habitat that was present within the disturbance footprint.
	Role/importance of species population on site	-		100%	0	Considering the overall patch size and lack of connectivity, the habitat found on the impact area is unlikely to be a key source for maintaining for genetic diversity, breeding or dispersal. The Caloundra landscape region has been identified by the SCC as a low conservation priority for Koala populations and habitat ranking (SCC 2022). The species is not at the limit of its range.

Koala Habitat Quality Scoring

Offset Site - Koala

Key habitat indicator	Habitat Criteria	Indicator	Scoring guidance	Indicator weighting	Indicator score per assessment unit		Justification
					AU3	AU4	
Koala							
Species habitat condition	Quality and availability of food and foraging habitat	Abundance of locally important koala habitat trees (LIKT) combined cover (sub-canopy, canopy, emergent)	<ul style="list-style-type: none"> ■ 0 = No LIKTs present ■ 2 = LIKT species present but only juvenile trees (less than 10cm Diameter at Breast Height) present ■ 4 = LIKT species present with <20% cover ■ 6 = LIKT species present with ≥ 20-50% cover ■ 10 = LIKT tree species present with ≥ 50% cover 	80%	4	4	As described by Youngentob et al. (2021), LIKTs within the South-East Queensland bioregion comprises: <i>Corymbia citriodora</i> , <i>C. henryi</i> , <i>Eucalyptus acmenoides</i> , <i>E. andrewsii</i> , <i>E. baileyana</i> , <i>E. bancroftii</i> , <i>E. brownii</i> , <i>E. camaldulensis</i> , <i>E. campanulata</i> , <i>E. carnea</i> , <i>E. crebra</i> , <i>E. deanei</i> , <i>E. decorticans</i> , <i>E. drepanophylla</i> , <i>E. dunnii</i> , <i>E. dura</i> , <i>E. eugenioides</i> , <i>E. exserta</i> , <i>E. fibrosa</i> , <i>E. grandis</i> , <i>E. hallii</i> , <i>E. helidonica</i> , <i>E. laevopinea</i> , <i>E. latisinensis</i> , <i>E. longirostrata</i> , <i>E. major</i> , <i>E. melanophloia</i> , <i>E. microcarpa</i> , <i>E. microcorys</i> , <i>E. moluccana</i> , <i>E. obliqua</i> , <i>E. ochrophloia</i> , <i>E. orgadophila</i> , <i>E. planchoniana</i> , <i>E. populnea</i> , <i>E. portuensis</i> , <i>E. propinqua</i> , <i>E. psammitica</i> , <i>E. punctata</i> , <i>E. racemosa</i> , <i>E. resinifera</i> , <i>E. robusta</i> , <i>E. saligna</i> , <i>E. seeana</i> , <i>E. siderophloia</i> , <i>E. sideroxylon</i> , <i>E. tereticornis</i> and <i>E. tindaliae</i> . Preferred food tree species were derived from the National Recovery Plan for the Koala. The following food tree species were observed within the canopy of both AUs: <i>Eucalyptus</i> spp. and <i>Lophostemon</i> spp..
		Large trees	<ul style="list-style-type: none"> ■ 0 = no large trees ■ 5 = 0-50% of benchmark ■ 10 = >50% of benchmark 	20%	5	5	Larger trees provide greater quality of foraging opportunities for the Koala. Larger trees will provide a greater abundance and better-quality foliage for foraging.
	Quality and availability of shelter habitat	Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree) ≥10 cm DBH within assessment area	<ul style="list-style-type: none"> ■ 0 = 0-10% cover of LIKT and ancillary tree species ■ 4 = 10-20% cover of LIKT and ancillary tree species (>10cm DBH). OR >80% cover of LIKT and ancillary tree species ■ 7 = 21-50% cover of LIKT and ancillary tree species (>10cm DBH). ■ 10 = 50-80% cover of LIKT and ancillary tree species (>10cm DBH). 	80%	7	7	The > 10 cm DBH threshold and list of ancillary species was derived from a review of koala habitat assessment criteria and methods (Youngentob et al., 2021).
		Large trees	<ul style="list-style-type: none"> ■ 0 = no large trees ■ 5 = 0-50% of benchmark ■ 10 = >50% of benchmark 	20%	5	5	Larger trees offer more shelter opportunities for koalas, with bigger limbs and more branches available for them to shelter in. (For example, koalas can use the trunk and branches to protect themselves from sun and wind). Tall trees (>10 m) are found on the offset site.

Koala Habitat Quality Scoring

Threats to species	Area occupied by predators (i.e. dogs) or vehicles	<p>Each individual threat was scored in accordance with Guide to determining terrestrial habitat quality Version 1.2, where threats are categorised as follows:</p> <ul style="list-style-type: none"> ■ High level of threat = 1 ■ Moderate level of threat = 7 ■ Low level of threat = 15 	30%	7	7	Wild dogs have the potential to be within the offset site, although presence would be rare. The offset site is located 250 m from Racecourse Road which is a moderately busy 4-lane road.
	Broadscale clearing/fragmentation or selective removal of canopy trees		30%	15	15	Broadscale clearing has occurred in the area, however is a fairly low threat in a reserve.
	Weed infestations that restrict movement		20%	15	15	Currently the offset site has a large coverage of South African pigeon grass which can restrict movement for the Koala.
	Increased frequency of Bushfire		20%	7	7	Currently the offset site has a large coverage of South African pigeon grass which can create hot fires that could reach into the canopy via fuel laddering (i.e. facilitation of fire to climb upwards into the canopy by using grasses, weeds, etc).
	Species mobility capacity	-	<ul style="list-style-type: none"> ■ 1 = Severely Restricted - The site is functionally isolated from all other suitable Koala habitat in the landscape. 76-100% reduction in capacity by major, continuous barriers such as wide, high-speed roads or rail without crossing structures, large areas of permanent clearing (2km wide), barbwire fencing, or major water bodies. ■ 4 = Highly Restricted - Movement is partially restricted by one or more significant barriers that reduce connectivity and increase mortality risk (51-75% reduction in capacity). Barriers are present (e.g., busy secondary roads, buildings or wide cleared paddocks) that periodically or incompletely restrict movement but do not completely isolate a population. ■ 7 = Movement is mostly unconstrained, but minor barriers or limiting factors exist. Connectivity is generally good. Barriers are typically low-impact (e.g., narrow, low-traffic roads, tracks, or minor fencing) that may pose a low-level reduction to mobility (26-50%). Movement paths may contain dense groundcover or have low canopy cover but are still utilised. 	100%	7	The area surrounding the proposed offset site does not provide major barrier to movement, with only a few roads and urbanisation present.
Habitat index						

Koala Habitat Quality Scoring

			<ul style="list-style-type: none"> ■ 10 = The site is fully connected and forms an integral part of a larger, viable Koala habitat network. Movement is unconstrained by natural or artificial barriers (e.g., 0–5% reduction in capacity). Movement corridors are wide, continuous, and safe, allowing for full dispersal and genetic exchange with the broader Koala population. 			
Species stocking rate	Approximate density (per ha)	Koala records on ALA within the last 5 years and 5km ² or koalas recorded within or properties adjacent to the offset area ² .	<ul style="list-style-type: none"> ■ 0 = no koala records ■ 10 = 1-10 koala desktop records within 5 km² (ALA, 2025) or 1 koala recorded within the offset area or immediately surrounding the offset area ■ 20 = 10-20 koalas desktop records within 5 km² (ALA, 2025) or 2 to 3 koalas recorded within or immediately surrounding the offset area ■ 30 = >20 koala desktop records within 5 km² (ALA, 2025) or ≥4 koalas or immediately surrounding the offset area 	100%	10	Within a 5 km radius of the offset site there is only 1 koala sighting within the last 5 years. No Koalas have been recorded within or immediately adjacent.
	Presence detected on or adjacent to site (neighbouring property with connecting habitat)	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	100%	5	No Koala were observed in the proposed offset site, however the species was assumed to be present adjacent to the site using habitat as a proxy for the species.
	Species usage of the site (habitat type and evidenced usage)	-		100%	5	Foraging habitat was observed to be present at the proposed offset site. Preferred food tree species were derived from the Locally Important Koala Trees (LIKT) as per definitions listed in a review of koala habitat assessment criteria and methods (Youngentob et al., 2021).
	Role/importance of species population on site	-		100%	0	The habitat found on the proposed offset site as it currently stands is unlikely to be important for maintaining genetic diversity. As a foraging location, the site includes LIKT as per definitions listed in a review of koala habitat assessment criteria and methods (Youngentob et al., 2021), however only one species and in low densities. The proposed offset site contains scattered <i>Eucalyptus robusta</i> , but most dominated by the ancillary tree <i>Melaleuca quinquenervia</i> . The habitat in its current condition is unlikely to be a key source for breeding or dispersal and therefore unlikely to be important for maintaining genetic diversity. The species is not at the limit of its range.

Impact Site - CSSF TEC

Key habitat indicator	Habitat Criteria	Indicator	Indicator weighting	Scoring guidance	Indicator score (AU2)	Justification	Criteria score	
CSSF TEC								
Habitat index	Role of site location to TEC overall population in the state	-	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	-	The patch located at the impact site meets the key diagnostic characteristics and condition thresholds as per the conservation advice of the TEC.	5/5	
	Threats to the TEC	Changed hydrological regime		17%	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017) and Threats identified in the Conservation advice for the CSSF (DAWE 2021). Please note that when indicator score does not equal 1, 7 or 15 this has occurred due to averaging differing scores on biocondition transects for the same AU.	15	The site shows historical changes in flow patterns (altered drainage) causing minor compositional shifts in the vegetation. The impact is significant but not yet catastrophic to the TEC's core structure.	7.74/15
		Native vegetation clearing		17%		7	While the historical clearing events have occurred with ongoing, associated disruptions	
		Fragmentation of remnants and habitats		16%		15	The patches were fragmented however the size of the remnant is large enough and the surrounding land use is benign enough that negative edge effects (e.g., wind, light, weeds external disturbance) are minimal and contained.	
		Invasive fauna		5%		15	Due to the urban fragmented nature of the site it unlikely for feral animals to persist	
		Disturbance from urbanisation and recreational activity		10%		1	The TEC is located nearby to urban areas, Public use of Ben Bennett Park is high.	

	Weed	10%	4		
	Diseases and pathogens	5%	7		
	Grazing pressures	5%	15		
	Increased frequency of Bushfire	15%	11		

Offset Site - CSSF TEC

Key habitat indicator	Habitat Criteria	Indicator	Indicator weighting	Scoring guidance	Indicator score per assessment unit		Justification	Criteria score
					AU3	AU4		
CSSF TEC								
Habitat index	Role of site location to TEC overall population in the state	-	-	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017))	-	-		5/5
	Threats to the TEC	Changed hydrological regime	17%	As per the MHQA (i.e. in accordance with Queensland Guide to Determining Terrestrial Habitat Quality Version 1.2 (DEHP 2017) and Threats identified in the Conservation advice for the CSSF (DAWE 2021). Please note that when indicator score does not equal 1, 7 or 15 this has occurred due to averaging differing scores on biocondition transects for the same AU.	7	7		12.09/15
		Native vegetation clearing	17%		Average: 7			
		Fragmentation of remnants and habitats	16%		7	7		
		Invasive fauna	5%		Average: 7			
		Disturbance from urbanisation and recreational activity	10%		1	1		
		Weed	10%		Average: 1			
		Diseases and pathogens	5%		7	7		
		Grazing pressures	5%		Average: 7			
		Increased frequency of Bushfire	15%		15	15		
					Average: 15			
					15	15		
					Average: 15			
		1	1					
		Average: 1						

Koala EPBC calculator inputs		
Time over which loss is averted (max. 20 years)	20 years	As per the EPBC offset calculator inputs to achieve offset for the species
Time until ecological benefit	20 years	As per the EPBC offset calculator inputs to achieve offset for the species
Risk of loss (%) without offset	0%	In line with the Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act (NESP 2017)
Risk of loss (%) with offset	0%	In line with the Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act (NESP 2017)
Confidence in result (%)	80%	An 80% "confidence in result" value in the EPBC calculator for the Koala is justified by the provisions of the Offset Management Plan. This plan includes clear and measurable performance targets, such as improving habitat quality scores over a defined period, which are based on ecological principles. These management actions are further supported by the corrective actions and adaptive management plan that provides specific triggers for a failure to reach set milestones within the life of the offset. This ensures continuous monitoring and the flexibility to adjust management strategies, effectively mitigating risks and providing a high degree of certainty that the conservation outcomes for the Koala will be achieved.

Future quality without offset	5	The future quality of the offset will likely decrease from a 5 to a 4 due to the unchecked spread of <i>Setaria sphacelata</i> (South African pigeon grass) and its detrimental effect on the native ecosystem. The lack of an offset management plan and subsequent weed management actions will allow this invasive species to outcompete and harm the native Melaleuca canopy, particularly during stochastic unplanned bushfire events.
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CSSF TEC EPBC calculator inputs		
Time over which loss is averted (max. 20 years)	20 years	As per the EPBC offset calculator inputs to achieve offset for the TEC
Time until ecological benefit	20 years	As per the EPBC offset calculator inputs to achieve offset for the TEC
Risk of loss (%) without offset	0%	In line with the Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act (NESP 2017)
Risk of loss (%) with offset	0%	In line with the Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act (NESP 2017)

Confidence in result (%)	80%	<p>An 80% "confidence in result" value in the EPBC calculator for the TEC is justified by the provisions of the Offset Management Plan. This plan includes clear and measurable performance targets, such as improving habitat quality scores over a defined period, which are based on ecological principles. These management actions are further supported by the corrective actions and adaptive management plan that provides specific triggers for a failure to reach set milestones within the life of the offset. This ensures continuous monitoring and the flexibility to adjust management strategies, effectively mitigating risks and providing a high degree of certainty that the conservation outcomes for the Koala will be achieved.</p>
Future quality without offset	6	<p>The future quality of the offset will likely decrease from a 7 to a 6 due to the unchecked spread of <i>Setaria sphacelata</i> (South African pigeon grass) and its detrimental effect on the native ecosystem. The lack of an offset management plan and subsequent weed management actions will allow this invasive species to outcompete and harm the native Melaleuca canopy, particularly during stochastic unplanned bushfire events.</p>

Weighted habitat quality score at Impact site

Current CSSF Score											
Assessment Unit (AU)	AU2										
Average site condition score (out of 7)	5.03										
Average site context score (out of 3)	1.61										
Habitat quality score (out of 10)	6.64										
AU area (ha)	1.43										
Total impact area (ha) for this MNES	1.43										
Size weighting	1.00										
Weighted habitat quality score at Impact site	6.64										
MNES weighted habitat score	6.64										

Current Koala Score											
Assessment Unit (AU)	AU1	AU2	AU6								
Site Condition score (out of 3)	2.60	2.20	1.24								
Site Context Score (out of 3)	1.39	1.46	1.61								
Species Stocking Rate Score (out of 4)	1.43	1.43	1.43								
Habitat quality score (out of 10)	5.42	5.09	4.28								
AU area (ha)	2.31	1.43	0.91								
Total impact area (ha) for this MNES	4.65	4.65	4.65								
Size weighting	0.50	0.31	0.20								
Weighted habitat quality score at Impact site	2.69	1.57	0.84								
MNES weighted habitat score	5.10										

Weighted habitat quality score at Offset site

Current CSSF Score			Future CSSF Score with Offset 15 years								
Assessment Unit (AU)	AU3	AU4	Assessment Unit (AU)	AU3	AU4						
Average site condition score (out of 7)	5.16	3.76	Average site condition score (out of 7)	5.36	5.28						
Average site context score (out of 3)	2.75	2.75	Average site context score (out of 3)	3.10	2.95						
Habitat quality score (out of 10)	7.91	6.51	Habitat quality score (out of 10)	8.46	8.23						
AU area (ha)	8.56	9.98	AU area (ha)	8.56	9.98						
Total impact area (ha) for this MNES	18.54	18.54	Total impact area (ha) for this MNES	18.54	18.54						

OFFSET- Threatened Ecological Community

Assessment Unit	AU3																
Site Reference	Benchmark	Site B01								Site B03							
Site Condition	12.3.4	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)
Recruitment of woody perennial species in EDL	100	100	100%	5	5	5	5	5	5	50	50%	3	3	3	5	5	3
Native plant species richness - trees	5	3	60%	2.5	2.5	2.5	5	5	2.5	2	40%	2.5	2.5	2.5	2.5	5	2.5
Native plant species richness - shrubs	7	10	143%	5	5	5	5	5	5	15	214%	5	5	5	5	5	5
Native plant species richness - grasses	1	1	100%	5	5	5	5	5	5	3	300%	5	5	5	5	5	5
Native plant species richness - forbs	11	11	100%	5	5	5	5	5	5	10	91%	5	5	5	5	5	5
Tree canopy height	17	11								15							
Subcanopy height	9	8								0							
Tree Height	13	9.5	73%	5	5	5	5	5	5	7.5	58%	3	3	3	3	3	3
Tree canopy cover	59	10								15							
Subcanopy cover	25	45								0							
Tree Cover	42	27.5	65%	5	5	5	5	5	5	7.5	18%	2	2	2	2	5	2
Shrub canopy cover	21	42.5	202%	3	3	3	3	5	0	60	286%	3	3	3	3	5	0
Native grass cover	10	33.5	335%	5	5	5	5	5	1	61	610%	5	5	5	5	5	1
Organic litter	33	48.5	147%	5	5	5	5	5	5	20	61%	5	5	5	5	5	5
Large trees	141	10	7%	5	5	5	5	5	5	24	17%	5	5	5	5	5	5
Coarse woody debris	508	225	44%	2	2	2	2	5	2	88	17%	2	2	2	2	5	2
Non-native plant cover	0	0	0%	10	10	10	10	10	3	0	0%	10	10	10	10	10	3
Site Condition Score				62.5	62.5	62.5	65	70	48.5			55.5	55.5	55.5	57.5	68	41.5
MAX Site Condition Score				80	80	80	80	80	80			80	80	80	80	80	80
Site Condition Score - out of 7				5.47	5.47	5.47	5.69	6.13	4.24			4.86	4.86	4.86	5.03	5.95	3.63
Site Context																	
Size of patch				10	10	10	10	10	10			10	10	10	10	10	10
Connectedness				5	5	5	5	5	5			5	5	5	5	5	5
Context				4	4	4	4	4	4			4	4	4	4	4	4
Ecological Corridors				6	6	6	6	6	6			6	6	6	6	6	6
Role of site location to TEC overall population in the state				5	5	5	5	5	5			5	5	5	5	5	5
Changed hydrological regime (17%)				7	7	7	7	7	7			7	7	7	7	7	7
Native vegetation clearing (17%)				7	15	15	15	15	7			7	15	15	15	15	7
Fragmentation of remnants and habitats (16%)				1	15	15	15	15	1			1	15	15	15	15	1
Invasive fauna (5%)				7	7	7	15	15	7			7	7	7	15	15	7
Disturbance from urbanisation and recreational activity (10%)				1	7	7	7	7	1			1	7	7	7	7	1
Weed (10%)				7	7	7	15	15	1			7	7	7	15	15	1
Diseases and pathogens (5%)				15	15	15	15	15	15			15	15	15	15	15	15
Grazing pressures (5%)				15	15	15	15	15	15			15	15	15	15	15	15
Increased frequency of Bushfire (15%)				1	1	1	1	1	1			1	1	1	1	1	1
Threats to the species				12.09	16.29	16.29	17.49	17.49	11.49			12.09	16.29	16.29	17.49	17.49	11.49
Site Context Score				42.09	46.29	46.29	47.49	47.49	41.49			42.09	46.29	46.29	47.49	47.49	41.49
MAX Site Context Score				46	46	46	46	46	46			46	46	46	46	46	46
Site Context Score - out of 3				2.75	3.02	3.02	3.10	3.10	2.71			2.75	3.02	3.02	3.10	3.10	2.71

Assessment Unit	AU4															
Site Reference	Site B02								Site B06							
Site Condition	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset	Future score without offset
Recruitment of woody perennial species in EDL	50	50%	3	3	5	5	5	3	100	100%	5	5	5	5	5	5
Native plant species richness - trees	2	40%	2.5	2.5	3	5	5	2.5	5	100%	5	5	5	5	5	5
Native plant species richness - shrubs	8	114%	5	5	5	5	5	5	13	186%	5	5	5	5	5	5
Native plant species richness - grasses	2	200%	5	5	5	5	5	5	3	300%	5	5	5	5	5	5
Native plant species richness - forbs	23	209%	5	5	5	5	5	5	13	118%	5	5	5	5	5	5
Tree canopy height	9							5	12						5	0
Subcanopy height	9							0	0						5	0
Tree Height	9	69%	3	3	3	5	5	3	6	46%	3	3	3	3	3	3
Tree canopy cover	24							5	25						5	0
Subcanopy cover	0							5	0						5	0
Tree Cover	12	29%	2	2	2	5	5	2	12.5	30%	2	2	2	5	5	2
Shrub canopy cover	20	95%	5	5	5	5	5	3	40	190%	5	5	5	5	5	3
Native grass cover	3	30%	1	1	3	3	3	1	5	50%	1	1	3	3	3	0
Organic litter	2	6%	0	3	3	3	3	0	26	79%	5	5	5	5	5	3
Large trees	42	30%	5	5	5	5	5	5	42	30%	5	5	5	5	5	5
Coarse woody debris	0	0%	0	2	2	2	5	0	0	0%	0	2	2	2	5	0
Non-native plant cover	6	6%	5	3	3	5	10	0	80	80%	0	3	3	5	10	0
Site Condition Score			41.5	44.5	49	58	66	34.5			46	51	53	58	66	41
MAX Site Condition Score			80	80	80	80	80	80			80	80	80	80	80	80
Site Condition Score - out of 7			3.63	3.89	4.29	5.08	5.78	3.02			4.03	4.46	4.64	5.08	5.78	3.59
Site Context																
Size of patch			10	10	10	10	10	10			10	10	10	10	10	10
Connectedness			5	5	5	5	5	5			5	5	5	5	5	5
Context			4	4	4	4	4	4			4	4	4	4	4	4
Ecological Corridors			6	6	6	6	6	6			6	6	6	6	6	6
Role of site location to TEC overall population in the state			5	5	5	5	5	5			5	5	5	5	5	5
Changed hydrological regime (17%)			7	7	7	7	7	7			7	7	7	7	7	7
Native vegetation clearing (17%)			7	15	15	15	15	7			7	15	15	15	15	7
Fragmentation of remnants and habitats (16%)			1	1	1	1	1	1			1	1	1	1	1	1
Invasive fauna (5%)			7	7	7	15	15	7			7	7	7	15	15	7
Disturbance from urbanisation and recreational activity (10%)			1	7	7	7	7	1			1	7	7	7	7	1
Weed (10%)			7	7	15	15	15	1			7	7	15	15	15	1
Diseases and pathogens (5%)			15	15	15	15	15	15			15	15	15	15	15	15
Grazing pressures (5%)			15	15	15	15	15	15			15	15	15	15	15	15
Increased frequency of Bushfire (15%)			1	1	1	7	7	1			1	1	1	7	7	1
Threats to the species			12.09	14.05	14.85	16.15	16.15	11.49			12.09	14.05	14.85	16.15	16.15	11.49
Site Context Score			42.09	44.05	44.85	46.15	46.15	41.49			42.09	44.05	44.85	46.15	46.15	41.49
MAX Site Context Score			46	46	46	46	46	46			46	46	46	46	46	46
Site Context Score - out of 3			2.75	2.87	2.93	3.01	3.01	2.71			2.75	2.87	2.93	3.01	3.01	2.71

Assessment Unit	AU4							
Site Reference	B10							
Site Condition	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)
Recruitment of woody perennial species in EDL	33.3	33%	3	3	3	5	5	3
Native plant species richness - trees	6	120%	5	5	5	5	5	5
Native plant species richness - shrubs	9	129%	5	5	5	5	5	5
Native plant species richness - grasses	1	100%	5	5	5	5	5	5
Native plant species richness - forbs	8	73%	2.5	2.5	3	5	5	2.5
Tree canopy height	3							
Subcanopy height	0							
Tree Height	1.5	12%	0	3	3	5	0	0
Tree canopy cover	31.15							
Subcanopy cover	0							
Tree Cover	15.575	37%	2	2	2	5	5	2
Shrub canopy cover	7.4	35%	3	3	5	5	5	3
Native grass cover	33.5	335%	5	5	5	5	5	1
Organic litter	9	27%	3	3	3	3	3	3
Large trees	2	1%	5	5	5	5	5	5
Coarse woody debris	0	0%	0	2	2	2	2	0
Non-native plant cover	50	50%	3	10	10	10	10	0
Site Condition Score			41.5	53.5	56	65	60	34.5
MAX Site Condition Score			80	80	80	80	80	80
Site Condition Score - out of 7			3.63	4.68	4.90	5.69	5.25	3.02
Site Context								
Size of patch			10	10	10	10	10	10
Connectedness			5	5	5	5	5	5
Context			4	4	4	4	4	4
Ecological Corridors			6	6	6	6	6	6
Role of site location to TEC overall population in the state			5	5	5	5	5	5
Changed hydrological regime (17%)			7	7	7	7	7	7
Native vegetation clearing (17%)			7	15	15	15	15	7
Fragmentation of remnants and habitats (16%)			1	1	1	1	1	1
Invasive fauna (5%)			7	7	7	7	15	7
Disturbance from urbanisation and recreational activity (10%)			1	1	1	1	15	1
Weed (10%)			7	7	7	7	15	7
Diseases and pathogens (5%)			15	15	15	15	15	15
Grazing pressures (5%)			15	15	15	15	15	15
Increased frequency of Bushfire (15%)			1	1	1	1	1	1
Threats to the species			12.09	13.45	13.45	13.45	16.05	12.09
Site Context Score			42.09	43.45	43.45	43.45	46.05	42.09
MAX Site Context Score			46	46	46	46	46	46
Site Context Score - out of 3			2.75	2.83	2.83	2.83	3.00	2.75

Current score

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	5.16	3.76		
Site Context Score (out of 3)	2.75	2.75		
Habitat Quality score (out of 10)	7.91	6.51		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	3.65	3.50	7.15	7.00

5 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	5.16	4.35		
Site Context Score (out of 3)	3.02	2.86		
Habitat Quality score (out of 10)	8.18	7.21		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	3.78	3.88	7.66	8.00

10 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	5.16	4.61		
Site Context Score (out of 3)	2.93	2.89		
Habitat Quality score (out of 10)	8.09	7.50		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	3.73	4.04	7.77	8.00

15 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	5.36	5.28		
Site Context Score (out of 3)	3.10	2.95		
Habitat Quality score (out of 10)	8.46	8.23		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	3.90	4.43	8.33	8.00

20 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	5.58	5.60		
Site Context Score (out of 3)	3.10	3.01		
Habitat Quality score (out of 10)	8.68	8.61		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	4.01	4.63	8.64	9.00

No offset

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	2.87	3.21		
Site Context Score (out of 3)	2.48	2.72		
Habitat Quality score (out of 10)	5.35	5.93		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	2.47	3.19	5.66	6.00

OFFSET - KOALA Species

Assessment Unit	AU3																
Site Reference	B.mark	Site B01								Site B03							
Site Condition	12.3.4	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)
Recruitment of woody perennial species in EDL	100	100	100%	5	5	5	5	5	5	50	50%	3	3	3	5	5	3
Native plant species richness - trees	5	3	60%	2.5	2.5	2.5	5	5	2.5	2	40%	2.5	2.5	2.5	2.5	5	2.5
Native plant species richness - shrubs	7	10	143%	5	5	5	5	5	5	15	214%	5	5	5	5	5	5
Native plant species richness - grasses	1	1	100%	5	5	5	5	5	5	3	300%	5	5	5	5	5	5
Native plant species richness - forbes	11	11	100%	5	5	5	5	5	5	10	91%	5	5	5	5	5	5
Tree canopy height	17	11								15							
Subcanopy height	9	8								0							
Tree Height	13	9.5	73%	5	5	5	5	5	5	7.5	58%	3	3	3	3	3	3
Tree canopy cover	59	10	17%	2						15	25%	2					
Subcanopy cover	25	45	180%	5						0	0%	0					
Tree Cover	42	27.5	65%	5	5	5	5	5	5	7.5	18%	2	2	2	2	5	2
Shrub canopy cover	21	42.5	202%	3	3	3	3	5	0	60	286%	3	3	3	3	5	0
Native grass cover	10	33.5	335%	5	5	5	5	5	1	61	610%	5	5	5	5	5	1
Organic litter	33	48.5	147%	5	5	5	5	5	5	20	61%	5	5	5	5	5	5
Large trees	141	10	7%	5	5	5	5	5	5	24	17%	5	5	5	5	5	5
Coarse woody debris	508	225	44%	2	2	2	2	5	2	88	17%	2	2	2	2	5	2
Non-native plant cover	0	0	0%	10	10	10	10	10	3	0	0%	10	10	10	10	10	3
Abundance of locally important koala habitat trees (LIKT) combined		4			4	4	6	6	4	4			4	4	6	6	4
Large trees (20%)		5			5	5	5	10	5	5			5	5	5	10	5
Quality and availability of food and foraging habitat				4.2	4.2	4.2	5.8	6.8	4.2			4.2	4.2	4.2	5.8	6.8	4.2
Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree)		4			4	4	6	6	4	4			4	4	6	6	4
Large trees (20%)		5			5	5	5	10	5	5			5	5	5	10	5
Quality and availability of shelter				4.2	4.2	4.2	5.8	6.8	4.2			4.2	4.2	4.2	5.8	6.8	4.2
Site Condition Score				70.9	70.9	70.9	76.6	83.6	56.9			63.9	63.9	63.9	69.1	81.6	49.9
MAX Site Condition Score				100	100	100	100	100	100			100	100	100	100	100	100
Site Condition Score - out of 3				2.13	2.13	2.13	2.30	2.51	1.71			1.92	1.92	1.92	2.07	2.45	1.50
Site Context																	
Size of patch				10	10	10	10	10	10			10	10	10	10	10	10
Connectedness				5	5	5	5	5	5			5	5	5	5	5	5
Context				4	4	4	4	4	4			4	4	4	4	4	4
Ecological Corridors				6	6	6	6	6	6			6	6	6	6	6	6
Role of site location to species overall population in the state				5	5	5	5	5	5			5	5	5	5	5	5
Area occupied by predators (i.e. dogs) or vehicles (33.34%)				7	7	7	15	15	7			7	7	7	15	15	7
Broadscale clearing/fragmentation or selective removal of canopy trees (33.33%)				1	15	15	15	15	15			1	15	15	15	15	15
Increased frequency of Bushfire (33.33%)				1	1	1	7	7	1			1	1	1	7	7	1
Threats to the species				5	8	8	12	12	5			5	8	8	12	12	5
Species mobility capacity				7	7	7	7	7	7			7	7	7	7	7	7
Site Context Score				42	44.67	44.67	49.33	49.33	42.00			42.00	44.67	44.67	49.33	49.33	42
MAX Site Context Score				56	56	56	56	56	56			56	56	56	56	56	56
Site Context Score - out of 3				2.25	2.39	2.39	2.64	2.64	2.25			2.25	2.39	2.39	2.64	2.64	2.25

Assessment Unit	AU4															
Site Reference	Site B02					Site B06										
Site Condition	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)
Recruitment of woody perennial species in EDL	50	50%	3	3	5	5	5	3	100	100%	5	5	5	5	5	5
Native plant species richness - trees	2	40%	2.5	2.5	3	5	5	2.5	5	100%	5	5	5	5	5	5
Native plant species richness - shrubs	8	114%	5	5	5	5	5	5	13	186%	5	5	5	5	5	5
Native plant species richness - grasses	2	200%	5	5	5	5	5	5	3	300%	5	5	5	5	5	5
Native plant species richness - forbes	23	209%	5	5	5	5	5	5	13	118%	5	5	5	5	5	5
Tree canopy height	9								12							
Subcanopy height	9								0							
Tree Height	9	69%	3	5	5	5	5	3	6	46%	3	5	5	5	5	3
Tree canopy cover	24	41%	2						25	42%	2					
Subcanopy cover	0	0%	0						0	0%	0					
Tree Cover	12	29%	2	2	2	5	0	2	12.5	30%	2	2	2	5	0	2
Shrub canopy cover	20	95%	5	5	5	5	5	3	40	190%	5	5	5	5	5	3
Native grass cover	3	30%	1	1	3	3	3	1	5	50%	1	1	3	3	3	0
Organic litter	2	6%	0	3	3	3	3	0	26	79%	5	5	5	5	5	3
Large trees	42	30%	5	5	5	5	5	5	42	30%	5	5	5	5	5	5
Coarse woody debris	0	0%	0	2	2	2	5	0	0	0%	0	2	2	2	5	0
Non-native plant cover	6	60%	0	3	3	5	10	0	80	80%	0	3	3	5	10	0
Abundance of locally important koala habitat trees (L	4			4	4	6	6	4	4			4	4	6	6	4
Large trees (20%)	5			5	5	5	10	5	5			5	5	5	10	5
Quality and availability of food and foraging habitat			4.2	4.2	4.2	5.8	6.8	4.2			4.2	4.2	4.2	5.8	6.8	4.2
Cover of suitable Koala shelter trees (LIKT or Ancilla	7			7	7	7	7	7	7			7	7	7	7	4
Large trees (20%)	5			5	5	5	5	5	5			5	5	5	5	5
Quality and availability of shelter			6.6	6.6	6.6	6.6	6.6	6.6			6.6	6.6	6.6	6.6	6.6	4.2
Site Condition Score			47.3	57.3	61.8	70.4	74.4	45.3			56.8	63.8	65.8	72.4	76.4	49.4
MAX Site Condition Score			100	100	100	100	100	100			100	100	100	100	100	100
Site Condition Score - out of 3			1.42	1.72	1.85	2.11	2.23	1.36			1.70	1.91	1.97	2.17	2.29	1.48
Site Context																
Size of patch			10	10	10	10	10	6			10	10	10	10	10	6
Connectedness			5	5	5	5	5	5			5	5	5	5	5	5
Context			4	4	4	4	4	7			4	4	4	4	4	7
Ecological Corridors			6	6	6	6	6	7			6	6	6	6	6	7
Role of site location to species overall population in the state			5	5	5	5	5	1			5	5	5	5	5	1
Area occupied by predators (i.e. dogs) or vehicles (33.34%)			7	7	7	15	15	7			7	7	7	15	15	7
Broadscale clearing/fragmentation or selective removal of canopy trees (33.33%)			7	15	15	15	15	7			7	15	15	15	15	7
Increased frequency of Bushfire (33.33%)			1	1	1	7	7	1			1	1	1	7	7	1
Threats to the species			5	8	8	12	12	5			5	8	8	12	12	5
Species mobility capacity			7	7	7	7	7	7			7	7	7	7	7	7
Site Context Score			42	44.67	44.67	49.33	49.33	38.00			42.00	44.67	44.67	49.33	49.33	38.00
MAX Site Context Score			56	56	56	56	56	56			56	56	56	56	56	56
Site Context Score - out of 3			2.25	2.39	2.39	2.64	2.64	2.04			2.25	2.39	2.39	2.64	2.64	2.04

Assessment Unit	AU4								
Site Reference	B10								
Site Condition	Raw Data	% B.mark	Score	Future score with offset (5 yrs)	Future score with offset (10 yrs)	Future score with offset (15 yrs)	Future score with offset (20 yrs)	Future score without offset (20 yrs)	
Recruitment of woody perennial species in EDL	33.3	33%	3	3	3	5	5	3	
Native plant species richness - trees	6	120%	5	5	5	5	5	5	
Native plant species richness - shrubs	9	129%	5	5	5	5	5	5	
Native plant species richness - grasses	1	100%	5	5	5	5	5	5	
Native plant species richness - forbes	8	73%	2.5	2.5	3	5	5	2.5	
Tree canopy height	3								
Subcanopy height	0								
Tree Height	1.5	12%	0	5	5	5	5	0	
Tree canopy cover	31.15	53%	5						
Subcanopy cover	0	0%	0						
Tree Cover	15.575	37%	2	2	2	5	5	2	
Shrub canopy cover	7.4	35%	3	3	5	5	5	3	
Native grass cover	64.4	644%	5	5	5	5	5	1	
Organic litter	9	27%	3	3	3	3	3	3	
Large trees	2	1%	5	5	5	5	5	5	
Coarse woody debris	0	0%	0	2	2	2	2	0	
Non-native plant cover	50	50%	3	10	10	10	10	0	
Abundance of locally important koala habitat trees (L	4			4	4	6	6	4	
Large trees (20%)	5			5	5	5	10	5	
Quality and availability of food and foraging habitat			4.2	4.2	4.2	5.8	6.8	4.2	
Cover of suitable Koala shelter trees (LIKT or Ancilla	7			7	7	7	7	4	
Large trees (20%)	5			5	5	5	5	5	
Quality and availability of shelter			6.6	6.6	6.6	6.6	6.6	4.2	
Site Condition Score			52.3	66.3	68.8	77.4	78.4	42.9	
MAX Site Condition Score			100	100	100	100	100	100	
Site Condition Score - out of 3			1.57	1.99	2.06	2.32	2.35	1.29	
Site Context									
Size of patch			10	10	10	10	10	6	
Connectedness			5	5	5	5	5	5	
Context			4	4	4	4	4	7	
Ecological Corridors			6	6	6	6	6	7	
Role of site location to species overall population in the state			5	5	5	5	5	1	
Area occupied by predators (i.e. dogs) or vehicles (33.34%)			7	7	7	7	7	7	
Broadscale clearing/fragmentation or selective removal of canopy trees (33.33%)			7	15	15	15	15	15	
Increased frequency of Bushfire (33.33%)			1	1	1	7	7	1	
Threats to the species			5	7.67	7.67	9.67	9.67	7.67	
Species mobility capacity			7	7	7	7	7	7	
Site Context Score			42	44.67	44.67	46.67	46.67	40.67	
MAX Site Context Score			56	56	56	56	56	56	
Site Context Score - out of 3			2.25	2.39	2.39	2.50	2.50	2.18	

Species Stocking Rate (SSR)					Site score
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5	10	5
		No	Yes - adjacent	Yes - on site	
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Approximate density (per ha)	Score	0	10	20	30
		0			
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SRR score (out of 70)					20
SRR Score (out of 4)					1.14

*SSR Supplementary Table			Score
*Key source population for breeding	Score	0	10
		No	Yes/Possibly
*Key source population for dispersal	Score	0	5
		No	Yes/Possibly
*Necessary for maintaining genetic diversity	Score	0	15
		No	Yes/Possibly
*Near the limit of the species range	Score	0	15
		No	Yes

Final habitat quality score (weighted)	AU3	AU4	Final
Site Condition score (out of 3)	2.02	1.56	
Site Context Score (out of 3)	2.25	2.25	
Species Stocking Rate Score (out of 4)	1.14	1.14	
Habitat Quality score (out of 10)	5.41	4.96	
Assessment Unit area (ha)	8.56	9.98	
Total offset area (ha) for this MNES	18.54	18.54	
Size Weighting	0.46	0.54	rounded
Weighted Habitat Quality Score	2.50	2.67	5.17 5.00

5 years

Final habitat quality score (weighted)	AU3	AU4	Final
Site Condition score (out of 7)	2.02	1.87	
Site Context Score (out of 3)	2.39	2.26	
Species Stocking Rate Score (out of 4)	1.14	1.14	
Habitat Quality score (out of 10)	5.56	5.28	
Assessment Unit area (ha)	8.56	9.98	
Total offset area (ha) for this MNES	18.54	18.54	
Size Weighting	0.46	0.54	Rounded
Weighted Habitat Quality Score	2.57	2.84	5.41 5.00

10 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	2.02	1.96		
Site Context Score (out of 3)	2.39	2.39		
Species Stocking Rate Score (out of 4)	1.14	1.14		
Habitat Quality score (out of 10)	5.56	5.50		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	2.57	2.96	5.53	6.00

15 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	2.19	2.20		
Site Context Score (out of 3)	2.64	2.60		
Species Stocking Rate Score (out of 4)	1.14	1.14		
Habitat Quality score (out of 10)	5.97	5.94		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	2.76	3.20	5.95	6.00

20 years

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	2.48	2.29		
Site Context Score (out of 3)	2.64	2.60		
Species Stocking Rate Score (out of 4)	1.14	1.14		
Habitat Quality score (out of 10)	6.26	6.03		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	2.89	3.25	6.14	6.00

No offset

Final habitat quality score (weighted)	AU3	AU4	Final	
Site Condition score (out of 7)	1.60	1.38		
Site Context Score (out of 3)	2.04	2.08		
Species Stocking Rate Score (out of 4)	1.14	1.14		
Habitat Quality score (out of 10)	3.64	3.46		
Assessment Unit area (ha)	8.56	9.98		
Total offset area (ha) for this MNES	18.54	18.54		
Size Weighting	0.46	0.54		Rounded
Weighted Habitat Quality Score	1.68	1.86	3.54	4.00

Raw Data Impact Site

AU BioCondition Survey	AU1			AU2			AU2		
	B05			B07			B12		
	Benchmark	Raw Data	Percentage		Raw Data	Percentage	Benchmark	Raw Data	Percentage
RE	12.9-10.14			12.2.7			12.2.7		
Broad condition status	Remnant			Remnant			Remnant		
Recruitment	100	100	100%	100	75	75%	100	33	33%
Native plant species richness - trees	5	7	100%	3	3	100%	3	12	400%
Native plant species richness - shrubs	7	23	192%	4	21	525%	4	3	75%
Native plant species richness - grasses	1	2	33%	3	2	67%	3	1	33%
Native plant species richness - forbes	11	24	150%	12	22	183%	12	9	75%
Tree canopy height	17	30	91%	14	18	129%	14	18	129%
Subcanopy Height	9	18	113%	9	10	111%	9	0	0%
Tree canopy cover	59	60	88%	60	40	67%	60	74	123%
Subcanopy Cover	25	20	154%	21	25	119%	21	0	0%
Shrub canopy cover	21	20	143%	15	50	333%	15	1	5%
Native grass cover	10	8	22%	15	40.5	270%	15	2	13%
Organic litter	33	42	168%	30	46	153%	30	44	148%
Large trees /0.5ha	-	68	-	-	58	-	-	104	-
Large trees /ha	141	136	272%	125	116	93%	125	208	166%
Coarse woody debris /0.1 ha	-	56.5	-	-	79	-	-	0	-
Coarse woody debris /ha	508	565	107%	900	790	88%	900	0	0%
Non-native plant cover	0	10	-	0	0	-	0	70	
LIKT percentage of canopy	-	100%	-		50%			0.1	
Ancillary habitat trees percentage of canopy	-	0%	-		50%			0.9	
LIKT canopy cover		60			20			7.4	
LIKT and ancillary cover		60			40			8.3	

Raw Data Offset Site

AU BioCondition Survey	Benchmark	AU3		AU3		AU4		AU4		AU4	
		B01		B03		B02		B06		B10	
		Raw Data	Percentage								
RE	12.3.4	12.3.4		12.3.4		12.3.4		12.3.4		12.3.4	
Broad condition status		Regrowth		Regrowth		Regrowth		Regrowth		Regrowth	
Recruitment	100	100	100%	50	50%	50	50%	100	100%	33.3	33%
Native plant species richness - trees	5	3	60%	2	40%	2	40%	5	100%	6	120%
Native plant species richness - shrubs	7	10	143%	15	214%	8	114%	13	186%	9	129%
Native plant species richness - grasses	1	1	100%	3	300%	2	200%	3	300%	1	100%
Native plant species richness - forbes	11	11	100%	10	91%	23	209%	13	118%	8	73%
Tree canopy height	17	11	65%	15	88%	9	53%	12	71%	3	18%
Subcanopy Height	9	8	89%	0	0%	9	100%	0	0%	0	0%
Tree canopy cover	59	10	17%	15	25%	24	41%	25	42%	31.15	53%
Subcanopy Cover	25	45	180%	0	0%	0	0%	0	0%	0	0%
Shrub canopy cover	21	42.5	202%	60	286%	20	95%	40	190%	7.4	35%
Native grass cover	10	33.5	335%	61	610%	3	30%	5	50%	33.5	335%
Organic litter	33	48.5	147%	20	61%	2	6%	26	79%	9	27%
Large trees /0.5ha		5	-	12	-	21	-	21	-	1	-
Large trees /ha	141	10	7%	24	17%	42	30%	42	30%	2	1%
Coarse woody debris /0.1 ha		22.5	-	8.8	-	0	-	0	-	0	-
Coarse woody debris /ha	508	225	44%	88	17%	0	0%	0	0%	0	0%
Non-native plant cover	0	0	-	0	-	6	-	80	-	50	-
LIKt percentage of canopy	-	5%	-	5%	-	0%	-	0%	-	10%	-
Ancillary habitat trees percentage of canopy	-	95%	-	95%	-	100%	-	100%	-	90%	-
LIKt canopy cover		0.5		0.75		0		0		3.115	
LIKt and ancillary cover		10		15		24		25		31.15	

Raw Data Impact Site

AU BioCondition Survey	AU5			AU6		
	B04			B11		
	Benchmark	Raw Data	Percentage	Benchmark	Raw Data	Percentage
RE	12.3.1a			12.3.1a		
Broad condition status	Remnant			Regrowth		
Recruitment	100	60	60%	100	25	25%
Native plant species richness - trees	11	7	64%	11	28	255%
Native plant species richness - shrubs	17	20	118%	17	8	47%
Native plant species richness - grasses	1	0	0%	1	0	0%
Native plant species richness - forbes	16	21	131%	16	5	31%
Tree canopy height	28	25	89%	28	15.2	54%
Subcanopy Height	8	16	200%	8	0	0%
Tree canopy cover	80	70	88%	80	57	71%
Subcanopy Cover	40	30	75%	40	0	0%
Shrub canopy cover	28	40	143%	28	0.35	1%
Native grass cover	1	0	0%	1	1	100%
Organic litter	30	37	123%	30	33	110%
Large trees /0.5ha	-	42	-	-	10	-
Large trees /ha	150	84	56%	150	20	13%
Coarse woody debris /0.1 ha	-	52	-	-	0	-
Coarse woody debris /ha	295	520	176%	295	0	0%
Non-native plant cover	0	0	-	0	63	-
LIKt percentage of canopy			-		5%	
Ancillary habitat trees percentage of canopy			-		90%	
LIKt canopy cover			-		2.85	
LIKt and ancillary cover			-		54.15	

IMPACT- Threatened Ecological Community CSSF

AU	AU2				AU2			
Site reference	B.mark	B07			B.mark	B12		
Site Condition	12.2.7	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score
Recruitment of woody perennial species in EDL	100	75	75%	3	100	33.3	33%	3
Native plant species richness - trees	3	3	100%	5	3	12	400%	5
Native plant species richness - shrubs	4	21	525%	5	4	3	75%	2.5
Native plant species richness - grasses	3	2	67%	2.5	3	1	33%	2.5
Native plant species richness - forbs	12	22	183%	5	12	9	75%	2.5
Tree canopy height (average of emergent, canopy and sub-canopy)	14	18			14	18		
Subcanopy height	9	10			9	0		
Tree Height	11.5	14	122%	5	11.5	9	78%	5
Tree canopy cover (average of emergent, canopy and sub-canopy)	60	40			60	73.5		
Subcanopy cover	21	25			21	0		
Tree Cover	40.5	32.5	80%	5	40.5	36.75	91%	5
Shrub canopy cover	15	50	333%	3	15	0.8	5%	0
Native grass cover	15	40.5	270%	5	15	2	13%	1
Organic litter	30	46	153%	5	30	44.4	148%	5
Large trees	125	116	93%	10	125	208	166%	15
Coarse woody debris	900	790	88%	5	900	0	0%	0
Non-native plant cover	0	0	0%	10	0	70	0%	0
Site Condition Score				68.5				46.5
MAX Site Condition Score				80				80
Site Condition Score - out of 7				5.99				4.07

CSSF cont.	AU2				AU2			
	B.mark	B07			B.mark	B12		
Site reference	12.2.7	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score
Site Condition								
Site Context & Species/TEC habitat index								
Size of patch				2				2
Connectedness				2				2
Context				2				2
Ecological Corridors				6				6
Role of site location to TEC overall population in the state				5				5
Changed hydrological regime (17%)				15				15
Native vegetation clearing (17%)				7				7
Fragmentation of remnants and habitats (16%)				7				15
Invasive fauna (5%)				15				15
Disturbance from urbanisation and recreational activity (10%)				1				1
Weed (10%)				7				1
Diseases and pathogens (5%)				7				7
Grazing pressures (5%)				15				15
Increased frequency of Bushfire (15%)				7				15
Threats to the species	15			7.44				8.04
Site Context Score				24.44				25.04
MAX Site Context Score				46				46
Site Context Score - out of 3				1.59				1.63

Final habitat quality score (weighted)	AU2	Final
Biocondition	B07	
Site Condition score (out of 7)	5.03	
Site Context Score (out of 3)	1.61	
Habitat Quality score (out of 10)	6.64	
Assessment Unit area (ha) in disturbance footprint	1.43	
Total impact area (ha) for this MNES	1.43	
Size Weighting	1.00	
Final score	6.64	6.64

Assessment Unit - Regional Ecosystem	AU1				AU2				AU3				AU6			
Site Reference	B.mark	B05			B.mark	B07			B.mark	B12			B.mark	B11		
	12.9-10.14	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score	12.3.1a	Raw Data	% Benchmark	Score
Recruitment of woody perennial species in EDL	100	100	100%	5	100	75	75%	5	100	33.3	33%	3	100	25	25%	3
Native plant species richness - trees	7	7	100%	5	3	3	100%	5	3	12	400%	5	11	28	255%	5
Native plant species richness - shrubs	12	23	192%	5	4	21	525%	5	4	3	75%	2.5	17	8	47%	2.5
Native plant species richness - grasses	6	2	33%	2.5	3	2	67%	2.5	3	1	33%	2.5	1	0	0%	0
Native plant species richness - forbes	16	24	150%	5	12	22	183%	5	12	9	75%	2.5	16	5	31%	2.5
Tree canopy height	33	30			14	18			14	18			28	15.2		
Subcanopy height	16	18			9	10			9	0			8	0		
Tree Height	24.5	24	98%	5	11.5	14	122%	5	11.5	9	78%	5	18	7.6	42%	3
Tree canopy cover	68	60			60	40			60	73.5			80	57		
Subcanopy cover	13	20			21	25			21	0			40	0		
Tree Cover	40.5	40	99%	5	40.5	32.5	80%	5	40.5	36.75	91%	5	60	28.5	48%	2
Shrub canopy cover	14	20	143%	5	15	50	333%	3	15	0.8	5%	0	28	0.35	1%	0
Native grass cover	36	8	22%	1	15	40.5	270%	5	15	2	13%	1	1	1	100%	5
Organic litter	25	42	168%	5	30	46	153%	5	30	44.4	148%	5	30	33	110%	5
Large trees (euc plus non-euc)	50	136	272%	15	125	116	93%	15	125	208	166%	15	150	20	13%	5
Coarse woody debris	527	565	107%	5	900	790	88%	5	900	0	0%	0	295	0	0%	0
Non-native plant cover		10	10%	5		0	0%	10		70	70%	0		63	63%	0
Abundance of locally important koala habitat trees (LIKT) combined cover (sub-canopy, canopy, emergent)		10				6				4				4		
Large trees		5				10				10				5		
Quality and availability of food and foraging habitat				9				6.8				5.2				4.2
Cover of suitable Koala shelter trees (LIKT or Ancillary habitat tree) ≥10 cm DBH within assessment area		10				7				4				4		
Large trees		5				10				10				5		
Quality and availability of shelter				9				7.6				5.2				4.2
Site Condition Score				86.5				89.9				56.9				41.4
MAX Site Condition Score				100				100				100				100
Site Condition Score - out of 3				2.60				2.70				1.71				1.24

Koala cont.	AU1				AU2				AU2				AU6			
Site Reference	B.mark	B05			B.mark	B07			B.mark	B12			B.mark	B11		
	12.9-10.14	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% Benchmark	Score	12.2.7	Raw Data	% B.mark	Score	12.3.1a	Raw Data	% B.mark	Score
Site Context																
Size of patch				2				2				2	10			0
Connectedness				2				2				2	5			0
Context				2				2				2	5			2
Ecological Corridors				6				6				6				6
Role of site location to species overall population in the state				5				5				5				5
Area occupied by predators (i.e. dogs) or vehicles (30%)				1				1				1				1
Broadscale clearing/fragmentation or selective removal of canopy trees (30%)				7				7				7				7
Increased frequency of Bushfire (20%)				7				7				15				15
Threats to the species				5				5				7.667				7.667
Species mobility capacity				4				4				4				4
Site Context Score				26				26				28.667				24.667
MAX Site Context Score				56				56				56				46
Site Context Score - out of 3				1.39				1.39				1.54				1.61

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5	10	0
		No	Yes - adjacent	Yes - on site	
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	
Approximate density (per ha)	Score	0	10	20	10
		0%			
Role/importance of species population on site*	Score	0	5	10	0
	(Total from	0	5 - 15	20 - 35	
Total SRR score (out of 70)					25
SRR Score (out of 4)					1.43

Koala cont.

*SSR Supplementary Table				
*Key source population for breeding	Score	0	10	0
		No	Yes/ Possibly	
*Key source population for dispersal	Score	0	5	0
		No	Yes/ Possibly	
*Necessary for maintaining genetic diversity	Score	0	15	0
		No	Yes/ Possibly	
*Near the limit of the species range	Score	0	15	0
		No	Yes	

Final habitat quality score (weighted)	AU1	AU2	AU6	
Site Condition score (out of 3)	2.60	2.20	1.24	5.10
Site Context Score (out of 3)	1.39	1.46	1.61	
Species Stocking Rate Score (out of 4)	1.43	1.43	1.43	
Habitat Quality score (out of 10)	5.42	5.09	4.28	
Assessment Unit area (ha) in disturbance footprint	2.31	1.43	0.91	
Total impact area (ha) for this MNES	4.65	4.65	4.65	
Size Weighting	0.50	0.31	0.20	
Weighted Habitat Quality Score	2.69	1.57	0.84	

REC 1 - 10

Card No.	Photo No.	Animal ID
102REC\	13	Wallaby
102REC\	14	Wallaby
102REC\	15	Wallaby
102REC\	18	Wallaby
102REC\	19	Wallaby
102REC\	20	Wallaby
102REC\	21	Wallaby
102REC\	22	Wallaby
102REC\	23	Wallaby
102REC\	24	Wallaby
102REC\	28	Wallaby
102REC\	31	Wallaby
102REC\	32	Wallaby
102REC\	33	Wallaby
102REC\	49	Wallaby
102REC\	50	Wallaby
102REC\	51	Wallaby
102REC\	52	Wallaby
102REC\	53	Wallaby
102REC\	54	Wallaby
102REC\	76	Wallaby
102REC\	83	Wallaby
102REC\	84	Wallaby
102REC\	93	Wallaby
102REC\	94	Wallaby
102REC\	160	Wallaby
102REC\	161	Wallaby
102REC\	169	Wallaby
102REC\	172	Wallaby
102REC\	175	Fox
102REC\	176	Fox
102REC\	177	Fox
102REC\	181	Lace Mon

REC 2 - 10

Card No.	Photo No.	Animal ID	File Type
100REC\	25	Lace Mon	JPEG
100REC\	26	Lace Mon	JPEG
100REC\	27	Lace Mon	JPEG
100REC\	28	Lace Mon	AVI
100REC\	29	Lace Mon	JPEG
100REC\	30	Lace Mon	JPEG
100REC\	31	Lace Mon	JPEG
100REC\	32	Lace Mon	AVI
100REC\	37	Lace Mon	JPEG
100REC\	38	Lace Mon	JPEG
100REC\	39	Lace Mon	JPEG
100REC\	40	Lace Mon	AVI
100REC\	41	Lace Mon	JPEG
100REC\	42	Lace Mon	JPEG
100REC\	43	Lace Mon	JPEG
100REC\	44	Lace Mon	AVI
100REC\	46	Lace Mon	JPEG
100REC\	47	Lace Mon	JPEG
100REC\	48	Lace Mon	AVI
100REC\	49	Lace Mon	JPEG
100REC\	50	Lace Mon	JPEG
100REC\	51	Lace Mon	JPEG
100REC\	52	Lace Mon	AVI
100REC\	53	Lace Mon	JPEG
100REC\	54	Lace Mon	JPEG
100REC\	55	Lace Mon	JPEG
100REC\	56	Lace Mon	AVI
100REC\	62	Bar Shoul	JPEG
100REC\	63	Bar Shoul	JPEG
100REC\	64	Bar Shoul	AVI
100REC\	65	Bar Shoul	JPEG
100REC\	66	Bar Shoul	JPEG
100REC\	67	Bar Shoul	JPEG

REC 3 - 10

Card No.	Photo No.	Animal ID	File Type
100REC\	31	Cane toad	JPEG
100REC\	32	Cane toad	AVI
100REC\	35	Cane toad	JPEG
100REC\	36	Cane toad	AVI
100REC\	36	Bar shoul	AVI
100REC\	75	Fox	JPEG
100REC\	76	Fox	AVI
100REC\	79	Lace mon	JPEG
100REC\	80	Lace mon	AVI
100REC\	83	Brush turk	JPEG
100REC\	84	Brush turk	AVI
100REC\	86-87	Northern	JPEG
100REC\	91	Brush turk	JPEG
100REC\	92	Brush turk	AVI
100REC\	95	Brush turk	JPEG
100REC\	96	Brush turk	AVI
100REC\	99	Brush turk	JPEG
100REC\	100	Brush turk	AVI
100REC\	103	Swamp ra	JPEG
100REC\	104	Swamp ra	AVI
100REC\	107	Brush turk	JPEG
100REC\	108	Brush turk	AVI
100REC\	111	Brush turk	JPEG
100REC\	112	Brush turk	AVI
100REC\	114	Brush turk	JPEG
100REC\	119	Brush turk	JPEG
100REC\	120	Brush turk	AVI
100REC\	123	Brush turk	JPEG
100REC\	124	Brush turk	AVI
100REC\	127	Brush turk	JPEG
100REC\	128	Brush turk	AVI
100REC\	139	Northern	JPEG
100REC\	140	Northern	AVI

102REC\>	182	Lace Mon
102REC\>	183	Lace Mon
102REC\>	226	Wallaby
102REC\>	227	Wallaby
102REC\>	228	Wallaby
102REC\>	229	Wallaby
102REC\>	230	Wallaby
102REC\>	231	Wallaby
102REC\>	232	Wallaby
102REC\>	238	Wallaby
102REC\>	239	Wallaby
102REC\>	240	Wallaby
102REC\>	243	Wallaby
102REC\>	251	Wallaby
102REC\>	252	Wallaby
102REC\>	253	pheasant
102REC\>	254	pheasant
102REC\>	255	pheasant
102REC\>	277	Wallaby
102REC\>	278	Wallaby
102REC\>		

100REC\>	73	Kangaroo	JPEG
100REC\>	74	Kangaroo	JPEG
100REC\>	75	Kangaroo	JPEG
100REC\>	76	Kangaroo	AVI
100REC\>	97	Cane Toad	JPEG
100REC\>	98	Cane Toad	JPEG
100REC\>	99	Cane Toad	JPEG
100REC\>	100	Cane Toad	AVI
100REC\>	106	Cane Toad	JPEG
100REC\>	107	Cane Toad	JPEG
100REC\>	108	Cane Toad	AVI
100REC\>	109	Red-backe	JPEG
100REC\>	110	Red-backe	JPEG
100REC\>	111	Red-backe	JPEG
100REC\>	112	Red-backe	AVI
100REC\>	118	Female Re	JPEG
100REC\>	119	Female Re	JPEG
100REC\>	120	Female Re	AVI
100REC\>	121	Bush Turk	JPEG
100REC\>	122	Bush Turk	JPEG
100REC\>	123	Bush Turk	JPEG
100REC\>	124	Bush Turk	AVI
100REC\>	125	Lace Mon	JPEG
100REC\>	126	Lace Mon	JPEG
100REC\>	127	Lace Mon	JPEG
100REC\>	128	Lace Mon	AVI
100REC\>	130	Long Nose	JPEG
100REC\>	131	Long Nose	JPEG
100REC\>	132	Long Nose	AVI
100REC\>	133	Lace Mon	JPEG
100REC\>	134	Lace Mon	JPEG
100REC\>	135	Lace Mon	JPEG
100REC\>	136	Lace Mon	AVI
100REC\>	137		JPEG

100REC\>	147	Fox	JPEG
100REC\>	148	Fox	AVI
100REC\>	151	Fox	JPEG
100REC\>	152	Fox	AVI
100REC\>	155	Brush turl	JPEG
100REC\>	156	Brush turl	AVI
100REC\>	159	Brush turl	JPEG
100REC\>	160	Brush turl	AVI
100REC\>	163	Juvenile b	JPEG
100REC\>	164	Juvenile b	AVI

100REC\X	138		JPEG
100REC\X	139		JPEG
100REC\X	140		AVI
100REC\X	141	Female Re	JPEG
100REC\X	142	Female Re	JPEG
100REC\X	143	Female Re	JPEG
100REC\X	144	Female Re	JPEG
100REC\X	153	Lace Mon	JPEG
100REC\X	154	Lace Mon	JPEG
100REC\X	155	Lace Mon	JPEG
100REC\X	156	Lace Mon	AVI
100REC\X	157	Bush Turk	JPEG
100REC\X	158	Bush Turk	JPEG
100REC\X	159	Bush Turk	JPEG
100REC\X	160	Bush Turk	AVI
100REC\X	161	Bush Turk	JPEG
100REC\X	162	Bush Turk	JPEG
100REC\X	163	Bush Turk	JPEG
100REC\X	164	Bush Turk	AVI
100REC\X	165	Bush Turk	JPEG
100REC\X	166	Bush Turk	JPEG
100REC\X	167	Bush Turk	JPEG
100REC\X	170	Bush Turk	JPEG
100REC\X	171	Bush Turk	JPEG
100REC\X	172	Bush Turk	AVI
100REC\X	173	Lace Mon	JPEG
100REC\X	174	Lace Mon	JPEG
100REC\X	175	Lace Mon	JPEG
100REC\X	176	Lace Mon	AVI
100REC\X	177	Lace Mon	JPEG
100REC\X	189	Kangaroo	JPEG
100REC\X	190	Kangaroo	JPEG
100REC\X	191	Kangaroo	JPEG
100REC\X	192	Kangaroo	AVI

100RECNX	196	Kangaroo	AVI
100RECNX	197	Kangaroo	JPEG
100RECNX	198	Kangaroo	JPEG
100RECNX	199	Kangaroo	JPEG
100RECNX	200	Kangaroo	AVI
100RECNX	201	Kangaroo	JPEG
100RECNX	202	Kangaroo	JPEG
100RECNX	203	Kangaroo	JPEG
100RECNX	204	Kangaroo	JPEG
100RECNX	209	Lace Mon	JPEG
100RECNX	210	Lace Mon	JPEG
100RECNX	211	Lace Mon	JPEG
100RECNX	212	Lace Mon	AVI
100RECNX	221	Lace Mon	JPEG
100RECNX	222	Lace Mon	JPEG
100RECNX	223	Lace Mon	JPEG
100RECNX	224	Lace Mon	AVI
100RECNX			

1 Impact Site

1.1 AU 1 – RE 12.9-10.14

B05



North



East



South



West

B07



North



East



South



West

B12



North



East



South



West

B04



North



5

East



South



West

B11



North



East



South



West

2 Offset Site

2.1 AU 3 – RE 12.3.4

B01



North



East



South



West

B03



North



East



South



West

2.2 AU 4 – RE 12.3.4

B02



North



East



South



West

B06



North



East



South



West

B10



North



East



South



West

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