



MNES Ecological Technical Assessment

Hayfield School Site EPBC Act Referral
Fischer Road, Ripley



Prepared for Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee
for the Goldfields QLD Trust
24 September 2021

Job 10835 E

Document Control

Document: 10835 E MNES Ecological Technical Assessment, Hayfield School Site EPBC Act Referral, Fischer Road, Ripley, prepared by Saunders Havill Group for Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust, dated 24 September 2021.

Document Issue

Issue	Date	Prepared By	Checked By
Issue A	05.10.2021	LT	AD

Prepared by

© Saunders Havill Group Pty Ltd 2021.

ABN 24 144 972 949

www.saundershavill.com

SHG has prepared this document for the sole use of the Client and for a specific purpose, as expressly stated in the document. No other party should rely on this document without the prior consent of SHG. SHG undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use the document. This document has been prepared based on the Client's description of their requirements and SHG's experience, having regard to assumptions that SHG can reasonably be expected to make in accordance with sound professional principles. SHG may have also relied upon information provided by the Client and other third parties to prepare this document, some of which may have not been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1. Introduction	1
1.1. Purpose	1
1.2. Description of the Action	1
1.3. Areas of Investigation	1
1.4. Site Context	6
2. Commonwealth Legislation and Policy	8
2.1. <i>Environment Protection and Biodiversity Conservation Act 1999</i>	8
2.1.1 Significant Impact Guidelines 1.1.	8
2.1.2 Guidelines of EPBC Act Listed Species	8
3. Ecological Assessment Methodology and Process	9
3.1. Desktop analysis methodology	9
3.2. Field survey methodology	9
3.2.1 Observational survey for significant flora and fauna, habitat trees and biodiversity values	10
3.2.2 Ground-truthing of vegetation communities	10
3.2.3 Waterway Assessment	11
3.2.4 Scats, tracks and other traces observations	11
3.2.5 Motion sensor camera trap	11
3.2.6 Koala habitat and scat searches	12
3.2.7 Fauna movement barrier assessment	12
3.2.8 Threatened flora species meander	12
3.3. Likelihood of Occurrence Assessment	12
3.4. Study Limitations	13
4. Ecological Assessment Results	16
4.1. Desktop Assessment	16
4.1.1 Landscape Context and Historical Aerial Imagery	16
4.1.2 Matters of National Environmental Significance	16
4.1.3 EPBC Act Threatened Ecological Communities	16
4.1.4 Threatened Flora Species	17
4.1.5 Threatened Fauna Species	17
4.1.6 Migratory Species	19
4.1.7 State Mapped Regulated Vegetation and Essential Habitat	20
4.2. Field Surveys	23
4.2.1 Ecological context of referral area	23
4.2.2 EPBC Act Threatened Ecological Communities	23
4.2.3 Habitat Assessment and Vegetation Communities	23
4.2.4 Connectivity	24
4.2.5 Flora Results	25

4.2.6	Fauna Results	25
4.2.7	Threatened Fauna Assessment	25
4.2.8	Migratory Species Assessment	27
4.3.	Risk of Impact	27
4.3.1	EPBC Act Threatened Ecological Communities	27
4.3.2	Threatened Flora Species	28
4.3.3	Threatened Fauna Species	29
5.	Conclusion	33
6.	Appendices	34

Figures

Figure 1:	Site Context	2
Figure 2:	Site Aerial	3
Figure 3:	Property Map of Assessable Vegetation	21
Figure 4:	Regulated Vegetation Supporting Map	22

Tables

Table 1:	Field Survey Methods Summary	9
Table 2:	Likelihood of occurrence assessment criteria	13
Table 3:	Likelihood of occurrence of TECs within referral area	16
Table 4:	Likelihood of occurrence of flora species within referral area	17
Table 5:	Likelihood of occurrence of fauna species within referral area	18
Table 6:	Field Assessment Confirmed Likelihood of Occurrence – Threatened Flora	28
Table 7:	Field Assessment Confirmed Likelihood of Occurrence – Threatened Fauna	30

1. Introduction

Saunders Havill Group (SHG) was engaged by Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust to carry out an ecological assessment of Matters of National Environmental Significance (MNES) to support a referral under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The purpose of this report is to identify potential MNES, specifically listed threatened species and communities, that may be impacted by the proposed School Site development ('the action') located at Fischer Road, Ripley, Queensland ('the site').

1.1. Purpose

This assessment has been prepared to support a referral to the Australian Government's Department of Agriculture, Water and the Environment ('the Department') for assessment against the EPBC Act. The purpose is to:

- Identify biodiversity values within or near the project area including MNES
- Identify potential impacts of the proposed action on MNES

The findings of this assessment support the assessment on whether or not the action will result in a significant residual impact on MNES and determine if it should be made a controlled action.

1.2. Description of the Action

Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust ('the proponent') is proposing to prepare for the construction of a school on land located at Fischer Road, Ripley, described as Part Lot 901 on SP317868 (refer to

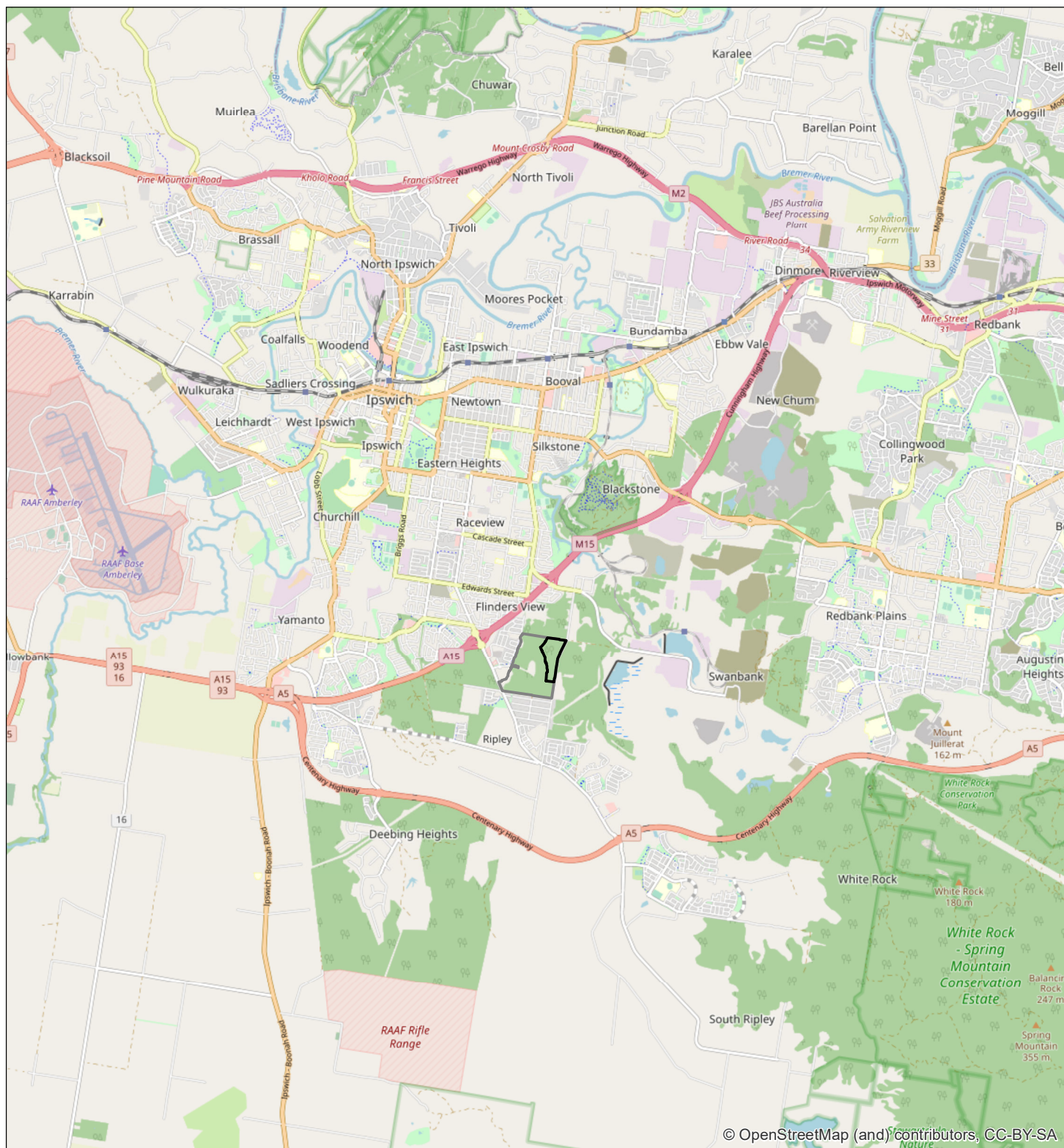
Figure 1 for the site context and Figure 2 for the site aerial). The site is located 'Urban Living' zone of the Ripley Valley Priority Development Area (RVPDA).

The referral area accounts for a total of 19.1 hectares (ha) (refer to **Plan 1** for referral area and **Plan 2** for aerial history analysis). The proposed action involves clearing of vegetation and earthworks across the referral area in preparation for a school site. Ultimately, the school site will include classrooms, ancillary buildings, sports ovals, vehicle access, drop-off zones and car parking. The action is necessary to accommodate the predicted population growth in the local area as envisioned by the South-east Queensland Regional Plan 2017, Shaping SEQ. The proponent is undertaking the action to prepare the site for the Queensland Department of Education.

1.3. Areas of Investigation

The areas of investigation for this ecological assessment include:

- Referral area – the action on land located at Part Lot 901 on SP317868. The referral area totals approximately 19.1 ha.
- Locality – the extent of the 5 km radius database searches of the referral area.



Legend

-  Property DCDB
-  Referral Area

Figure 1

Site Context

File ref. 10835 E Figure 1 School Referral Site Context A
Date 27/09/2021
Project School Site, Ripley Road, Ripley

0 1 2 3 km

Scale (A4): 1:100,000 [GDA 2020 MGA Z56]



Jolifields
 Development Pty Ltd
 & The Trustee for
 Morehampton Capital
 & Trustee for the
 Goldfields QLD Trust

SH saunders
 havill
 group

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE
 OF THE CLIENT SAUNDERS HAVILL GROUP. THE GROUP CANNOT ACCEPT
 RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE
 CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY.



Legend

- Qld DCDB
- Property DCDB
- Referral Area

Figure 2

Site Aerial

File ref. 10835 E Figure 2 School Referral Site Aerial A
Date 27/09/2021
Project School Site, Ripley Road, Ripley

0 100 200 m

Scale (A4): 1:5,000 [GDA 2020 MGA Z56]

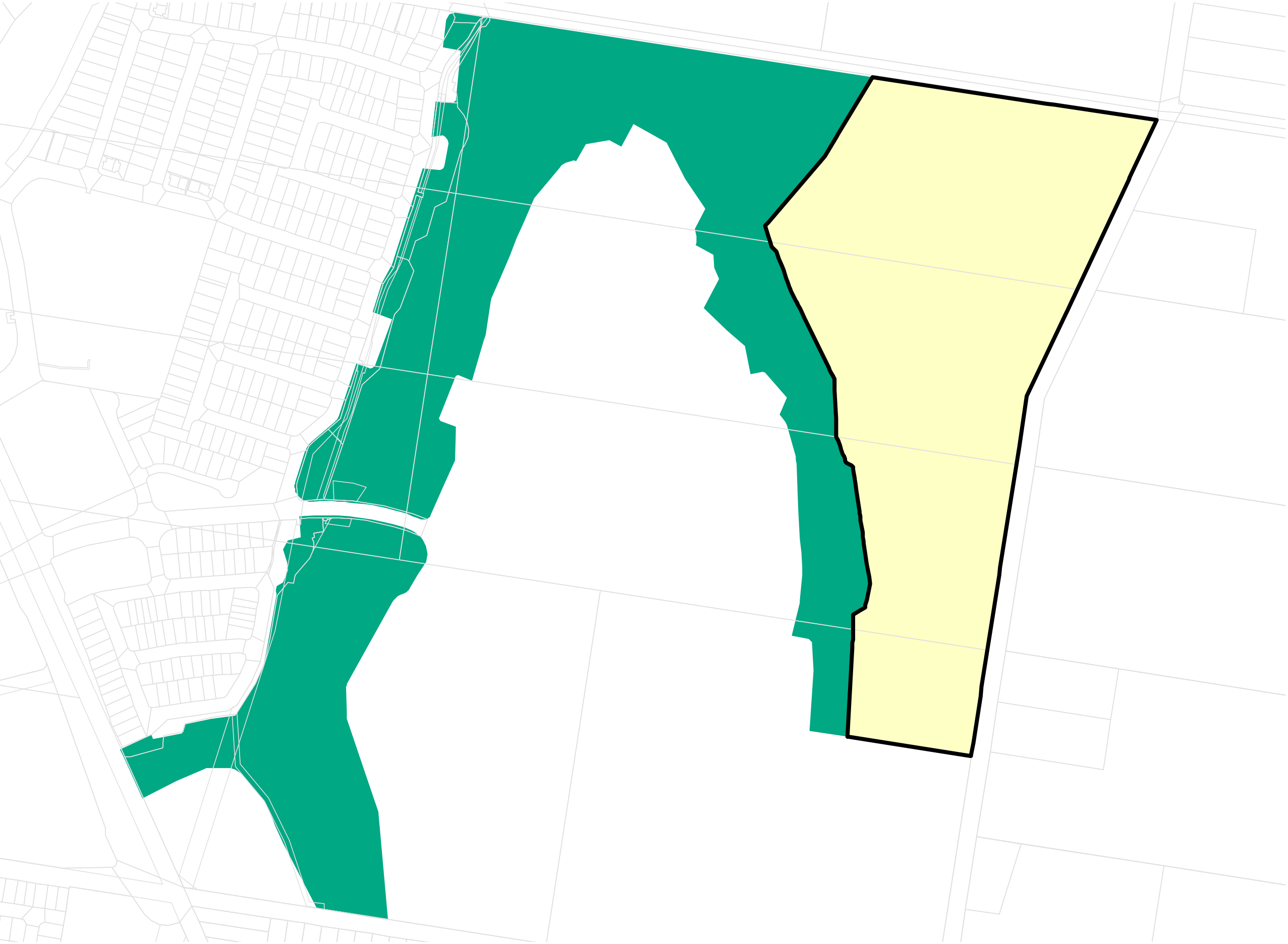


Jolifields
 Development Pty Ltd
 & The Trustee for
 Morehampton Capital
 & Trustee for the
 Goldfields QLD Trust



THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE
 OF THE CLIENT SAUNDERS HAVILL GROUP. THE GROUP CANNOT ACCEPT
 RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE
 CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY.

1. Proposed Development



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
©State of Queensland 2021. Updated data available at <http://qldspatial.information.qld.gov.au/catalogue/>
©Nearmap, 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for

Legend

Referral Area
(Development Subject to
Future Detailed Engineering Design)

Qld DCDB

PDA Zoning

Community Use
(Education Zone)

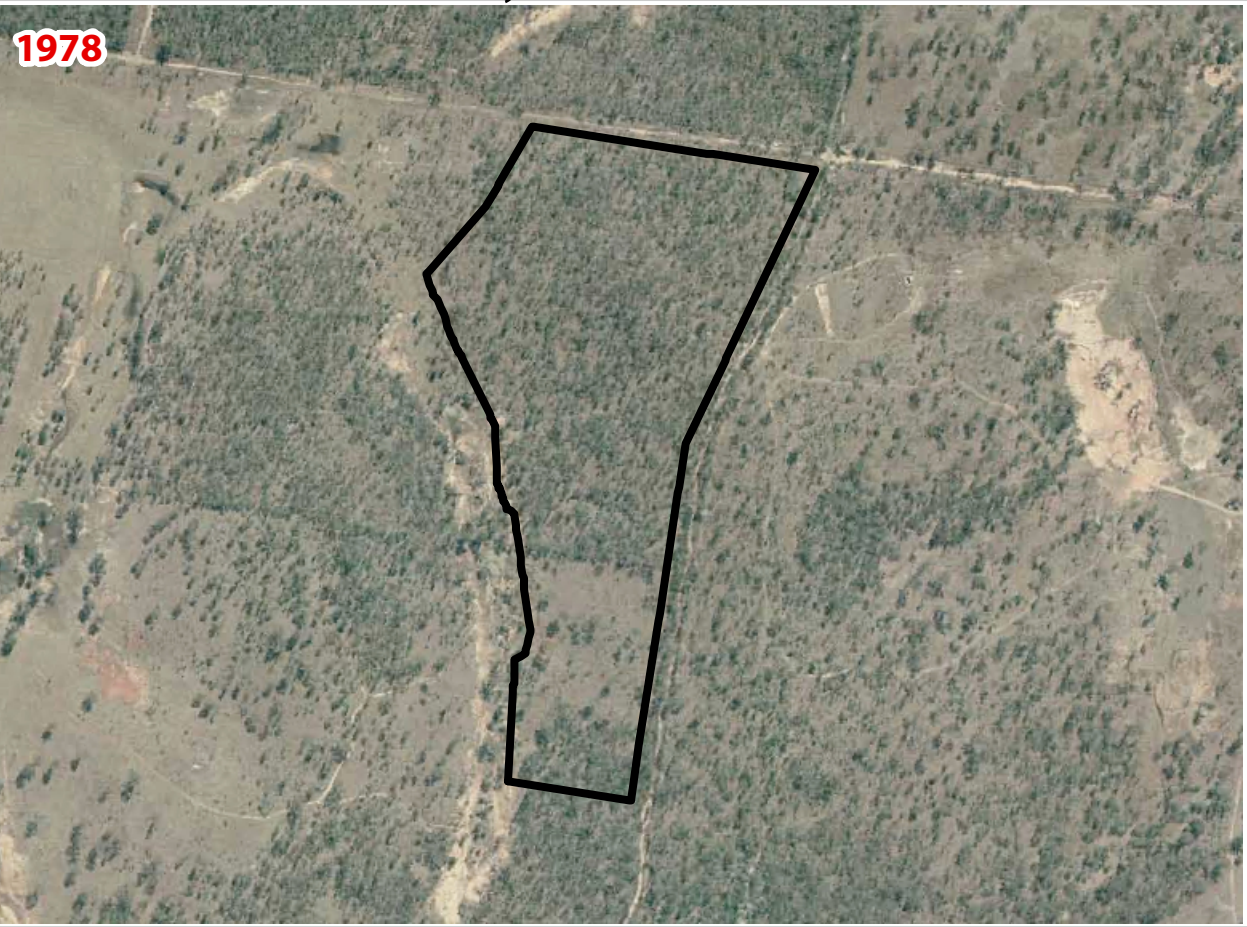
Linear Open Space and
Ecological Corridor Zone

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD

050100150 m

Transverse Mercator | GDA 2020 | Zone 56 | 1:4,500 @ A3

2. Aerial History



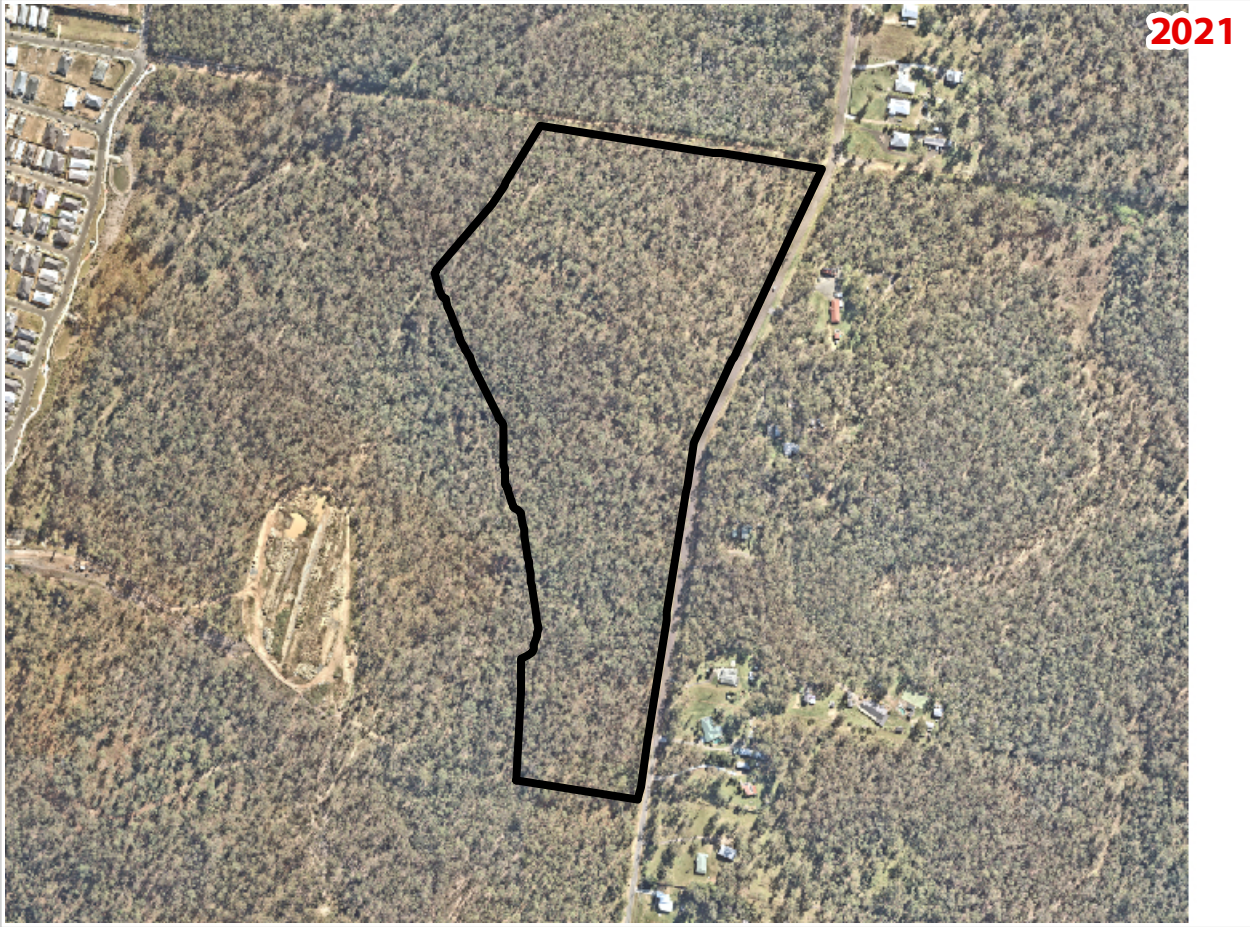
Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
© State of Queensland 2021. Updated data available at <http://qldspatial.information.qld.gov.au/catalogue/>
© Nearmap, 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

Referral Area



Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD

050100150200250 m

Transverse Mercator | GDA2020 | Zone 56 | 1:9,000 @ A3

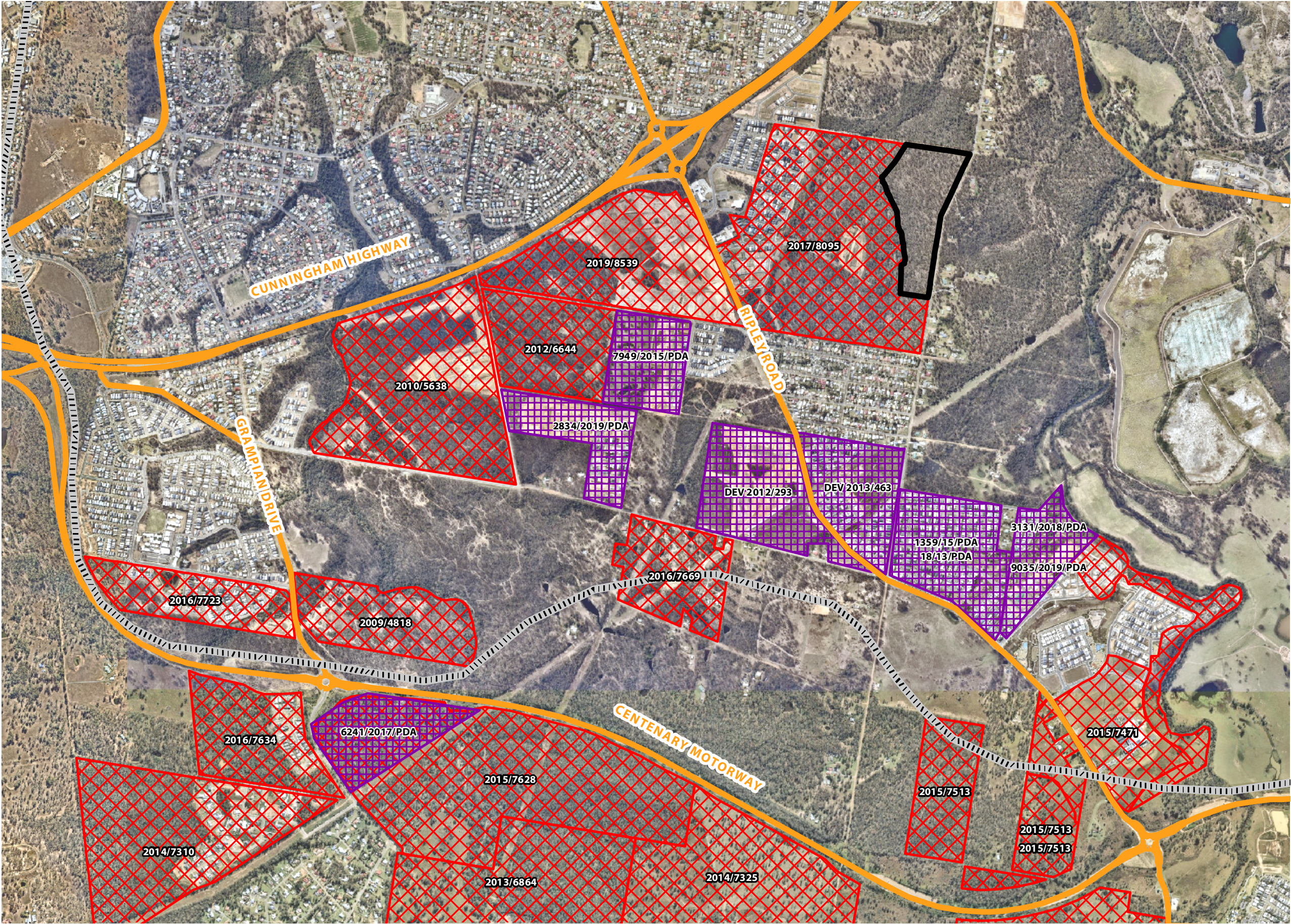
1.4. Site Context

The referral area is located approximately 5 km south of Ipswich City within 'Urban Living' zone of the RVPDA. Historically, the referral area and surrounding landscape has been subject to excessive disturbances including broad-scale clearing. Adjacent properties are comprised of vacant bushland, cleared agricultural land, rural residential allotments and urban development. The RVPDA is undergoing rapid change and urbanisation, which is earmarked to continue into the future. As such, the referral area is surrounded by existing and future approved developments.

An existing EPBC Act approval to the west of the referral area, Ripley Road Project (EPBC 2017/8095), incorporates Lot 901 on SP317868. That approved action is being developed to create a masterplanned residential community. The proposed action herein was not included within the other Ripley Road Project area and is considered a separate action.

Properties to the south and west have existing EPBC Act approvals and are under development the closest including Ripley Town Centre (EPBC 2015/7471), ECCO Ripley Residential Development (EPBC 2015/7513), Daleys Road Residential Development (EPBC 2010/5638) and Montereia Town (EPBC 2012/6644). Connectivity to the north and east is currently restricted by the Cunningham Highway and Ripley Road, respectively (refer **Plan 3**).

3. Fragmentation Analysis



NOTES
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

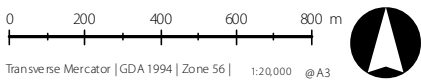
Layer Sources
Qld State Cadastre and Mapping layers © State of Queensland (Department of Natural Resources and Mines) 2021. Updated data available at <http://qldspatial.information.qld.gov.au/catalogue/>
Aerial Imagery © Nearmap, 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Referral Area
- Major Roads
- Future rail corridor
- EDQ DA Approved Sites
- EPBC Approvals / 'NCA' determinations

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TC	LT



2. Commonwealth Legislation and Policy

2.1. *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a requirement for Commonwealth environmental assessment and approval for actions that are likely to have a significant impact on any MNES protected under the EPBC Act, including:

- World heritage properties;
- National heritage places;
- Wetlands of international importance (listed under the Ramsar Convention);
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements;
- Commonwealth marine areas;
- The Great Barrier Reef;
- Nuclear actions (including uranium mines); and
- A water resource, in relation to coal seam gas development and large coal mining development.

Other matters protected under the EPBC Act, include:

- The environment, where actions proposed are on, or will affect Commonwealth land and the environment; and
- The environment, where Commonwealth agencies are proposing to take an action.

When a proponent proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposed action to the Australian Government Minister for the Environment (the Minister). The purpose of the referral is to determine whether or not a proposed action is a 'controlled action' and thereby requires approval under the EPBC Act. If the Minister determines that a proposed action is a 'controlled action', it would then proceed through the Commonwealth assessment and approval process.

2.1.1 Significant Impact Guidelines 1.1.

The purpose of these guidelines is to assist any person who proposes to take an action to decide whether or not they should submit a referral to the Department for a decision by the Australian Government Environment Minister (the Minister) on whether assessment and approval is required under the EPBC Act.

2.1.2 Guidelines of EPBC Act Listed Species

The Australian Government has published a number of guidelines where specific guidance should be made when considering potential impacts on nationally threatened species and communities and should be read in conjunction with the Significant Impact Guidelines.

3. Ecological Assessment

Methodology and Process

3.1. Desktop analysis methodology

Prior to the commencement of field surveys, a desktop analysis was conducted of Commonwealth, State and Local environmental databases and overlay mapping to identify potential MNES and included the following:

- Commonwealth MNES protected under the EPBC Act on and around the site using the protected matters search tool with a 5 km radius (**Appendix A**);
- *Nature Conservation Act 1992* (NCA) listed threatened species on and around the site using the wildlife online database search tool with a 5 km radius (**Appendix B**);
- Public environmental databases including Atlas of Living Australia and BioMaps;
- State regulated vegetation management and vegetation supporting maps under the *Vegetation Management Act 1999* (VMA) including essential habitat mapping; and
- Local government records where MNES threatened species and communities are known to occur in the area.

Additionally, a review of aerial photography history was undertaken via QImagery to assist with the broad delineation of vegetation communities and to determine historical patterns to local vegetation communities.

Initial desktop assessment identified five (5) threatened ecological communities (TECs), thirteen (13) threatened flora species, twenty-three (23) threatened fauna species and sixteen (16) migratory species as having the potential to occur within 5 km of the referral area (refer **Appendix A**). An initial assessment for the likelihood of occurrence was undertaken based on desktop survey to inform field survey methodology for target flora and fauna species and communities.

3.2. Field survey methodology

The referral area, and larger allotment, has been subject to numerous field surveys by various Ecologists to describe ecological value of the referral area. Field surveys were undertaken across different seasonal conditions favourable to the detection and identification of flora and fauna species. As such, surveys have been undertaken in 2012, 2014, 2017, 2018 and 2021 using various methods (refer **Table 1 and Plan 4**). The methodologies used during these surveys to describe ecological value of the subject site, are outlined in the following subsections.

Table 1: Field Survey Methods Summary

Consultant	Date	Methods
JW&A	2012	• Mapping and ground-truthing vegetation communities and conservation status • Searches for rare or threatened flora and fauna species including targeted searches for Koala or signs of koala presence

Consultant	Date	Methods
		Threatened species habitat assessment
Yurrah Pty Ltd	July and November 2014	- Assessment of mapped vegetation including vegetation transects - Habitat assessment including location of hollow-bearing trees (HBT) - Waterway assessments - Opportunistic fauna observations and signs of fauna presence
Austecology	September 2014	- Koala presence and Spot Assessment Technique (SAT) surveys - Koala habitat values assessment
SHG	June, July and August 2017	- Broad assessment of vegetation communities and habitat features, for threatened species - Targeted searches for EPBC Act listed species - Motion sensor camera - Waterway assessments - Random meander search for threatened flora species - Fauna movement barrier assessment - Opportunistic fauna observations
	June 2018	Threatened flora species meander
	July 2021	Threatened flora species meander

3.2.1 Observational survey for significant flora and fauna, habitat trees and biodiversity values

The referral area, and larger allotment, has been traversed during each of the surveys outlined within **Table 1** to ensure all species (flora and fauna) were recorded and identified. Particular attention was paid to any threatened species that were listed as possibly occurring on or within the vicinity of the application area and specific micro-assemblages which may support these threatened species. This included observations for vertebrate fauna present on or that may utilise the referral area, including faunal lists and significance status of species under the Commonwealth's EPBC Act including the JAMBA, CAMBA, ROKAMBA and the Bonn Convention, and Queensland's NCA.

The observational survey included identification of ecological features and values such as broad vegetation communities, fauna habitats, and ecological corridors. Identification and description of the fauna habitats present within the area included any habitat trees. Specific attention was paid to threatened flora and fauna species.

For the purposes of this report, a significant flora and fauna species has been defined as a species that is scheduled as 'critically endangered', 'endangered', 'vulnerable' or conservation dependent under the Commonwealth EPBC Act.

3.2.2 Ground-truthing of vegetation communities

Vegetation has been ground-truthed and assessed against *Vegetation Management Act 1999* (VMA) Regional Ecosystem (RE) mapping and pre-clear mapping. Survey methodology comprised of an initial visual audit, followed by quantitative assessment of vegetation associations and communities.

The initial visual audit consisted of a random meander over the site to ground-truth desktop investigations and identify the location and extent of any vegetation associations and communities. Qualitative assessments were undertaken by collecting data associated with structural formations (i.e. growths form, stratum intervals, crown cover and height) and floristic associations (i.e. species diversity) for each broad vegetation type.

3.2.3 Waterway Assessment

Waterway assessments were completed across the wider allotment during 2017 fauna surveys undertaken by SHG. The following information was collected:

- general description;
- channel shape and modifications;
- in-stream habitat;
- vegetation quality and cover (embankments, channel and overall corridor);
- bed, bank and bar conditions (erosion, scouring, sediment); and
- weed cover.

3.2.4 Scats, tracks and other traces observations

Opportunistic observations of scats, tracks and other fauna traces were conducted throughout each survey period. Both predator and non-predator scats were sought during all searches. Specific search efforts were made to locate the presence of Koalas or evidence of their occurrence on the subject lands and the local area. In addition, particular attention was paid to the identification of potential dens, scats and tracks for invasive species, such as European Red Fox and domestic cats, to identify predator-prey interactions and understand existing impacts within the referral area.

3.2.5 Motion sensor camera trap

Camera trapping involves setting up a fixed digital camera to capture images or video of animals that pass in front of a camera with an infrared trigger. It is a non-invasive technique designed to detect medium to large sized animals as they pass across it, although it is possible to detect smaller animals depending on the set-up. This method identifies fauna activity beyond the scope of direct observational studies and with the absence of potential observer impacts.

Infrared sensing cameras with an infrared flash that use motion to trigger were deployed. Four (4) cameras were installed across the allotment (refer **Photo Plate 1**). Cameras were attached 30-100 cm from the ground on a tree or post and directed towards landscape features. The cameras were left to record between 18 and 25 August 2017 for a total of seven (7) nights).

For inventory surveys, cameras were placed in the vicinity of an assumed animal trail. Heavy vegetation was avoided as this can cause false triggering, and the camera was aimed to avoid sun shining directly onto the lens. The camera position was directed towards an area away from other frequent survey activity.



Photo Plate 1: Motion sensor camera trap set-up.

3.2.6 Koala habitat and scat searches

Surveys to detect evidence of Koala were utilised to identify their presence on-site. Scat meander surveys were utilised to detect evidence of Koala activity across the referral area. This technique involves walking a winding transect and searching the base of Koala food trees for Koala scats, the trunk for scratch marks and the crown of the tree for Koala specimens (following Philips and Callaghan 2011).

3.2.7 Fauna movement barrier assessment

A combination of contemporary aerial imagery, locality knowledge and field inspection can assist in understanding if there are barriers to fauna movement in the landscape. Once the aerial imagery is interrogated, location(s) for inspection are selected (typically roads) and barriers identified.

3.2.8 Threatened flora species meander

The referral area, and larger allotment, was surveyed using the preferred timed meander survey technique as per the *Flora Survey Guidelines – Protected Plants* in June 2018 and July 2021.

The surveys were carried out as follows:

1. The area was traversed by foot by Senior Ecologist (refer **Plan 4**).
2. The start and finish times of each meander were recorded.
3. The tracklog of the project Ecologists' transects were recorded using a handheld GPS unit accurate to < 1 m.
4. All unique plant species encountered during each meander within each habitat type were recorded.
5. The site and surrounds were photographed, and any relevant observations were recorded.

3.3. Likelihood of Occurrence Assessment

The likelihood of occurrence assessment was based upon publicly available species records and/or other information sources, such as field guides and web-based species profiles, including but not limited to:

- Australian Government's *Species Profile and Threats Database* (SPRAT) for the threatened species and ecological communities listed under the EPBC Act; and
- Queensland Government's *Department of Environment and Science* (DES) threatened species website.

The likelihood of occurrence assessment was informed by desktop assessment and field survey results, including an appreciation and understanding of the species habitats within the referral area. The assessment adopts a two-tiered approach; the first based on desktop analysis and the potential of occurrence and the second based on a combination of desktop and field survey to determine the likelihood of occurrence.

The likelihood of threatened species and ecological communities occurring in the referral area has been assessed against the criteria outlined in **Table 2**.

Table 2: Likelihood of occurrence assessment criteria

Likelihood of occurrence	Assessment criteria
Unlikely	No previous records of the species within the locality and one or more of the following criteria is met: • Not previously recorded on the referral area and surrounds and the referral area is beyond the current known geographic range; or • Dependent on specific habitat types or resources that are not present on the referral area; or • Considered extinct in the wild.
Low	No previous records of the species within the locality and one or more of the following criteria is met: • Site and local connectivity contains marginal habitat excluding suitable/critical habitat attributes; • Lack of recent records exist in a regional context (use 1980 as a delineation); or • Potential for vagrant or individual of the species to survive short-term;
Moderate	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded in proximity to the referral area (<i>i.e.</i>, vagrant individuals); or • Potential habitat typologies or resources are present on the referral area.
High	Species previously recorded within the locality and one or more of the following criteria is met: • Previously recorded on the referral area; • Dependent on habitats or habitat resources that are available on the referral area; or • Suitable habitats are available on the referral area that are capable of supporting a resident population or individuals of the species.
Known	Flora species or ecological community positively identified during field surveys within the referral area. Fauna species positively recorded during field surveys within the referral area or adjacent habitats.

3.4. Study Limitations

The ecological assessment involves a combination of desktop assessments and field investigations and has relied on publicly available information and data. The likelihood of occurrence assessment has relied upon database searches and publicly available information that relates to the referral area and broader locality. Field surveys focussed on

verifying the vegetation mapped by the State Government and flora and fauna surveys targeting threatened species identified by database searches.

The field surveys targeted those threatened species or communities which have either been previously recorded or predicted to occur in the locality, and as such were assessed as having a moderate or high likelihood of occurring on the referral area.

Fauna surveys utilised a combination of passive and active methods for detection, including call recognition, spotlighting, visual identification, motion detection cameras, active searches and inferential evidence of habitat usage (e.g. scratches, scats, burrows, active nests etc). No physical trapping was conducted as part of the fauna surveys, as the target species and degraded habitat values in the referral area did not justify the need for such surveys.

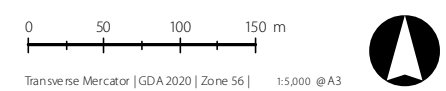
This aerial map displays a study area with topographic contours and various sampling points. The map includes the following features:

- Topographic Contours:** Orange lines representing elevation contours.
- Sampling Points:** Red dots labeled SAT1 through SAT30.
- Key Locations:**
 - SAT4:** Located at the top center, marked with a yellow flag icon.
 - SAT2:** Located near the center, marked with a blue dot.
 - SO1:** Located near the center-right, marked with a blue dot.
 - Quaternary1:** Located at the bottom center, marked with a blue dot.
- Annotations:**
 - RE12.9-10.7 dom in of concern:** A green dot near the top right.
 - Veg consistent w/ RE12.3:3:** A green dot near the center-left.
 - Challenge extent of RE:** A black polygon outline on the right side of the map.
- Blue Line:** A line connecting SAT4, SAT2, SO1, and Quaternary1.
- Yellow Flag Icons:** Located near SAT4, SAT25, SO1, and Quaternary1.

Legend

-  Referral Area
(Development Subject to
Future Detailed Engineering Design)
-  Qld DCDB
-  Threatened Flora Species
Meander 2018
-  Threatened Flora Species
Meander 2021
-  Habitat Transects
-  Waterway Extent
-  Regional Ecosystem Extents
-  SAT Survey Locations
-  Fauna Survey Locations

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD



4. Ecological Assessment Results

4.1. Desktop Assessment

4.1.1 Landscape Context and Historical Aerial Imagery

The referral area is located in a landscape that has been subject to extensive modification through logging and agricultural practices (refer to **Plan 2** for historical aerial imagery analysis). The referral area has become increasingly vegetated over time since historical clearing.

Connectivity towards the south and west is limited by existing and future residential development associated with the RVPDA. The site retains connectivity to the east, which is located outside of the RVPDA. The Cunningham Highway is located to the north.

4.1.2 Matters of National Environmental Significance

Based upon the database searches and the findings of the desktop assessment, MNES identified as being of potential relevance to the action include threatened flora and fauna species and migratory fauna species.

4.1.3 EPBC Act Threatened Ecological Communities

The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following five (5) threatened ecological communities (TEC), listed under the EPBC Act as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- Swamp Tea-tree (*Melaleuca irbyana*) Forest of South-east Queensland
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The likelihood of occurrence for each TEC within the referral area, as presented in **Table 3**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs, to identify those TECs with potential to occur in the referral area or recorded during field surveys. All TECs were identified as having low potential to occur based on site characteristics.

Table 3: Likelihood of occurrence of TECs within referral area

TEC	EPBC Act status	Desktop Potential of Occurrence
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	Endangered	Low The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.

TEC	EPBC Act status	Desktop Potential of Occurrence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Low The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Low The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
Swamp Tea-tree (<i>Melaleuca irbyana</i>) Forest of South-east Queensland	Critically Endangered	Low The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Low The site is not mapped as containing any regional ecosystems associated with this threatened ecological community.

4.1.4 Threatened Flora Species

Database searches returned eighteen (18) flora species, listed as threatened under the EPBC Act and/or NCA, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendix A and Appendix B**.

Based on the presence of species records within the locality and the habitats within the referral area, multiple assessment was conducted to determine those threatened flora species with potential to occur within the referral area. The desktop assessment identified that only one (1) threatened flora species had a moderate potential to occur on the referral area (refer **Table 4**). All other threatened flora species were assessed as having a low potential to occur.

Table 4: Likelihood of occurrence of flora species within referral area

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
<i>Melaleuca irbyana</i> - (Swamp Tea-tree)	-	Endangered	Moderate The site is mapped entirely as Category B (remnant) under the Queensland VMA. There are three (3) WildNet records of the species within 5 km of the referral area. While the referral area has been disturbed for historical land uses there is a moderate likelihood that this species may occur.

The detailed likelihood of occurrence assessment is presented in **Appendix C**.

4.1.5 Threatened Fauna Species

Database searches returned twenty-four (24) fauna species listed as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the referral area.

Based on the presence of species records within the locality and the habitats identified within the referral area, a potential of occurrence assessment was conducted to determine those threatened species with potential to occur within the referral area. The assessment determined five (5) threatened fauna species listed under the EPBC Act and/or NCA as having moderate or higher potential to occur on or near the referral area. These species are outlined in **Table 5** below. All other threatened and/or migratory fauna species were assessed as having a low potential to occur.

Table 5: Likelihood of occurrence of fauna species within referral area

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
<i>Anthochaera phrygia</i> (Regent Honeyeater)	Critically Endangered	Endangered	Moderate The referral area is mapped as containing entirely Category B (non-remnant) vegetation under the Queensland VMA. The referral area comprises of mostly intact vegetation which may provide some potential foraging habitat. There is (1) confirmed record of the Regent Honeyeater in 2019 located 4.3 km south-west according to Atlas of Living Australia. In addition, the site is located proximally to continuous, high quality foraging habitat located within the White Rock Conservation Park to the south-east of the site, reducing potential that the species would utilise the vegetation site. Based on these assessments, there is a moderate likelihood that this species would occur on-site, however, it is likely that any occurrence is limited to opportunistic foraging.
<i>Lathamus discolor</i> (Swift Parrot)	Critically Endangered	Endangered	Moderate The referral area is mapped as containing entirely Category B (non-remnant) vegetation under the Queensland VMA. The referral area comprises of mostly intact vegetation which may provide some potential foraging habitat. There is one (1) record of this species on Queensland WildNet data sightings. The most recent record of this species is 12 km north-east of the site within the Springfield Lakes area in 2019 according to Atlas of Living Australia. Based on these assessments, there is a moderate likelihood that this species would occur on-site, however, it is likely that any occurrence is limited to opportunistic foraging.
<i>Phascolarctos cinereus</i> (Koala)	Vulnerable	Vulnerable	Moderate The entire site is mapped as Category B (non-remnant) under the Queensland VMA. Koala habitat is present in the form of eucalypt dominant vegetation communities. Koalas are known to occur within the locality and proximal to the referral area with 117 records within a 5 km radius of the

Scientific Name	EPBC Act	NC Act	Desktop Potential of Occurrence
			site according to Queensland WildNet data sightings. According to Atlas of Living Australia the nearest and most recent record proximate the referral area was recorded in 2017 at the corner of Fisher Road and the easement which bounds the north of the referral area. A review of the previous reports over the wider allotment indicate that this species is known to occur identified through scats. The presence of Koala records within the vicinity of the site, there is a moderate likelihood that this species would occur on-site.
<i>Pteropus poliocephalus</i> (Grey-headed Flying Fox)	Vulnerable	-	Moderate The entire site is mapped as Category B (non-remnant) under the Queensland VMA. Koala habitat is present in the form of eucalypt dominant vegetation communities. A review of the National Flying-fox viewer indicates that the nearest active roost sites for this species 7.4 km north-west of the referral area at Woodend (191). There nearest record of this species according to Atlas of Living Australia is located approximately 5.1 km north-west of the referral area. Reviewing the above, the referral area is considered to provide potential foraging habitat. As such, there is moderate likelihood that the species may occur.

The likelihood of occurrence assessment is presented in **Appendix C**.

4.1.6 Migratory Species

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the Referral area.

Based on the presence of species records within the locality and the habitats identified within the referral area, an assessment was conducted to determine those threatened species with potential to occur within the referral area. The assessment determined that no threatened migratory fauna species listed under the EPBC Act and/or NCA were identified as having moderate or greater potential to occur in the referral area. All migratory fauna species were assessed as having a low potential to occur.

The likelihood of occurrence assessment is presented in **Appendix C**.

4.1.7 State Mapped Regulated Vegetation and Essential Habitat

A desktop review of the Queensland 'Regulated Vegetation Management Mapping' under the Queensland VMA was conducted, focusing on the referral area. The referral area is mapped entirely as Category B (remnant) vegetation under the rectified PMAV (refer **Figure 3**). A review of the Regulated Vegetation Supporting map indicates the area as comprised mostly of Least Concern RE12.9-10.2. Slivers of Of Concern composite RE 12.9-10.2/12.9-10.7/12.9-10.16 and Endangered RE 12.3.3 are mapped along the western and eastern referral area boundaries (refer **Figure 4**). A description of each RE is provided below:

- RE12.9-10.2: *Corymbia citriodora subsp. variegata* open forest or woodland usually with *Eucalyptus crebra*. Other species such as *Eucalyptus tereticornis*, *E. moluccana*, *E. acmenoides* and *E. siderophloia* may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of *Lophostemon confertus* (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 10b)
- RE12.9-10.7: *Eucalyptus crebra* +/- *E. tereticornis*, *Corymbia tessellaris*, *Angophora leiocarpa*, *E. melanophloia* woodland. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 13c)
- RE12.9-10.16: Microphyll to notophyll vine forest +/- *Araucaria cunninghamii*. Characteristic species include *Argyrodendron* sp. (Kin Kin W.D.Francis AQ81198), *Araucaria cunninghamii*, *Agathis robusta*, *Backhousia myrtifolia*, *Cupaniopsis parvifolia*, *Dendrocnide photiniphylla*, *Rhodosphaera rhodanthema*, *Flindersia australis*, *F. xanthoxyla*, *Drypetes deplanchei*, *Olea paniculata*, *Diospyros geminata*, *Gossia bidwillii*, *Excoecaria dallachyana* and *Vitex lignum-vitae*. *Archontophoenix cunninghamiana* often present in gully floors. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 5a)
- RE12.3.3: *Eucalyptus tereticornis* woodland. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium. Other species that may be present as scattered individuals or clumps include *Angophora subvelutina* or *A. floribunda*, *Corymbia clarksoniana*, *C. intermedia*, *C. tessellaris*, *Lophostemon suaveolens* and *E. melanophloia*. Occurs on Quaternary alluvial plains, terraces and fans where rainfall is usually less than 1000mm/y. (BVG1M: 16c).



Legend

-  Site DCDB
-  Qld DCDB

PMAV Categories

-  Category B (remnant)
-  Category X (non-remnant)

Figure 3

Property Maps Assessable Vegetation

File ref. 10835 E Figure 4 RVMM A

Date 27/09/2021

Project 901SP317868

0 20 40 60 80 100 m

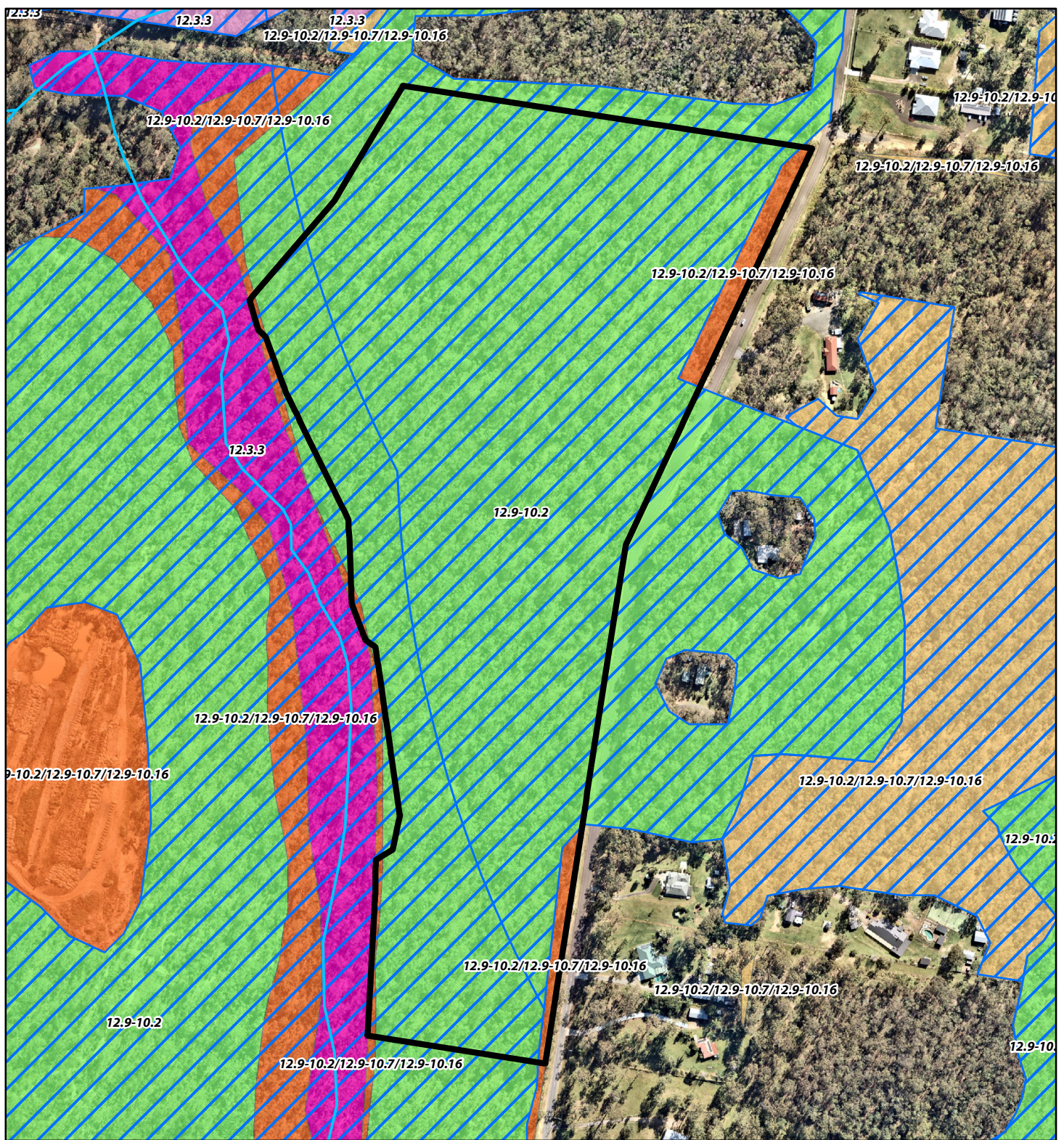
Scale (A4): 1:5,000 [GDA 2020 MGA Z56]



Jolifields
Development Pty Ltd
& The Trustee for
Morehampton Capital
& Trustee for the
Goldfields QLD Trust

SH saunders
havill
group

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE
OF THE CLIENT SAUNDERS HAVILL GROUP. THE GROUP CANNOT ACCEPT
RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE
CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY.



Legend

	Site DCDB		Category A or B area containing endangered regional ecosystems
	Qld DCDB		Category A or B area containing of concern regional ecosystems
	VM Watercourses		Category A or B area that is a least concern regional ecosystem
	VM Essential Habitat		Category C area containing endangered regional ecosystems
	VM Wetland		Category C area containing of concern regional ecosystems
			Category C area that is a least concern regional ecosystem

Figure 4

Regulated Vegetation Supporting Map

File ref. 10835 E Figure 4 RVSM A
Date 27/09/2021
Project 901SP317868

0 20 40 60 80 100 m

Scale (A4): 1:4,500 [GDA 2020 MGA Z56]



Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust

SH saunders havill group

THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE CLIENT. SAUNDERS HAVILL GROUP CANNOT ACCEPT RESPONSIBILITY FOR ANY USE OF OR RELIANCE UPON THE CONTENTS OF THESE DRAWINGS BY ANY THIRD PARTY.

4.2. Field Surveys

The results of the flora and fauna surveys, and the potential of occurrence, enables an understanding of the ecological constraints and potential impacts to MNES associated with the proposed action.

The results of vegetation, flora and fauna surveys is presented within the following sections. Refer to **Plan 4** for the field survey effort undertaken across the referral area and surrounding locality.

4.2.1 Ecological context of referral area

The referral area is located in a landscape that has been subject to rapid changes and urbanisation within the past 5 years (refer Error! Reference source not found. and **Plan 3**) since the inception of the RVPDA in 2010. Although the entirety of the referral area is mapped as Category B (remnant) vegetation, the area has been subject to historical clearing for agricultural activities (refer **Plan 2**). The referral area is now mostly intact vegetation dominated by eucalypt woodland; however, non-native species present have been observed throughout the site.

The site is bound by Fischer Road to the east and an easement to the north, with largely intact vegetation. Connectivity is impeded to the south and west due to urban development associated with the RVPDA (refer **Plan 3**). Continuous bushland is present to the south-east of the site which currently connects to White Rock Conservation Park and beyond to the Flinders-Karawatha Bioregional Corridor.

4.2.2 EPBC Act Threatened Ecological Communities

As outlined in **Section 4.1.3**, The Protected Matters Search Tool (PMST) (refer **Appendix A**) returned the following five (5) threatened ecological communities (TECs), listed under the EPBC Act, as having potential to occur within 3 km of the Referral area:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- Swamp Tea-tree (*Melaleuca irbyana*) Forest of South-east Queensland
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The potential of occurrence for each TEC within the referral area, as presented in **Appendix C**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs to identify those TECs with potential to occur in the referral area or recorded during field surveys. The results of the likelihood of occurrence assessment determined that no TECs listed above have the potential to occur within the referral area.

Field verification surveys confirmed that no TECs are present in or adjoining the referral area.

4.2.3 Habitat Assessment and Vegetation Communities

The following section discusses the results of the field verification surveys of vegetation communities and Regional Ecosystems within the referral area.

Field survey confirmed the vegetation on-site consists of predominantly one (1) vegetation community (refer **Figure 4**).

1. Remnant Eucalypt woodland (representative of RE12.9-10.2)

As discussed, the referral area is mapped entirely as Category B (remnant) vegetation under the rectified PMAV. The Regulated Vegetation Supporting map (refer **Figure 4**) maps the area as comprised mostly of Least Concern RE12.9-10.2. Slivers of Of Concern composite RE 12.9-10.2/12.9-10.7/12.9-10.16 and Endangered RE 12.3.3 are mapped along the western referral area boundary. A description of each RE is provided below:

- RE12.9-10.2: *Corymbia citriodora* subsp. *variegata* open forest or woodland usually with *Eucalyptus crebra*. Other species such as *Eucalyptus tereticornis*, *E. moluccana*, *E. acmenoides* and *E. siderophloia* may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of *Lophostemon confertus* (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 10b)
- RE12.9-10.7: *Eucalyptus crebra* +/- *E. tereticornis*, *Corymbia tessellaris*, *Angophora leiocarpa*, *E. melanophloia* woodland. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 13c)
- RE12.9-10.16: *Microphyll* to *notophyll* vine forest +/- *Araucaria cunninghamii*. Characteristic species include *Argyrodendron* sp. (Kin Kin W.D.Francis AQ81198), *Araucaria cunninghamii*, *Agathis robusta*, *Backhousia myrtifolia*, *Cupaniopsis parvifolia*, *Dendrocnide photiniphylla*, *Rhodosphaera rhodanthema*, *Flindersia australis*, *F. xanthoxyla*, *Drypetes deplanchei*, *Olea paniculata*, *Diospyros geminata*, *Gossia bidwillii*, *Excoecaria dallachyana* and *Vitex lignum-vitae*. *Archontophoenix cunninghamiana* often present in gully floors. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 5a)
- RE12.3.3: *Eucalyptus tereticornis* woodland. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium. Other species that may be present as scattered individuals or clumps include *Angophora subvelutina* or *A. floribunda*, *Corymbia clarksoniana*, *C. intermedia*, *C. tessellaris*, *Lophostemon suaveolens* and *E. melanophloia*. Occurs on Quaternary alluvial plains, terraces and fans where rainfall is usually less than 1000mm/y. (BVG1M: 16c)

The referral area is dominated by species consistent with mapped Least Concern RE12.9-10.2 with some elements of RE12.3.3 along the western boundary. The vegetation was dominated by *Eucalyptus tereticornis* (Forest Red Gum) and *Corymbia citriodora* (Spotted Gum). Other observed eucalypt species were *C. trachyphloia* (Brown Bloodwood), *E. crebra* (Narrow-leaved Ironbark) and *Lophostemon suaveolens* (Swamp Box). Within the mapped Endangered RE12.3.3 area, the dominant canopy species observed comprised *E. tereticornis* (Forest Red Gum) and *L. suaveolens* (Swamp Box) with *Angophora leiocarpa* (Smooth-barked Apple) and *C. intermedia* (Pink Bloodwood). The vegetation was largely intact with relatively low evidence of physical disturbance. However, due to the historical and surrounding land uses, the groundcover contains a mix of native and weed species, with the dominant species including *Lantana camara* (Lantana), *Baccharis halimifolia* (Groundsel Bush), *Heteropogon contortus* (Black Speargrass), *Aristida vagans* (Threeawn Speargrass), *Imperata cylindrica* (Blady Grass) and *Lobelia purpurescens* (White Root).

4.2.4 Connectivity

The referral area contains mostly intact vegetative cover, providing connectivity between and toward the east and west. However, encroaching urban development to the south and west and the Cunningham Highway to the north limit potential for connectivity within the broader landscape. The landscape to the south and west contains fragmented ecological values and residential development associated with the RVPDA. Additionally, the referral area is bound by Fischer Road to the east, which provides access to rural properties external the RVPDA. The referral area is located within the 'Urban Living' zone and earmarked for development under the RVPDA. Fischer Road and the future School will provide a buffer zone to higher density urban development in the west. Connectivity within the wider landscape will be retained to the east and south of the Centenary Highway with continuous bushland which currently connects to White Rock Conservation Park and beyond to the Flinders-Karawatha Bioregional Corridor.

Refer to **Plan 3** for the fragmentation analysis.

4.2.5 Flora Results

A total of one hundred and fourteen (114) flora species were recorded across the wider allotment during field surveys, as listed in **Appendix D**. Of the one hundred and fourteen (114) flora species recorded throughout the entire site, fifty-nine (59) are native and fifty-five (55) species are considered to be non-native / introduced species.

Refer to **Appendix D** for the complete broader allotment flora list and native / non-native designation.

No flora species listed under the EPBC Act nor NCA were recorded in or adjoining the referral area.

4.2.6 Fauna Results

A total of forty-three (43) fauna species have been recorded across the wider allotment during field surveys by Yurrah Pty Ltd (2014) and SHG (2017), including twenty-seven (27) birds, two (2) amphibians, four (4) mammals and three (3) reptiles. No conservation significant fauna species or evidence of their activity were recorded during the field survey.

A complete fauna species list is provided in **Appendix D**.

Motion sensor cameras

Five (5) motion sensor cameras were deployed across the wider allotment area by SHG (2017). The cameras recorded high use by local residences for exercise and dog walking however *Felis catus* (Feral Cat), *Vulpes vulpes* (Fox) and *Alectura lathami* (Australian Brush Turkey) were also recorded.

4.2.7 Threatened Fauna Assessment

Database searches returned twenty-four (24) fauna species listed as threatened under the EPBC Act and/or NCA as having been previously recorded or predicted to occur within 5 km of the referral area. The desktop assessment determined four (4) threatened fauna species listed under the EPBC Act and/or NCA as having moderate or higher potential to occur on or near the referral area. A summary of field assessments targeting these species is found below for each species.

Koala (*Phascolarctos cinereus*)

The Koala occurs in a range of environments containing eucalypt woodland. The site retains ecological values and potential habitat for this species in the form of *Corymbia* and eucalypt woodland. The referral area contains a variety of eucalypt and *Corymbia* species as well as other Koala food trees including lophostemons, angophoras and melaleucas. Although low Koala use is associated with the site, Koala food trees dominate the flora species.

Austecology (2014) completed extensive Koala surveys across the wider allotment area. The systematic transect search provided twenty-seven (27) locations where the SAT was applied. A further three (3) were established during subsequent field surveys as part of the habitat assessment also completed. The majority of the SAT results provided comparatively poor results regarding evidence of Koala activity. Overall, the SAT data was indicative of a relatively low-level activity.

Although no further SAT surveys were completed as part of more contemporary surveys, it is confirmed that Koala activity was more recently observed in the form of scats at some of the large *Eucalyptus tereticornis* (Forest Red Gum) specimens associated with the mapped waterways. No individual specimens were observed throughout any previous survey periods.

Grey-headed Flying-fox (*Pteropus poliocephalus*)

Pteropus poliocephalus (Grey-headed Flying-fox) requires foraging resources and roosting sites to persist. The species is known to use a wide variety of habitats including subtropical and temperate rainforests, tall sclerophyll forest and woodlands, heaths, swamps and also urban and agricultural areas where food trees have been cultivated.

The species is highly adaptive with its diverse native diet, which it can supplement with introduced species. It is known to forage within a variety of habitat areas as each resource does not produce food throughout the entire year. The closest active GHFF roosts are located in Yamanto, approximately 3.7 km north-west of the site and 6.5 km north at Paice Street, Bundamba. The nearest roost with greater than 2,500 GHFFs is located approximately 24 km north-east on Avondale Crescent, Parkinson. Field surveys did not locate roosting sites on the referral area or within the immediate vicinity of the site.

No Grey-headed Flying-fox individuals were recorded during field surveys.

It is noted that foraging habitat for the Grey-headed Flying-fox is generally considered analogous with habitat for the Koala.

Swift Parrot (*Lathamus discolor*)

The Swift Parrot breeds in Tasmania during the austral summer and the entire population migrates north to mainland Australia for the austral winter. Whilst on the mainland the Swift Parrot disperses widely, foraging on flowers and lerps in *Eucalyptus* spp. mainly in Victoria and New South Wales. Only a small number of Swift Parrots are observed in Queensland on a regular basis. Within Queensland, the preferred foraging species include *Eucalyptus macrocarpa*, *Eucalyptus melliodora*, *Eucalyptus robusta*, *Eucalyptus tereticornis* and *Corymbia citriodora*. The species prefers large trees which flower consistently.

Some potential foraging habitat was noted within the referral area, with species such as *Corymbia citriodora*, *Eucalyptus tereticornis* and *E. crebra* recorded on-site. Due to historical disturbances, small diameter eucalypts were the dominant vegetation, though larger diameter eucalypts are present across the referral area.

Given the relatively high mobility capacity of the species and abundance of preferential habitat within close proximity of the site (Greenbank Military Base and the Flinders-Karawatha Corridor), the significance of the foraging habitat on-site is considered marginal at best. This is further supported by the National Recovery Plan for the Swift Parrot (*Lathamus discolor*) (Saunders & Tzaros 2011) which states “Many of the Swift Parrot foraging sites in Queensland occur in council reserves or parkland. The Regional Ecosystems containing preferred Swift Parrot forage tree species have been mapped and overlaid for the recorded areas of Swift Parrots in Queensland”. Review of the Vegetation Management Act 1999 Vegetation Management Report indicates that the referral area does not contain essential habitat for the Swift Parrot, whereas, this is not the case for the Greenbank Military Base.

No Swift Parrots were recorded during field surveys.

Regent Honeyeater (*Anthochaera phrygia*)

The Regent Honeyeater has an extremely patchy distribution, with a small number of known breeding sites. Regent Honeyeaters are known to use different areas in different years depending on food resources, with research also indicating that they may travel large distances. Most Regent Honeyeater records have been derived from box-ironbark eucalypt associations, where the species appears to prefer more fertile sites with higher soil water content, including creek flats, broad river valleys and lower slopes. Key tree species for the Regent Honeyeater include *Eucalyptus sideroxylon*, *Eucalyptus melliodora*, *Eucalyptus albens*, *Eucalyptus leucoxylon*, *Corymbia maculata/citriodora*, *Eucalyptus robusta*, *Casuarina cunninghamiana*, *Amyema cambagei* and *Dendrophloe vitellina*. The species prefers large trees which flower consistently.

The species was not identified on-site during field survey events; however, some potential foraging habitat was noted within the referral area with *Corymbia citriodora* recorded. A number of factors reduce the suitability of this site as potential foraging habitat. Due to historical disturbances, preferred large diameter eucalypts are limited across the referral area, reducing the availability of preferred habitat on-site. Additionally, Regent Honeyeaters are known to be outcompeted by aggressive birds such as the Noisy Miner (*Manorina melanocephala*), a species which was observed utilising the vegetation on-site.

Given the high mobility capacity of the species and abundance of preferential habitat within close proximity of the site (Greenbank Military Base and the Flinders-Karawatha Bioregional Corridor), the significance of the foraging habitat on-site is considered marginal at best.

Overall, there is low potential that Regent Honeyeaters would utilise the vegetation on-site because of the presence of marginal foraging habitat, and competition from other species and presence of more suitable foraging habitat in the broader landscape.

No Regent Honeyeaters were recorded during field surveys.

4.2.8 Migratory Species Assessment

Database searches returned sixteen (16) migratory fauna species listed as threatened under the EPBC Act and/or NC Act, as having been previously recorded or predicted to occur within 5 km of the referral area. Following the likelihood of occurrence assessment, no species were identified as having a moderate or greater likelihood of occurring on-site.

No migratory fauna species of conservation significance were recorded during the field survey.

A complete broader allotment fauna species list is provided in **Appendix D**.

4.3. Risk of Impact

A likelihood of occurrence assessment was conducted prior to reviewing field surveys undertaken across the referral area to identify the MNES (TECs and threatened and/or migratory species) of potential relevance to the referral area. The identified MNES were then the focus of the field survey program and effort.

The likelihood of occurrence was revised following confirmation of field survey results, for confirmed vegetation communities and associated habitats contained within the referral area. The outcome of this two-staged likelihood of occurrence is presented in the following sub-sections.

Those matters with a moderate or high likelihood of occurrence proceed to the impact assessment presented in the **Referral Report**.

4.3.1 EPBC Act Threatened Ecological Communities

The likelihood of occurrence for each TEC within the referral area, as presented in **Appendix C**, referred to State Government Regional Ecosystem mapping within the locality and known distributions of the TECs, to identify those TEC's with potential to occur in the referral area or recorded during field surveys.

The PMST (refer **Appendix A**) returned the following five (5) TECs, listed under the EPBC Act, as having potential to occur within 5 km of the referral area:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Lowland Rainforest of Subtropical Australia
- Poplar Box Grassy Woodland on Alluvial Plains
- Swamp Tea-tree (*Melaleuca irbyana*) Forest of South-east Queensland
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The results of the likelihood of occurrence assessment determined that none of the above-mentioned TECs were likely to occur due to the absence of indicative Regional Ecosystems and species on site typically associated with these TECs.

Field surveys confirmed no TECs were present within the referral area.

4.3.2 Threatened Flora Species

Database searches returned eighteen (18) flora species, listed as threatened under the EPBC Act and/or NCA as having been previously recorded or potential to occur within 5 km of the referral area, as presented in **Appendices A & B**.

Based on the presence of species records within the locality and field surveys within the referral area, a revised likelihood of occurrence assessment was conducted to determine those threatened flora species with potential to occur within the referral area. One (1) species, *Melaleuca irbyana*, not a listed species under the EPBC Act was identified as having a moderate risk of occurrence on the site.

This species has not been identified on the referral area during targeted field surveys, including Protected Plant Surveys under the Queensland *Nature Conservation Act 1992* (refer **Table 6**). As such, **field surveys confirmed that no EPBC or NCA listed flora species were present within the referral area.**

Table 6: Field Assessment Confirmed Likelihood of Occurrence – Threatened Flora

Scientific Name	EPBC Act / NC Act status	Desktop Likelihood of Occurrence	Field Assessment Confirmed Likelihood of Occurrence
<i>Melaleuca irbyana</i> (Swamp Tea-tree)	- / Near Threatened	Moderate The referral area is mapped entirely as Category B (remnant) under the Queensland VMA; regional ecosystem mapping indicates the area is dominated by RE12.9-10.2. However, a sliver of RE12.3.3 is mapped along the western referral area boundary which is known to provide habitat for this species. In addition, there are two (2) WildNet records of the species proximal to the site, located approximately 2.8 km and 3.4 km south-west of the site. There are two other records of this species located over 6km south-east of the referral area within White Rock Conservation Area. Although the referral area has been subject to historical disturbance, there	Low The referral area provides limited habitat for this species within mapped RE12.3.3 locations associated with the watercourse. Extensive field surveys have been undertaken across the referral area for threatened flora species in 2018 and 2021. No threatened flora species have been identified on the referral area during field surveys. Therefore, there is a low likelihood that this species is present on-site.

Scientific Name	EPBC Act / NC Act status	Desktop Likelihood of Occurrence	Field Assessment Confirmed Likelihood of Occurrence
		is a moderate likelihood that this species may occur on-site.	

The complete likelihood of occurrence is provided in **Appendix C**.

4.3.3 Threatened Fauna Species

Database searches returned twenty-four (24) fauna species, listed as threatened under the EPBC Act and / or NCA, as having been previously recorded or predicted to occur within 5 km of the referral area, as presented in **Appendices A & B**.

Based on the presence of species records within the locality and field surveys within the referral area, a revised likelihood of occurrence assessment was conducted to determine those threatened fauna species with potential to occur within the referral area (refer **Appendix C**). The assessment identified that two (2) threatened fauna species had a moderate or high likelihood of occurring on-site (refer **Table 7**).

No fauna species listed under the EPBC Act and NCA, were recorded during field surveys.

Table 7: Field Assessment Confirmed Likelihood of Occurrence – Threatened Fauna

Scientific Name (common name)	EPBC	NCA	Desktop (Preliminary) Likelihood of Occurrence	Field Assessment Confirmed (Revised) Likelihood of Occurrence
<i>Anthochaera phrygia</i> (Regent Honeyeater)	Critically Endangered	Endangered	Moderate The referral area is mapped as containing entirely Category B (remnant) vegetation under the Queensland VMA. Although subject to historical disturbances, the referral area retains vegetation which may provide some potential foraging habitat. There is one (1) confirmed records of the Regent Honeyeater in 2019 located proximal to the site, located approximately 4.3 km south of the referral area within Ripley. Two (2) other records of this species are located approximately 9.4 km south-west and another approximately 10.5 km south-east of the referral area within Spring Mountain Conservation Estate. In addition, the site is located proximally to continuous, high quality foraging habitat located within the White Rock Conservation Park and Flinders-Karawatha Bioregional Corridor to the south-east of the site, reducing potential that the species would utilise the vegetation site. Based on these assessments, there is a moderate likelihood that this species would occur on-site, however, it is likely that any occurrence is limited to opportunistic foraging.	Low Field surveys found the referral area provides potential low quality foraging habitat. This vegetation is dominated by <i>Corymbia citriodora</i> (Spotted Gum) and <i>Eucalyptus tereticornis</i> (Forest Red Gum) with <i>E. crebra</i> (Narrow-leaved Ironbark). However, <i>Manorina melancephala</i> (Noisy Miner) have been observed across the referral area, which are known to outcompete the Regent Honeyeater, reducing potential for this species to opportunistically forage on-site. Additionally, this species was not observed across the referral area during field surveys. Overall, there is considered to be low potential that the Regent Honeyeater would utilise the vegetation on-site due to the presence of foraging habitat, limited large diameter eucalypts, competition from other species and the presence of more suitable foraging habitat in the surrounding landscape associated with the Flinders-Karawatha Bioregional Corridor the east.
<i>Lathamus discolor</i> (Swift Parrot)	Critically Endangered	Endangered	Moderate The referral area is mapped as containing entirely Category B (remnant) vegetation under the Queensland VMA. Aerial imagery indicates the referral area has been subject to historical disturbances however retains potential foraging habitat in the form of eucalypt dominated forest.	Low Field surveys identified suitable poor quality foraging habitat is present in the form of eucalypt woodland, dominated by <i>Corymbia citriodora</i> (Spotted Gum) and <i>Eucalyptus tereticornis</i> (Forest Red Gum) with <i>E. crebra</i> (Narrow-leaved Ironbark). As a result of historical disturbances, large diameter eucalypt specimens are limited that are preferred foraging resources for the Swift Parrot due to their higher productivity.

Scientific Name (common name)	EPBC	NCA	Desktop (Preliminary) Likelihood of Occurrence	Field Assessment Confirmed (Revised) Likelihood of Occurrence
			There is one (1) record of this species on Atlas of Living Australia data sightings within 10 km of the referral area approximately 9.4 km to the south-west. The most recent record of this species is located approximately 12.2 km south-east of the referral area within the Springfield Lakes area in 2019 according to Atlas of Living Australia. In addition, the site is located proximally to continuous, high quality foraging habitat located within the White Rock Conservation Park and Flinders-Karawatha Bioregional Corridor to the east of the site, reducing potential that the species would utilise the vegetation site. Based on these assessments, there is a moderate likelihood that this species would occur on-site, however, it is likely that any occurrence is limited to opportunistic foraging.	In addition, Swift Parrots are known to be outcompeted by aggressive bird species such as <i>Manorina melanocephala</i> (Noisy Miner) which have been observed utilising the vegetation on-site which may reduce potential for the species to opportunistically forage on-site. Additionally, this species was not observed across the referral area during field surveys. Overall, due to the presence of more suitable foraging habitat within the broader landscape associated with the Flinders-Karawatha Corridor, there is considered to be low potential that the Swift Parrot would utilise the vegetation on-site and in the adjoining vegetation. Any occurrence would be limited to opportunistic foraging and the vegetation is unlikely to form critical foraging habitat.
<i>Phascolarctos cinereus</i> (Koala)	Vulnerable	Vulnerable	Moderate The entire site is mapped as Category B (remnant) vegetation under the Queensland VMA. Field surveys confirmed Koala habitat is present on-site in the form of eucalypt woodland dominated by <i>Corymbia citriodora</i> (Spotted Gum), <i>Eucalyptus tereticornis</i> (Forest Red Gum) and <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark). The site is described as being fragmented from vegetation to the south and west. However, the site does adjoin patches of Category B (remnant) and Category C (high value regrowth) to the north and east, increasing potential for transient Koalas to occur on-site. Koalas have been known to occur within the locality and proximal within a 5 km radius of the site according to Queensland WildNet data sightings and Atlas of Living Australia. The vast majority of	Moderate Field surveys confirmed Koala habitat is present on-site in the form of regrowth eucalypt woodland dominated by <i>Corymbia citriodora</i> (Spotted Gum) and <i>Eucalyptus tereticornis</i> (Forest Red Gum) with some <i>E. crebra</i> (Narrow-leaved Ironbark). No individuals have been recorded on the referral area or across the wider allotment during opportunistic and targeted surveys. Evidence of this species in the form of scats and scratch marks have been recorded during field surveys, suggesting Koalas a low-level activity across the site. This species is therefore considered a moderate likelihood of occurrence on-site.

Scientific Name (common name)	EPBC	NCA	Desktop (Preliminary) Likelihood of Occurrence	Field Assessment Confirmed (Revised) Likelihood of Occurrence
			records within close proximity to the site have been recorded over 20 years ago. The closest record (approximately 500m south of the referral area) was observed in the year 2000. No direct observations of koala have been recorded on-site only evidence of low Koala usage have been detected in the form of scats.	
<i>Pteropus poliocephalus</i> (Grey-headed Flying Fox)	Vulnerable	-	Moderate The entire site is mapped as Category B (remnant) vegetation under the Queensland VMA. Potential foraging habitat for the GHFF is located on-site in the form of eucalypt. There are no observed roosts on-site, with the nearest active roost sites being Yamanto (479), located 3.7 km north-west of the site and Paice Street, Bundamba (574), located 6.5 km north of the site. Field surveys did not locate roosting sites on the referral area or within the immediate vicinity of the site. There is only one (1) record of the species within a 5 km radius of the site according to Queensland WildNet sightings data. The species was not observed as a fly over species or utilising the vegetation during the survey period. Given the site's proximity to roosting sites and availability of potential foraging habitat, there is moderate likelihood that the species may opportunistically forage on-site.	Moderate Field surveys confirmed the presence of potential foraging habitat for the GHFF on-site in the form of eucalypt woodland, dominated by <i>Corymbia citriodora</i> (Spotted Gum) and <i>Eucalyptus tereticornis</i> (Forest Red Gum) and with some <i>E. crebra</i> (Narrow-leaved Ironbark). No roosts were observed on-site and field surveys did not detect any GHFF on or in the vicinity of the site. Given the site's proximity to roosting sites and the presence of potential foraging habitat on-site, there is moderate likelihood that the species may opportunistically forage on-site.

The complete likelihood of occurrence is provided in **Appendix C**.

5. Conclusion

This ecological assessment has identified Matters of National Environmental Significance (MNES) recorded or predicted to potentially occur on or near the referral area.

Detailed analysis confirmed that the Koala and Grey-headed Flying-fox require additional assessment as to whether or not a significant impact on these MNES is likely. Refer to the accompanying **Referral Report** for these assessments.

6. Appendices

Appendix A

EPBC Act Protected Matters Report

Appendix B

Wildlife Online Database Search Results

Appendix C

Likelihood of Occurrence Assessment

Appendix D

Broader Allotment Flora and Fauna Species List

Appendix A

EPBC Act Protected Matters Report



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

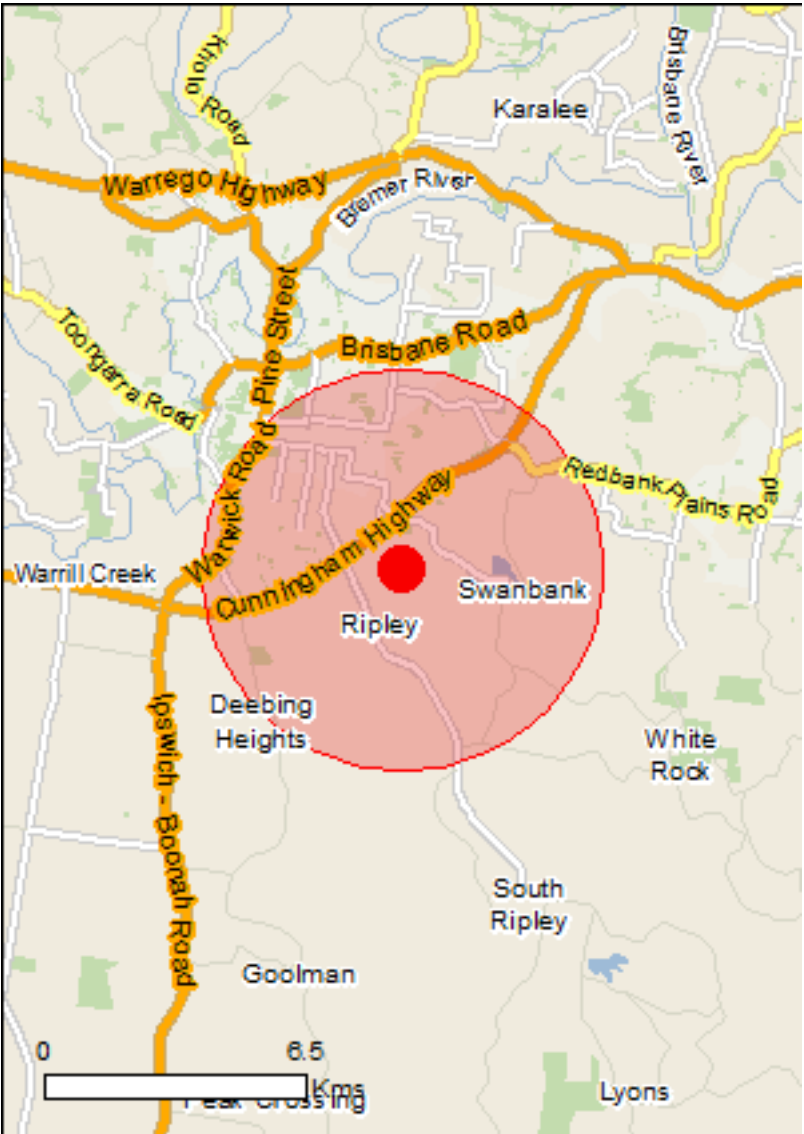
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 24/09/21 08:35:28

- [Summary](#)
- [Details](#)

[Matters of NES](#)[Other Matters Protected by the EPBC Act](#)[Extra Information](#)
- [Caveat](#)
- [Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	36
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	40
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[Resource Information]
Name	Proximity	
Moreton bay	30 - 40km upstream	

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area
Swamp Tea-tree (Melaleuca irbyana) Forest of South-east Queensland	Critically Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area
Cupaniopsis tomentella Boonah Tuckeroo [3322]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat known to occur within area
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land

[Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name	Threatened	Type of Presence
Defence - IPSWICH TRAINING DEPOT		
Listed Marine Species		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Invasive Species

[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom		Species or species habitat likely to occur

Name	Status	Type of Presence
[20126] Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage		within area Species or species habitat likely to occur within area
[10892] Lycium ferocissimum African Boxthorn, Boxthorn	[19235]	Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears	[82753]	Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean	[12301]	Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed	[19566]	Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead	[68483]	Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow	[68497]	Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed	[13665]	Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel	[2624]	Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo	[12323]	Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko	[1708]	Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi	[1258]	Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-27.6567 152.791

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

[© Commonwealth of Australia](#)

[Department of Agriculture Water and the Environment](#)

GPO Box 858

Canberra City ACT 2601 Australia

+61 2 6274 1111

Appendix B

Wildlife Online Database Search Results



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -27.6567
Longitude: 152.7910
Distance: 5
Email: liambrzezinski@saundershavill.com
Date submitted: Friday 24 Sep 2021 08:42:46
Date extracted: Friday 24 Sep 2021 08:50:02

The number of records retrieved = 10

Disclaimer

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (<https://www.qld.gov.au/environment/plants-animals/species-information/wildnet>) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		V	V	2
animals	birds	Rostratulidae	<i>Rostratula australis</i>	Australian painted snipe		E	E	3
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		V	V	117
plants	land plants	Apocynaceae	<i>Leichhardtia coronata</i>			V		5/5
plants	land plants	Cupressaceae	<i>Callitris baileyi</i>	Bailey's cypress		NT		1/1
plants	land plants	Lamiaceae	<i>Coleus habrophyllus</i>			E	E	1/1
plants	land plants	Myrtaceae	<i>Melaleuca irbyana</i>			E		3/3
plants	land plants	Oleaceae	<i>Notelaea ipsviciensis</i>	Cooneana olive		CR	CE	8/7
plants	land plants	Oleaceae	<i>Notelaea lloydii</i>	Lloyd's native olive		V	V	5/5
plants	land plants	Poaceae	<i>Calypochloa gracillima subsp. ipsviciensis</i>			CR		3/3

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

Appendix C

Likelihood of Occurrence Assessment

Listed Threatened Ecological Communities (TECs)

Name	Status	Type of presence	Description of the community/preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	Coastal Swamp Oak Forest typically occurs on unconsolidated sediments, including alluvium deposits. The canopy layer is dominated by <i>Casuarina glauca</i> (swamp oak, swamp she-oak). This often occurs as a relatively uniform upper layer of swamp oak, with height and density dependent on the local environmental conditions. This TEC is associated with RE12.1.1 and RE12.3.20.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site. The Regional Ecosystems associated with this TEC were confirmed to be absent on-site.	Low	Unlikely
Lowland rainforest of subtropical Australia	Critically endangered	Community may occur within area	This TEC occurs mainly on basalt and alluvial soils and is characteristic of a low abundance of <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Casuarina</i> species. Specimens with buttress roots and a diversity of vines are common throughout this TEC. This TEC is associated with RE12.3.1, RE12.5.13, RE12.8.3, RE12.8.4, RE12.11.1, RE12.11.10, RE12.12.1 and RE12.12.16.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site. The Regional Ecosystems associated with this TEC were confirmed to be absent on-site.	Low	Unlikely
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	The Poplar Box Grassy Woodland on Alluvial Plains ecological community is typically a grassy woodland with a canopy dominated by <i>Eucalyptus populnea</i> and understorey mostly of grasses and other herbs. The ecological community mostly occurs in gently undulating to flat landscapes and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin. This TEC is associated with RE11.3.2, RE11.3.17, RE11.4.7, RE11.4.12, and RE12.3.10.	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site. The Regional Ecosystems associated with this TEC were confirmed to be absent on-site.	Low	Unlikely
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically endangered	Community may occur within area	Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. In Queensland the ecological community is a primary component of the following Regional Ecosystems:	Desktop analysis and detailed field surveys confirmed that this TEC does not occur on-site or adjacent to the site. The Regional Ecosystems associated with this TEC were confirmed to be absent on-site.	Low	Unlikely

			11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8 and 13.12.9. It can also be a smaller component of the following regional ecosystems: 11.3.23, 12.8.16 (only at the far western edge of the bioregion), 13.3.4, 13.11.3 and 13.11.4. These regional ecosystems range in conservation status from 'not of concern at present' to 'endangered'.			
--	--	--	--	--	--	--

Listed threatened species

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
Birds								
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E	82338	Regent Honeyeaters mostly occur in dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites. These areas are generally associated with creek flats and river valleys and foothills. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. They are a generalist forager, which mainly feed on nectar from a wide range of eucalypts and mistletoes, particularly in areas with box-ironbark associations, preferring more fertile sites with higher soil water content, more typical of Land Zone 3. They have also been found to prefer large diameter eucalypt trees for foraging as they typically produce more nectar. The Regent Honeyeater's preferred foraging species is <i>Corymbia maculata</i> which is primarily found in southern NSW. Similar species, <i>Corymbia citriodora</i> and <i>C. henryi</i> are more common in south-east Queensland.	The referral area is mapped as containing entirely Category B (remnant) vegetation under the Queensland <i>Vegetation Management Act 1999</i>. The site contains Eucalypt woodland which may provide potential foraging habitat. Vegetation is dominated by <i>Corymbia intermedia</i> (Pink Bloodwood) and <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), and the referred foraging species, <i>Corymbia citriodora</i> (Spotted Gum). There are two (2) confirmed records of the Regent Honeyeater in 2019 located proximal to the site and in the broader Ipswich locality according to Atlas of Living Australia (ALA). One is located approximately 4.7 km south of the site within the suburb of Ripley, and another, 11.3 km east of the site within Spring Mountain Conservation Estate. Regent Honeyeaters are known to be outcompeted by aggressive bird species such as <i>Manorina melanocephala</i> (Noisy Miner). This species were observed to be utilising the vegetation on-site which may reduce	Moderate	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
						potential for Regent Honeyeaters to opportunistically forage on-site. In addition, the site is located proximally to continuous, high quality foraging habitat located within the White Rock Conservation Park and Flinders-Karawatha Bioregional Corridor to the east of the site, reducing potential that the species would utilise the vegetation site. Overall, there is considered to be low potential that the Regent Honeyeater would utilise the vegetation on-site due to the presence of marginal foraging habitat, reduced large diameter eucalypts, competition from other species and the presence of more suitable foraging habitat in the surrounding landscape.		
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	-	1001	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate south-east and south-west. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats,	There are no wetlands present on-site.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over muddy or peaty substrate. The Australasian Bittern occurs in the far south-east of Queensland; it has been reported North to Baralaba and West to Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions.			
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE	E	856	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns.	No suitable foraging or breeding habitat in the form of wetlands and mudflats occurs on-site.	Low	Low
<i>Calyptorhynchus lathami lathami</i>	Glossy Black-cockatoo (eastern)	-	V	-	This species prefers woodland areas dominated by she-oak <i>Allocasuarina</i> , or open sclerophyll forests and woodlands with a stratum of	Preferred vegetation composition dominated by <i>Allocasuarina</i> or <i>Casuarina</i> absent from site.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					Allocasuarina beneath Eucalyptus, Corymbia or Angophora. Glossy black-cockatoos have also been observed in mixed Allocasuarina, Casuarina, cypress Callitris and brigalow <i>Acacia harpophylla</i> woodland assemblages. In SEQ west of the Great Dividing Range, they have been observed feeding in remnant belah Casuarina cristata and bullock <i>Allocasuarina luehmannii</i> forests. This species is also known to utilise appropriate remnant woodlands, and individual or small pockets of Allocasuarina and Casuarina feed trees in urban areas.	It is unlikely this species would utilise the vegetation on-site.		
<i>Erythrotriorchis radiatus</i>	Red Goshawk	V	V	942	A wide ranging and highly mobile species generally observed over eucalypt habitats. This species prefers forest and woodland with a mosaic of vegetation types, large prey populations (birds) and permanent water. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins. Habitat has to be open enough for fast attack and maneuvering in flight but provide cover for ambushing of prey.	This site does not contain the mosaic of vegetation types that this species favours and lacks large, tall trees for roosting. There was no evidence of permanent residence on site. There are no records of this species within 5 km radius of the site according to Queensland WildNet sightings data. Therefore, there is low potential that the species would utilise the site.	Low	Low
<i>Falco hypoleucos</i>	Grey Falcon	V	V	929	The Grey Falcon is a medium-sized, compact, pale falcon with a heavy, thick-set, deep-chested appearance. Usually restricted to shrubland, grassland and wooded	The site contains some open woodland. Some large trees are present, however, given the majority of the site does not contain	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Like other falcons it utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring; two or three eggs are laid. The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (<i>Eucalyptus camaldulensis</i>) and Coolibah (<i>E. coolabah</i>).	preferable habitat, it is unlikely that this species would occur.		
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	V	V	64440	This species inhabits open grasslands and woodlands typically with a native understorey although may occur in artificial pasture.	This site does not contain suitable habitat in the form of modified paddocks or grasslands. In addition, the species is very rarely observed in southern Queensland, and thus this species is not expected to occur on-site.	Low	Low
<i>Grantiella picta</i>	Painted Honeyeater	V	V	470	The species inhabits mistletoes in eucalypt forests/woodlands, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher	Suitable habitat occurs on-site, however, preferred habitat of mistletoe was not observed, and the site is dominated by regrowth vegetation, therefore, there is low potential that this species would occur.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					number of mature trees, as these host more mistletoes. It is more common in wider blocks of remnant woodland than in narrower strips.			
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	-	682	Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps.	There is one (1) record of this species within 5km radius of the site according to Queensland WildNet sightings data. Unlikely to occur on-site during roosting periods, however, may be found in airspace foraging.	Low	Low
<i>Lathamus discolor</i>	Swift Parrot	CE	E	744	The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations.	The referral area is mapped as containing entirely Category B (remnant) vegetation under the Queensland <i>Vegetation Management Act 1999</i> . Aerial imagery and on-ground surveys indicate the site is highly disturbed and mostly vegetated with suitable foraging habitat present in the form of reucalypt woodland which is dominated by <i>Corymbia intermedia</i> (Pink Bloodwood), <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark) and <i>Corymbia citriodora</i> . The site is, however, lacking large diameter eucalypt specimens that are preferred foraging resources for the Swift Parrot.	Moderate	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
						There is one (1) record of this species on Queensland WildNet data sightings. The most recent record of this species is 8 km north-east of the site within the Springfield Lakes area in 2019 according to Atlas of Living Australia. In addition, the site is located proximally to continuous, high quality foraging habitat located within the White Rock Conservation Park and Flinders-Karawatha Bioregional Corridor to the east of the site, reducing potential that the species would utilise the vegetation site. The presence of more suitable foraging habitat within the broader landscape, considers to be low potential that the Swift Parrot would utilise the vegetation on-site and in the adjoining vegetation. Any occurrence would be limited to opportunistic foraging and the vegetation would be unlikely to be critical foraging habitat.		
<i>Numenius madagascariensis</i>	Eastern Curlew	CE	E	847	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean	No suitable foraging or breeding habitat in the form of wetlands and mudflats occurs on-site.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms.			
<i>Rostratula australis</i>	Australian Painted-snipe	E	V	77037	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania.	No suitable foraging or breeding habitat in the form of wetlands occur on-site.	Low	Unlikely
<i>Turnix melanogaster</i>	Black-breasted Button Quail	V	V	923	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However, the species has also been recorded in a variety of low coastal heathlands around Fraser Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured.	The site does not contain dry rainforest or vegetation immediately adjacent to rainforest, and no heathlands are present.	Low	Unlikely
Insects								
<i>Argynnis hyperbius inconstans</i>	Australian Fritillary	CE	E	88056	Most specimens have been collected from river estuaries or swampy coastal areas at or near sea level. The Australian fritillary butterfly is restricted to open, swampy, coastal areas where the larval food plant, <i>Viola betonicifolia</i> , grows as a small, insignificant ground herb in association with <i>Lomandra longifolia</i> (Long	Preferred coastal habitat is not present throughout the assessment area.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					Leaved Matrush) and grasses, especially the grass <i>Imperata cylindrica</i> (Blady Grass). This habitat is called <i>Melaleuca</i> wetlands, although the larval food plant does not occur in all sub-types of this plant community.			
Mammals								
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	183	The Large-eared Pied Bat roosts on sandstone cliffs and fertile woodland valley habitat within close proximity of each other. However, in south-east Queensland habitat includes rainforest and moist eucalypt forest habitats at high elevations.	No suitable high elevation habitat to support this species occurs on-site.	Low	Unlikely
<i>Dasyurus hallucatus</i>	Northern Quoll	E	-	331	The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas, eucalypt forests and woodlands, rainforests, sandy lowlands and beaches, shrubland, grassland and desert. Northern Quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds. Surveys in Queensland suggest that	The site has been subjected to high levels of disturbance and the majority of the site is cleared. No suitable denning habitat was observed during field surveys. Due to the lack of suitable habitat, it is unlikely that this species would occur.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					Northern Quolls are more likely to be present in high relief areas that have shallower soils, greater cover of boulders, less fire impact and were closer to permanent water.			
<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	E	V	75184	The Spot-tailed Quoll prefers mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	The site has been subjected to high levels of disturbance and the majority of the site is cleared. No suitable denning habitat was observed during field surveys. Due to the lack of suitable habitat, it is unlikely that this species would occur.	Low	Unlikely
<i>Petauroides Volans</i> / <i>Petauroides armillatus</i>	Greater Glider / Central Greater Glider	V	V	254	The Greater Glider is an arboreal nocturnal marsupial that is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of eucalypt species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges and low dispersibility make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments.	Potential foraging habitat is present on-site in the form of eucalypt woodland. However, the site lacks large, old growth hollow-bearing trees that are essential nesting habitat. In addition, there are no recent records of this species in the surrounding landscape with the most recent record being 7 km east of the site within White Rock Conservation Park in 2001. As a result, it is expected there is a low probability that this species would occur on-site.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
<i>Petrogale penicillata</i>	Brush-tailed Rock Wallaby	V	V	225	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. It also utilises tree limbs. While it appears that most Brush-tailed Rock-wallaby colonies are on north-facing slopes and cliff lines, colonies have been found on south-facing cliffs in Kangaroo Valley, in the Macleay River Gorge, in the Warrumbungles and at Mt Kaputar, although usually in lower densities.	No suitable habitat was observed throughout the subject site.	Low	Unlikely
<i>Phascolarctos cinereus</i>	Koala	V	V	85104	The Koala is found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland.	The entire site is mapped as Category B (remnant) vegetation under the <i>Vegetation Management Act 1999</i> (Qld). Field surveys confirmed Koala habitat is present on-site in the form of eucalypt woodland dominated by <i>Eucalyptus tereticornis</i> (Forest Red Gum), <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), and <i>Corymbia citriodora</i> (Spotted Gum). The site is described as being fragmented from vegetation to the south and west. However the site does adjoin patches of Category B (remnant) and Category C (high value regrowth) to the north and east, increasing potential for transient Koalas to occur on-site. Koalas have been known to occur within the locality and proximal within a 5 km radius of the site according to Queensland WildNet	Moderate	Moderate

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
						data sightings and Atlas of Living Australia. The vast majority of records within close proximity to the site have been recorded over 20 years ago. The closest record (approximately 500m south of the referral area) was observed in the year 2000. No direct observations of koala have been recorded on-site only evidence of low Koala usage have been detected in the form of scats.		
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox (GHFF)	V	-	186	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from Eucalyptus and related genera.	The entire site is mapped as Category B (remnant) vegetation under the <i>Vegetation Management Act 1999</i> (Qld). Field surveys confirmed the presence of potential foraging habitat for the GHFF on-site in the form of eucalypt woodland, dominated by <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), <i>Corymbia intermedia</i> (Pink Bloodwood) and <i>Corymbia citriodora</i> (Spotted Gum). There are no observed roosts on-site, with the nearest active roost sites being Yamanto (479), located 3.7 km north-west of the site, Ipswich Nature Centre, Queens Park, Goleby Ave (595) 4.5 km north of the site and Paice Street, Bundamba (574), located 6.5 km north of the site.	Moderate	Moderate

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
						There is only one (1) record of the species within a 5 km radius of the site according to Atlas of Living Australia. The species was not observed as a fly over species or utilising the vegetation during the survey period. Field surveys did not detect any GHFF on or in the vicinity of the site. Given the site's proximity to roosting sites and the presence of potential foraging habitat on-site, there is moderate likelihood that the species may opportunistically forage on-site.		
Plants								
<i>Arthraxon hispidus</i>	Hairy-joint Grass	V	-	9338	Hairy-joint Grass has been recorded from scattered locations throughout Queensland and on the northern tablelands and north coast of New South Wales. In NSW and QLD, Hairy-joint Grass is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks and swamps. In SEQ, Hairy-joint Grass has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullies, on creek banks, and on sandy alluvium in creek beds in open forests. The distribution of Hairy-joint Grass overlaps with Semi-evergreen vine thickets of the	No suitable habitat to support this species occurs on-site and there are no records of this species within the locality. It is unlikely that this species would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					Brigalow Belt and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland.			
<i>Bosistoa transversa</i>	Three-leaved Bosistoa	V	-	16091	The Three-leaved Bosistoa is conserved within Mt Warning National Park, Numbinbah Nature Reserve, Limpinwood Nature Reserve and Whian State Forest. While population information is unavailable, it is thought to be common in its range. It generally grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300 meters in altitude. It is commonly associated with <i>Argyrodendron trifoliolatum</i> , <i>Syzygium hodgkinsoniae</i> , <i>Endiandra pubens</i> , <i>Dendrocnide photinophylla</i> , <i>Acmena ingens</i> , <i>Diploglottis australis</i> and <i>Diospyros mabacea</i> .	Rainforest/wet eucalypt forest and the species that the Three-leaved Bosistoa is commonly associated with were not located on site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Calypochloa gracillima</i> subsp. <i>ipsviciensis</i>	-	-	CE	-	<i>Calypochloa gracillima</i> subsp. <i>ipsviciensis</i> is a species of grass endemic to southeast Queensland in the vicinity of Ipswich where it is known from a few small areas. It is an uncommon to dominant species in woodlands dominated by Eucalyptus spp. including <i>E. crebra</i> and <i>E. moluccana</i> and/or <i>Corymbia citriodora</i> subsp. <i>variegata</i> on loam to clay loam duplex soils derived from shale on gently undulating to hilly terrain. Regional Ecosystems represented include 12.9–10.2, 12.9–10.3 and	The preferred Regional Ecosystem this species is known to occur (RE 12.9-10.2) is present on-site. There is one (1) record of this species on Queensland WildNet from 2012, located approximately 5 km west of the site adjacent to Cunningham Highway. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					12.9–10.19. It flowers from December to March during the wet season.			
<i>Cupaniopsis shirleyana</i>	Wedge-leaf Tuckeroo	V	V	3205	The Wedge-leaf Tuckeroo occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream beds and along riverbanks at altitudes up to 550 m above sea level. This species is also likely to occur on the margins of native vegetation in scrubby urbanised areas. Predominantly found on dark brown sandy loams and sandy clay loams (pH 5-7.5) and rocky scree slopes. Generally, these soils have formed from volcanic parent materials (mainly granites and granodiorites, basalt and andesitic flows, and pyroclastics).	Preferred habitat in the form of dry rainforest is not present on-site. There are no local records within the Queensland WildNet sightings data therefore it is unlikely that it would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Cupaniopsis tomentella</i>	Boonah Tuckeroo	V	V	3322	No description available.	Little is known about species' habitat and distribution. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Dichanthium setosum</i>	Bluegrass	V	-	14159	In Queensland, bluegrass has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions. <i>Dichanthium setosum</i> is associated with heavy basaltic black soils and stony red-brown hardsetting loam with clay. It can be found in moderately disturbed areas	There are no local records of this species within the Queensland WildNet sightings data, with the closest sighting in the Toowoomba and surrounds. This species is unlikely to occur on-site due to lack of suitable conditions.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. The extent to which this species tolerates disturbance is unknown.	Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.		
<i>Fontainea venosa</i>		V	V	24040	Occurs in notophyll vine forest and vine thicket with a mean annual rainfall of 1000-1100 mm on soils derived from and containing abundant andesitic rocks, often on rocky outcrops or along creeks.	Suitable habitat not present on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Melaleuca irbyana</i>	Swamp Tea-tree	-	E	-	Forms dense forest communities. The Swamp Tea-tree (Forest) grows on poorly draining clay soils on the plains and low hills of the Moreton basin. The clay soils drain slowly and often become waterlogged after heavy rains, resulting in the appearance of numerous temporary ponds.	The site is mapped entirely as Category B (remnant) under the Queensland <i>Vegetation Management Act 1999</i> ; mapped primarily as RE12.9-10.2 which is not known to provide habitat for this species. There are four (4) records (ALA and Biomaps) of the species proximal to the site, located approximately 3km south-east of the site. There is moderate likelihood the species would be present on-site. The entire referral area was searched during field surveys and no observations of this species were made.	Moderate	Unlikely
<i>Notelaea ipsviciensis</i>	Cooneana Olive	CE	E	81858	The Cooneana Olive survives as an understorey plant in degraded, eucalypt dominated dry sclerophyll vegetation communities. Soils in the area are of low fertility, depauperate and	While suitable habitat is present on-site, it is unlikely to occur as there is only one known population of which the site is not located nearby.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					sandstone-based. This species prefers open woodland communities with open canopies. The known population is adjacent to subdivided, modified and developed land.	Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.		
<i>Notelaea lloydii</i>	Lloyd's Olive	V	V	15002	The species occurs on undulating to hilly terrain either in moist gullies or on gentle to steep dry slopes, but is rarely found on rocky outcrops. Soil types are mostly shallow, well drained and stony to very rocky in texture. Found in the ecotone between eucalypt open forests and vine thickets at 80-480 m above sea level (asl).	No suitable habitat to support this species occurs on-site. There are no local records within the Queensland WildNet sightings data therefore it is unlikely that it would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Phaius australis</i>	Lesser Swamp-orchid	E	E	5872	This species is associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark (<i>Melaleuca leucadendra</i>) or Swamp Mahogany (<i>Eucalyptus robusta</i>) are found. Less commonly, the species has been found in drier forest near the coast.	Preferred habitat in the form of coastal wetlands is not present on-site. It is unlikely that this species would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	CE	15763	Known to occur from coastal districts of NSW north from Batemans Bay to Bundaberg in Queensland. The distribution occasionally extends inland onto the escarpment up to 600 m ASL in areas with rainfall of 1000-1600 mm. Commonly occurs in all rainforest subforms except cool temperate rainforest. Species	Preferred habitat in the form of rainforest is not present on-site. In addition, there are no records of this species within the locality. It is unlikely that this species would occur on-site.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					occupies a range of volcanically derived and sedimentary soils and is a common pioneer species in Eucalypt forests. Often found in wet sclerophyll associations in rainforest transition zones and Creekside riparian associations. Flowers from late winter through spring, with a peak in October and fruits appear in December in the Sydney region. Habitat is likely to include subtropical rainforests, northern warm temperate rainforests, littoral rainforest, for example.	Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.		
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	CE	19162	Known to occur from coastal districts of NSW north from Gosford to Maryborough in Queensland. Occurrence records are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges. The species flowers in late spring to early summer, producing fruits in summer. Habitat is likely to include subtropical rainforests, warm temperate rainforests, littoral rainforest, and wet sclerophyll forests.	Preferred habitat in the form of rainforest and wet sclerophyll forest is not present on-site. In addition, there are no records of this species within the locality. It is unlikely that this species would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Unlikely
<i>Samadera bidwillii</i>	Quassia	V	V	29708	Quassia commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland. Quassia is commonly found in	This species favours lowland rainforest or rainforest margins which are absent from the site, and no local records exist.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					areas adjacent to both temporary and permanent watercourses in locations up to 510 m altitude. The species occurs on lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils.	Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.		
<i>Thesium australe</i>	Austral Toadflax	V	V	15202	Austral Toadflax is semi-parasitic on the roots of a range of grass species, notably <i>Themeda triandra</i> (Kangaroo Grass). It occurs in shrubland, grassland or woodland, often on damp sites.	No suitable habitat to support this species occurs on-site. There are no local records within the Queensland WildNet sightings data therefore it is unlikely that it would occur on-site. Detailed flora surveys targeting protected plants carried out on-site did not identify the species as being present.	Low	Low
Reptiles								
<i>Delma torquata</i>	Collared Delma	V	V	1656	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.	There are no records within 5 km radius of the site according to the Queensland WildNet sightings data. However, this species has been observed previously within the Ripley locality therefore there is potential that the species may occur on-site if suitable microhabitat is present. Rocky outcrop areas are not present on site. No specimens have been observed during field surveys is low potential that this species would occur.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
<i>Furina dunmalli</i>	Dunmall's Snake	V	V	59254	Dunmall's Snake has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow other Wattles, native Cypress or Bull-oak, and various Blue Spotted Gum, Ironbark, White Cypress Pine and Bull oak open forest and woodland associations on sandstone derived soils. Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level. The snake is very rare or secretive with limited records existing. It has been recorded at Archokoora, Oakey, Miles, Glenmorgan, Wallaville, Gladstone, Lake Broadwater, Mount Archer, Exhibition Range National Park, roadside reserves between Inglewood and Texas, Rosedale, Yeppoon and Lake Broadwater Conservation Park.	No suitable habitat to support this species occurs on-site and site is outside species' recorded populations.	Low	Unlikely

*Status abbreviations are as follows: CE = Critically Endangered, E = Endangered, V = Vulnerable, NT = Near Threatened, C = Least Concern, SL = Special Least Concern, - = Not Listed.

Listed migratory species (not listed above)

Scientific name	Common name	EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence
Migratory marine birds						
<i>Apus pacificus</i>	Fork-tailed Swift	678	This species is almost exclusively aerial and mostly occur over inland plains but sometimes above foothills or in coastal areas.	No suitable habitat to support this species occurs on-site.	Low	Unlikely
Migratory terrestrial species						
<i>Cuculus optatus</i>	Oriental Cuckoo	86651	Non-breeding habitat only: monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habitat types.	No suitable habitat to support this species occurs on-site.	Low	Unlikely
<i>Monarcha melanopsis</i>	Black-faced Monarch	609	The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine forests, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and occasionally cool temperate rainforest.	No suitable habitat to support this species occurs on-site.	Low	Unlikely
<i>Monarcha trivirgatus</i>	Spectacled Monarch	610	The Spectacled Monarchs natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. Its preference is for thick understorey areas.	No suitable habitat to support this species occurs on-site.	Low	Unlikely
<i>Motacilla flava</i>	Yellow Wagtail	644	This species occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra.	No suitable habitat to support this species occurs on-site.	Low	Unlikely
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	612	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt dominated forests and taller woodlands, and on migration occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	No suitable habitat to support this species occurs on-site.	Low	Unlikely

Scientific name	Common name	EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence
<i>Rhipidura rufifrons</i>	Rufous Fantail	592	The Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as <i>Eucalyptus microcorys</i> , <i>Eucalyptus pilularis</i> , <i>Eucalyptus resinifera</i> and a number of other Eucalyptus species.	This species is frequently observed in the locality, with the majority of nearby records located within the White Rock Conservation Park. Preferred habitat for this species was not observed on-site, therefore there is a low likelihood that this species would occur, with occurrence limited to opportunistic foraging.	Low	Low
Migratory wetland species						
<i>Actitis hypoleucos</i>	Common Sandpiper	59309	The Common Sandpiper utilises a wide range of coastal wetlands and some inland wetlands, including estuaries and deltas of streams, banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and clay pans, and occasionally piers and jetties. They are mostly found in shallow water, around muddy margins or rocky shores and sometimes in muddy areas littered with rocks or snags. The species commonly utilises mangroves for foraging and roosting but is rarely seen on mudflats.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	874	In Australia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh, and beach cast algae / seaweed or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. They also occur in salt works and sewage farms. They use flooded paddocks, sedgeland and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely

Scientific name	Common name	EPBC code	Description of preferred habitat	Analysis	Desktop Likelihood of occurrence (on-site)	Field Survey Confirmed Likelihood of Occurrence
<i>Calidris melanotos</i>	Pectoral Sandpiper	858	The Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Occasionally found further inland.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely
<i>Gallinago hardwickii</i>	Latham's Snipe	863	Latham's Snipe occurs in permanent and ephemeral wetlands. They usually inhabit open, freshwater wetlands with low, dense vegetation.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely
<i>Pandion haliaetus</i>	Osprey	952	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely
<i>Tringa nebularia</i>	Common Greenshank	832	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. The species is known to forage at the edges of wetlands in soft mud or mudflats.	No suitable foraging or breeding habitat for this species occurs on-site.	Low	Unlikely

Appendix D

Broader Allotment Flora and Fauna
Species List

FLORA SPECIES LIST

Species	Common Name
NATIVE	
<i>Acacia concurrens</i>	Black Wattle
<i>Acacia disparrima</i>	Hickory Wattle
<i>Acacia fimbriata</i>	Fringed Wattle
<i>Acacia leiocalyx</i>	Early Flowering Black Wattle
<i>Acacia podalyriifolia</i>	Silver Wattle
<i>Allocasuarina littoralis</i>	Black She Oak
<i>Alphitonia excelsa</i>	Soap Tree
<i>Angophora leiocarpa</i>	Smooth Bark Apple
<i>Angophora subvelutina</i>	Broad-leaved Apple
<i>Banksia integrifolia</i>	Coastal Banksia
<i>Breynia oblongifolia</i>	Coffee Bush
<i>Cheilanthes distans</i>	Bristle Cloak Fern
<i>Chrysocephalum apiculatum</i>	Yellow Buttons
<i>Corymbia citriodora</i>	Spotted Gum
<i>Corymbia intermedia</i>	Pink Bloodwood
<i>Corymbia tessellaris</i>	Morton Bay Ash
<i>Cupaniopsis anacardoides</i>	Tuckeroo
<i>Cymbopogon refractus</i>	Barbed Wire Grass
<i>Dianella caerulea</i>	Blueberry Lily
<i>Dianella longifolia</i>	Blueberry Lily
<i>Dodonaea viscosa</i>	Hop Bush
<i>Drosera spatulata</i>	Spoon-leaved Sundew
<i>Eucalyptus acmenoides</i>	White Mahogany
<i>Eucalyptus crebra</i>	Nattow Leaf Ironbark
<i>Eucalyptus mollucana</i>	Gum Topped Box
<i>Eucalyptus siderophloia</i>	Grey Ironbark
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Eustrephus latifolius</i>	Wombat Berry
<i>Exocarpus cupressiformis</i>	Native Cherry
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus rubiginosa</i>	Port Jackson Fig
<i>Gahnia aspera</i>	Saw Sedge
<i>Geitonoplesium cymosum</i>	Scrambling Lily
<i>Glochidion sumatranum</i>	Large-leaved Cheese Tree
<i>Goodenia rotundifolia</i>	Star Goodenia
<i>Grevillea robusta</i>	Silky Oak
<i>Grewia latifolia</i>	Dog's Balls
<i>Hardenbergia violacea</i>	Native Sarsaparilla
<i>Imperata cylindrica</i>	Blady Grass
<i>Jagera pseudorhus</i>	Foambark
<i>Livistonia australis</i>	Cabbage Tree Palm
<i>Lobelia purpurascens</i>	White Root
<i>Lomandra longifolia</i>	Mat Rush

Species	Common Name
<i>Lomandra multiflora</i>	Many-flowering Mat Rush
<i>Lophostemon confertus</i>	Brush Box
<i>Lophostemon suaveolens</i>	Swamp Box
<i>Melaleuca linariifolia</i>	Snow in Summer
<i>Melaleuca quinquenervia</i>	Broadleaved Paperbark
<i>Melaleuca saligna</i>	Willow Bottlebrush
<i>Melia azedarach</i>	White Cedar
<i>Ottochloa gracillima</i>	Graceful Grass
<i>Parsonsia straminea</i>	Monkey Rope Vine
<i>Petalostigma pubescens</i>	Quinine Bush
<i>Philydrum lanuginosum</i>	Woolly Frogmouth
<i>Platycerium bifurcatum</i>	Elkhorn
<i>Pteridium esculentum</i>	Bracken
<i>Themeda triandra</i>	Kangaroo Grass
<i>Trema tomentosa</i>	Poison Peach
<i>Wahlenbergia graniticola</i>	Wahlenbergia
INTRODUCED	
<i>Ageratum houstonianum</i>	Blue Billygoat Weed
<i>Ambrosia artemisiifolia</i>	Annual Ragweed
<i>Asparagus africanus</i>	Climbing Asparagus Fern
<i>Baccharis halimifolia</i>	Groundsel Bush
<i>Bidens pilosa</i>	Cobbler's Pegs
<i>Cassytha glabella</i>	Devil's Twine
<i>Celtis sinensis</i>	Chinese Elm
<i>Centella asiatica</i>	Pennywort
<i>Chloris gayana</i>	Rhodes Grass
<i>Chloris virgata</i>	Feathertop Rhodes Grass
<i>Cinnamomum camphora</i>	Camphor Laurel
<i>Commelina diffusa</i>	Wandering Jew
<i>Conyza bonariensis</i>	Flaxleaf Fleabane
<i>Conyza sumatrensis</i>	Tall Fleabane
<i>Corymbia torelliana</i>	Cadaghi
<i>Cyperus polystachyos</i>	Bunchy Sedge
<i>Cyperus rotundus</i>	Nutgrass
<i>Eragrostis curvula</i>	African Love Grass
<i>Eremophila bedilis</i>	Winter Apple
<i>Gomphocarpus physocarpus</i>	Balloon Cotton Bush
<i>Gompholobium foliolosum</i>	Fern-leaved Wedge Pea
<i>Heliotropium amplexicaule</i>	Blue Heliotrope
<i>Ipomoea cairica</i>	Mile-a-minute
<i>Juncus usitatus</i>	Common Rush
<i>Lantana camara</i>	Lantana
<i>Lantana montevidensis</i>	Creeping Lantana
<i>Leucaena leucocephala</i>	Leucaena
<i>Ludwigia peploides</i>	Water Primrose
<i>macroptilium atropurpureum</i>	Siratro

Species	Common Name
<i>Megathyrsus maximus</i>	Guinea Grass
<i>Melinis minutiflora</i>	Mollasses Grass
<i>Melinis repens</i>	Red Natal Grass
<i>Neonotonia wightii</i>	Glycine
<i>Nymphaea caerulea</i>	Blue Water Lily
<i>Ochna serrulata</i>	Ochna
<i>Opuntia stricta</i>	Prickly Pear
<i>Ozothamnus diosmifolius</i>	Sago Flower
<i>Passiflora suberosa</i>	Corky Passion Vine
<i>Pennisetum alopecuroides</i>	Foxtail Grass
<i>Persicaria decipiens</i>	Slender Knotweed
<i>Schefflera actinophylla</i>	Umbrella Tree
<i>Schinus terebinthifolius</i>	Broadleaved Pepper
<i>Senecio madagascariensis</i>	Fireweed
<i>Senna pendula</i>	Easter Cassia
<i>Setaria spacelata</i>	Setaria
<i>Sida cordifolia</i>	Flannel Weed
<i>Sida filiformis</i>	Sida
<i>Smilax australis</i>	Barbed-wire Vine
<i>Solanum seaforthianum</i>	Brazilian Nightshade
<i>Solanum mauritianum</i>	Wild Tobacco Tree
<i>Solanum nigrum</i>	Blackberry Nightshade
<i>Solanum torvum</i>	Devil's Fig
<i>Spathodea companulata</i>	African Tulip Tree
<i>Tephrosia glomeruliflora</i>	Pink Tephrosia
<i>Themeda quadrivalvis</i>	Grader Grass

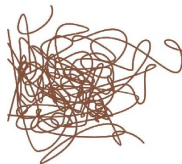
FAUNA SPECIES LISTS

Yurrah Pty Ltd 2014

Species	Common Name
BIRDS	
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Merops ornatus</i>	Rainbow Bee-eater
<i>Manorina melanocephala</i>	Noisy Minor
<i>Cymnorhina tibicen</i>	Australian Magpie
<i>Corvus orru</i>	Torresian Crow
<i>Cormobates leucophaea</i>	White-throated tree creeper (heard)
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Todiramphus sanctus</i>	Sacred Kingfisher
MAMMALS	
<i>Macropus giganteus</i>	Eastern Grey Kangaroo
REPTILES	
<i>Intellagama lesueurii</i>	Eastern Water Dragon

SHG 2017

Species	Common Name
BIRDS	
<i>Anas superciliosa</i>	Pacific Black Duck
<i>Alectura lathami</i>	Australian Brush Turkey
<i>Ardea ibis</i>	Cattle Egret
<i>Threskiornis molucca</i>	Australian White Ibis
<i>Threskiornis spinicollis</i>	Straw-necked Ibis
<i>Falco cenchroides</i>	Nankeen Kestrel
<i>Vanellus miles</i>	Masked Lapwing
<i>Streptopelia chinensis</i>	Spotted Turtle-dove
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet
<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet
<i>Platyvercus adscitus</i>	Pale-headed Rosella
<i>Podargus strigoides</i>	Tawny Frogmouth
<i>Alcedo azurea</i>	Azure Kingfisher
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Merops ornatus</i>	Rainbow Bee-eater
<i>Malurus melanocephalus</i>	Red-backed Fairy Wren
<i>Malurus cyaneus</i>	Superb Fairy Wren
<i>Pardalotus striatus</i>	Striated Pardalote
<i>Philemon corniculatus</i>	Noisy Friarbird
<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater
<i>Manorina melanocephala</i>	Noisy Minor
<i>Meliphaga lewinii</i>	Lewin's Honeyeater
<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater
<i>Dicrurus bracteatus</i>	Spangled Drongo
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Rhipidura fuliginosa</i>	Grey Fantail
<i>Cymnorhina tibicen</i>	Australian Magpie
<i>Corvus orru</i>	Torresian Crow
<i>Taeniopygia bichenovii</i>	Double-barred Finch
AMPHIBIANS	
<i>Rhinella marinus</i>	Cane Toad
<i>Litoria fallax</i>	Eastern Sedgefrog
MAMMALS	
<i>Felis catus</i>	Feral Cat
<i>Lepus europaeus</i>	European Brown Hare
<i>Macropus giganteus</i>	Eastern Grey Kangaroo
<i>Vulpes vulpes</i>	Fox
REPTILES	
<i>Intellagama lesueurii</i>	Eastern Water Dragon
<i>Varanus varius</i>	Lace Monitor
<i>Pogona barbata</i>	Bearded Dragon



31 October 2017

Our Ref: EV557

Mr Adam Slade-Jacobson
Executive Director
Monark Properties
Suite 3, 59 Ross Street, Toorak, VIC 3142

Dear Adam,

**RE: RIPLEY ROAD LAND INVESTMENTS PTY LTD AND [REDACTED] (QC2003/015) CHMP
LOT 3/SP237241, 352 RIPLEY ROAD, RIPLEY
CULTURAL HERITAGE SUMMARY**

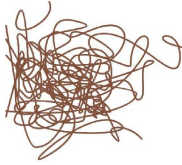
We refer to correspondence on 18 September 2017. The following letter outlines the Cultural Heritage process undertaken for the 352 Ripley Road Project.

Under the *Aboriginal Cultural Heritage Act 2003* (Qld) ('ACH Act'), all land users have a Duty of Care not to harm Aboriginal cultural heritage. In order to meet it's Duty of Care, Goldfields Group (or previous landowners), have:

- commissioned an Aboriginal Cultural Heritage Survey Report by [REDACTED];
- issued a Part 7 Notice to the then Aboriginal Cultural Heritage Body [REDACTED] under Division 3 (91) of the ACH Act;
- issued Part 7 Notices to the landholders and Department of the Aboriginal and Torres Strait Islander Partnerships ('DATSIP');
- issued endorsement of the former [REDACTED] Native Title Applicants as Endorsed Parties for the purposes of an Cultural Heritage Management Plan ('CHMP) for the Project; and
- commissioned the Endorsed Parties to undertake archaeological test excavations in accordance to the Mitigation Strategy outlined in the Aboriginal Cultural Heritage Survey Report.

Following completion of the archaeological test excavations, Everick proposes to:

- draft a Part 7 CHMP, between Ripley Road Land Investments Pty Ltd (Sponsor) and the Endorsed Parties, to be submitted to the Chief Executive of DATSIP; and
- undertake any cultural heritage impact mitigation works (salvage of artefacts, cultural interpretation) as agreed between the parties.



EVERICK
Heritage Consultants Pty Ltd

PO Box 146 RED HILL 4059
47 Arthur Terrace RED HILL 4059
t: 07 3368 2660 f: 07 3368 2440
everick@bigpond.net.au
www.everick.com.au
ABN 78 102 206 682

Everick has negotiated more than 20 agreements with [REDACTED], including more than five in the Ripley region. Having regard to the cultural heritage attributes of Lot 3 SP237241 and our experience with [REDACTED], we are of the opinion that it is highly unlikely there would be any cultural heritage constraints to the project.

Should you have any questions we would be please to assist.

Yours faithfully,

Tim Robins
Director
Everick Heritage Consultants

Koala Impact Assessment

Ripley Road, Ripley

Prepared for Jolifields Development Pty Ltd & The Trustee
for Morehampton Capital & Trustee for the Goldfields QLD
Trust

5 October 2021

1. Assessment against EPBC referral guidelines for the koala

1.1. Koala Referral Guidelines Assessment

On 30 April 2012, the Koala populations of Queensland, New South Wales and the Australian Capital Territory were scheduled as Vulnerable under the EPBC Act. This had the effect of making the Koala population in South East Queensland a MNES. As such, an action considered likely to have a significant impact on the Koala or Koala habitat must be referred for controlled action assessment. In December 2014, the '*EPBC Act Referral Guidelines for the Vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)*' ('Koala Referral Guidelines') were released to guide proponents in determining whether an action will have an impact on the Koala and require referral.

Here we consider the environmental impacts against the Koala Referral Guidelines which support the Commonwealth Government scheduling of the Koala as a Vulnerable species under the provisions of the EPBC Act, and the Significant Impact Guidelines. The assessment methodology included site surveys and consideration of Commonwealth, State and Local Government environmental database searches.

To determine whether or not the proposed development will have an impact on the Koala, the flow chart in the Koala referral Guidelines has been responded to in the following sub-sections.

1.1.1 Stage 1

The Modelled Distribution of the Koala contained within the Koala Referral Guidelines encompasses most areas of Queensland, New South Wales and the Australian Capital Territory. A search of the EPBC PMST within a 5 km buffer lists the Koala as species or species habitat known to occur within area (refer **Att 3 Ecological Technical Assessment - Appendix A**). As per the Koala Referral Guidelines (Map 1), the site is therefore considered to fall within the modelled distribution of the Koala.

The Koala Referral Guidelines separate the geographical context into two zones, inland and coastal, based on the 800 mm per annum rainfall isohyet. The site is mapped within the "coastal" area as per the Koala Referral Guidelines distribution map (Map 2). Therefore, the coastal habitat attributes contained in the Koala Referral Guidelines are relevant when using the Habitat Assessment Tool.

Because the site is located within the coastal context of the modelled distribution area and Koalas have been recorded within 2 km, it therefore requires further consideration under the assessment guidelines.

1.1.2 Stage 2

The Koala Referral Guidelines assess significant impacts on the Koala through the assessment of habitat critical to the survival of the Koala and actions that interfere substantially with the recovery of the species. A

Koala Habitat Assessment Tool (KHAT) is contained within Section 6 of the Koala Referral Guidelines to help determine the sensitivity, value and quality of the impact area. This habitat assessment tool uses five primary Koala habitat attributes:

- 1) Koala occurrence;
- 2) Vegetation composition;
- 3) Habitat connectivity;
- 4) Key Existing threats; and
- 5) Recovery value.

Each of these Koala habitat attributes are scored between 0 and 2 and the scores are added together to give a total out of 10. Impact areas that score **5 or more** are considered to contain habitat critical to the survival of the Koala. **Table 2** below provides an assessment against the five primary Koala habitat attributes for the site.

The assessment is based on the field surveys carried out by the SHG, discussed in **Att 3 - MNES Ecological Technical Assessment, Section 3, pp. 9**.

Austecology (2014) completed extensive Koala surveys across the wider allotment. The systematic transect search provided twenty-seven (27) locations where the SAT was applied. A further three (3) were established during subsequent field surveys as part of the habitat assessment also completed. The majority of the SAT results provided comparatively poor results regarding evidence of koala activity. Overall, the SAT data was indicative of a relatively low-level activity.

Although no further SAT surveys were completed as part of more contemporary surveys, it is confirmed that Koala activity was more recently observed in the form of scats at some of the large *Eucalyptus tereticornis* (Forest Red Gum) specimens associated with the mapped waterways. No individual specimens were observed throughout any previous survey periods.

Table 2: Koala Habitat Assessment Tool

Attribute	Score	Comment
Koala occurrence	+1 (medium)	<u>Desktop</u> The PMR using a 5 km radius identified the Koala as having the potential to occur on-site. The Wildlife Online extract identified 117 records of Koala within a 5 km radius of the site. A review of online search tool (Atlas of Living Australia, Biomaps) identified a number of records within a 5 km radius of the site. The vast majority of records within close proximity to the site have been recorded over 20

Attribute	Score	Comment
		years ago. The closest record (approximately 500 m south of the referral area) was observed in the year 2000. <u>On-ground</u> Koalas are known to occur in the wider Ripley Valley area. Previous extensive surveys for Koala were carried out within the site by Austecology in December 2014. Field surveys recorded scats at a number of locations, however generally poor results regarding evidence of Koala activity were observed. No Koalas were observed throughout any previous surveys periods. There is evidence of one (1) or more Koalas within 2 km of the edge of the impact area within the last five (5) years. This attribute has been given a score of 1.
Vegetation composition	+2 (high)	<u>Desktop</u> The site contains a Property Map of Assessable Vegetation with the entire referral area being mapped as Category B (remnant) vegetation. <u>On-ground</u> The site contains Category B (remnant) vegetation characterised as eucalypt woodland which is dominated by three (3) recognised Koala food and habitat tree species which are <i>Eucalyptus tereticornis</i> (Forest Red Gum), <i>Corymbia citriodora</i> (Spotted Gum) and <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark). Other species observed include <i>Angophora leiocarpa</i> (Smooth-barked Apple) and <i>Corymbia tessellaris</i> (Moreton Bay Ash). The site contains a 'woodland' or 'open forest' with two (2) or more known Koala food tree species, the vegetation composition attribute is given a score of 2.
Habitat connectivity	+2 (high)	Connectivity is limited to the west and south due to the presence of residential development associated with the RVPDA. To the west, outside of the RVPDA, a number of rural residential properties exist with patches of remnant, regrowth and non-remnant vegetation. A number of

Attribute	Score	Comment
		natural and artificial barriers exist within the broader landscape of the site including: • Highway (Cunningham Highway); • Main or arterial roads (Ripley Road, and Swanbank Road); • Swanbank rail line; • Swanbank Power Station; • Swanbank Quarry; • High density housing and commercial developments; and • Bundamba Creek. A Contiguous Landscape Analysis has been provided (refer Att 5 - Plan 5, Contiguous Landscape Analysis). Considering the Department's position on high mobility of Koala from previous referrals and assessments, The vegetation on-site is potentially connected to > 500 ha of contiguous bushland habitat (Att 5 – Plan, 5 Contiguous Landscape Analysis). As the site is connected to >500 ha of contiguous landscape, this attribute has been given a score of 2.
Key existing threats	0 (low)	Two key existing threats pose a risk to survival of local Koala populations, vehicle strike and dog attack. A review of the Koala Hospital incident data shows numerous incidences have occurred within a 10 km buffer of the referral area and connected by contiguous landscape (refer Att 6 - Plan 6, Koala Hospital Records). Evidence of domestic dogs, wild cat and fox activity was recorded on-site by infra-red camera traps at multiple sites (refer Att 3 MNES Ecological Technical Assessment – Section 4.2.6, pp 25). It should be noted that many live sightings of the Koala in the broader region have been along or proximal to major road networks such as the Cunningham Highway to the

Attribute	Score	Comment
		north or highly modified environments. The location of these sightings indicates the risk of motor vehicle strike is considerably high. Additionally, it is noted that anticipated growth and planned residential development surrounding the site will result in increased traffic flows. A recent study completed by Gonzalez-Astudillo <i>et al.</i> (2017) analysed the Queensland Koala hospital data from 1997-2013 and found that 1,561 Koalas had injuries associated with trauma from animals, namely dogs. Further, Ipswich City Council's <i>Koalas in Urban Ipswich</i> guide suggests dog attacks can account for 40% of total Koala mortalities within an area. The likelihood of a Koala attack is increased when more than one dog is in a backyard, and during the periods of dawn and dusk when Koalas are most active. Further, studies completed as part of the Moreton Bay Rail project (DTMR 2016) found that between 2013 and 2016, 113 koalas had been killed by wild dogs with an additional 38 koala deaths suspected as wild dog predation, 82 koala deaths caused by illness and nine (9) vehicle strike deaths. These figures indicate that the threat of wild dog predation is at the forefront, while disease and vehicle strikes are also ongoing contributors to Koala deaths. Based on the above arguments, the site and surrounding area is considered to contain evidence of frequent or regular koala hospitalisations and given evidence of key threats to Koalas is high, the key existing threats attribute remains at 0.
Recovery value	+1 (medium)	The interim recovery objective for coastal areas is based upon protecting and conserving large, connected areas of Koala habitat, particularly where Koalas are genetically diverse or distinct, free of disease or have a low incidence of disease or where there is evidence of breeding and maintained corridors and connective habitat that allows for movement of Koalas within large areas of habitat. The site is located within the RVPDA and retains

Attribute	Score	Comment
		fragmented connectivity values to bushland to the east of the site. Fragmented connectivity is also currently present to the west and north, however, this land is earmarked for development as 'Urban Living' under the RVPDA. To the east of the site, outside the RVPDA, are a number of rural residential properties consisting of pockets of remnant, regrowth and non-remnant vegetation. As a result, connectivity in the surrounding landscape will in future be highly limited. The removal of vegetation on-site will not significantly exacerbate fragmentation or the creation of movement barriers between vegetation due to existing high levels of disturbance and fragmentation on and around the site and development planning intent in the adjoining properties. The referral area consists of Category B (remnant) vegetation with evidence of historical and contemporary disturbances including weed invasion and 4wd/motorbike tracks throughout. Vegetation on-site is categorised as eucalypt woodland containing multiple known Koala food species. Regardless, it is not considered that the site will be important in the recovery of the Koala. The site currently retains some connectivity of bushland habitat, however with the surrounding land earmarked for development the proposed action is not expected to impede the connectivity value or significantly impact the dispersal capacity of Koalas if they are utilising it. Due to the presence of the motorway and emerging residential development to the west, existing residential developments to the south, and planning intent to the north, vegetation on-site if retained would become largely isolated other bushland with the exception of minimal connectivity potential to rural residential properties to the east. Due to these factors and the prevalence of threats present on-site and, in the landscape, the site is not considered to contain notable recovery value to the Koala. The local Koala population is not considered genetically distinct from other Koala populations in SEQ. While the health of the local Koalas is unknown and none were

Attribute	Score	Comment
		recorded, diseases such as Chlamydia and Koala Retrovirus are extremely prevalent amongst SEQ Koalas. In summary, the recovery value of the referral area is compromised by the RVPDA and masterplan area designation and existing high-level disturbances and fragmentation from the intensification of planned residential development. However, it is acknowledged that the Department considers the presence of potential habitat as an uncertainty with respect to recovery value. The 'recovery value' attribute has been given a score of 1 for uncertainty.
Total	7	As the habitat score is greater than five (5), the site is considered to provide habitat critical to the survival of the Koala.

The KHAT score for the site is 6/10. As the habitat score is greater than five, the site is considered to provide habitat critical to the survival of the Koala.

Refining site values, desktop and detailed field analysis confirmed that the referral area contains 19.1 ha of habitat critical to the survival of the Koala with a score of 7/10 (refer **Att 7 - Plan 7, Koala Habitat Analysis**).

Habitat Clearing

The project is predicted to directly impact the entire 19.1 ha referral area mapped Category B (remnant) vegetation and defined as critical Koala habitat.

1.1.3 Stage 3

The next stage of assessment – assessing whether the action is likely to adversely affect habitat critical to the survival of the Koala – is applied in this Section. The methodology is set out in Section 7 of the Guidelines with a flowchart provided to help proponents make an assessment on whether the action should be referred. Assessment of the action at the site against the flowchart is described below.

- **Does your impact area contain habitat critical to the survival of the koala (habitat score $\geq$ 5)?** – Yes, the vegetation on the property was given a habitat score of 6, which is considered habitat critical to the survival of the Koala under the Koala Referral Guidelines.
- **Do the area(s) proposed to be cleared contain known koala food trees?** – Yes, the on-ground assessment found species considered Koala food trees as defined by the Koala Referral Guideline are present on-site.

- **Are you proposing to clear ≤ 2 ha of habitat containing known koala food trees in an area with a habitat score of 5?** – No, an area of greater than 2 ha with a habitat score of 6 is proposed to be cleared as part of the action.
- **Are you proposing to clear ≥ 20 ha of habitat containing known koala food trees in an area with a habitat score of ≥ 8 ?** – No, the area proposed to be cleared is 19.1 ha with a habitat score of 6.

Reviewing the site against the characteristics outlined in the flowchart indicates the impacts of the action are uncertain and therefore the nature of the action requires further consideration. The following characteristics apply:

- The proposal requires the clearing of 19.1 ha of habitat critical to the survival of the Koala with a score of 6, which places the referral in the lower end of the potential impact threshold.
- Despite habitat on-site mapped entirely as Category B (remnant) vegetation, disturbance was noted with weed presence and evidence of illegal access through 4wd/motorcycle tracks.
- Clearing will not result in further fragmentation of a habitat area from a larger habitat area due to the location of the referral area within a PDA surrounded by existing and proposed development.
- Koalas have been recorded in the area, however, no direct sightings of Koala were recorded on site (only low number of indirect evidence in the form of scats were recorded).
- The Koala referral guidelines in Figure 2 note that if 25 hectares of habitat scoring 6 or 7 was being completely cleared, a significant impact would be expected. In this case the development proposes to clear 19.1 ha of habitat scoring 6.

The clearing of approximately 19.1 ha of habitat critical to the survival of the Koala in an area with a habitat score of 6 is likely to reduce available habitat for the Koala in the region. The proposal has been deemed to impose a significant impact on Koala habitat critical to the survival of the species.

1.1.4 Stage 4

For clarity, the next step is to ascertain whether or not the action could interfere substantially with the recovery of the Koala in areas of habitat critical to the survival of the Koala. The methodology is set out in Section 8 of the Koala Referral Guidelines to help proponents make an assessment on whether or not residual impacts are likely to be significant and therefore require referral.

Possible impacts listed in the Koala Referral Guidelines that must be considered include:

- Dog attack;
- Vehicle strike;
- Facilitating the introduction or spread of disease or pathogens;

- Barriers to dispersal and fragmentation; and
- Degradation of critical habitat due to hydrological changes.

These impacts, as well as mitigation measures to address them, if appropriate, are discussed in **Table 3** below with further detail on mitigation measures outlined in **Section 4** of the referral document. The mitigation strategy relies upon the fact that the site is not expected to provide significant connectivity to Koala habitat within the broader landscape, and the site is surrounded by existing residential development and land earmarked for development under the RVPDA. Further, according to the Koala hospital incident records and field evidence, major threats already exist within the area (**Att 6 – Plan 6, Koala Hospital Records**).

Table 3: Residual Impact Assessment

Impact Type	Residual Impact Assessment	Mitigation Measures
Dog Attack	As discussed in the field survey results (Att 3 MNES Ecological Technical Assessment, Section 4.2.6, pp. 25), evidence of domestic dogs, wild cat and fox activity was recorded within the referral area. As this threat already exists within the area, it is unlikely that the Action will significantly increase the number of dogs entering the area. Residential land use which is present in the adjoining lots generally represents a higher level of dog ownership per household, although managed	No additional mitigation measures are proposed.
Residual Impact Due to the confirmed presence of the dogs, cats and foxes within the referral area, no residual impacts are identified.		
Vehicle Strike	It is likely that vehicle activity in the area will increase to some degree as a result of the development on the site. Residential developments are present to the west and south of the site, while area designated for development is located directly north. As a result, the surrounding landscape will experience an increase in vehicle traffic. Due to the anticipated impact of the surrounding approvals, the referral area alone is not anticipated to significantly increase vehicular traffic. Further, major threats from vehicle strike are already present due to the close proximity of the site Cunningham Highway to the north-west, Boyland Way to the north and Fischer Road to the east of the	Road design, signage, and the imposition of a low vehicle speed will help mitigate any potential risks to Koalas should they venture on to the site.

Impact Type	Residual Impact Assessment	Mitigation Measures
	referral area (Att 3 - Plan 1). Koalas have been recorded in the area, therefore, interaction between vehicles and Koalas is considered to have potential to occur as a result of the development, although impacts from this threat must be considered in terms of the broader landscape changes mentioned above. No direct sightings of Koala were recorded on-site only indirect evidence in the form of scats were recorded.	
Residual Impact Due to the presence of significant vehicle threats with Cunningham Highway and other roads in close proximity to the site and the surrounding planning intent for development, the landscape is anticipated to experience only a minor increase in vehicular traffic. The referral alone is not expected to significantly increase these impacts. No residual impacts are identified.		
Disease and Pathogen	Most of South East Queensland's Koala populations have a high prevalence of <i>Chlamydia</i> infection and Koala Retrovirus (KoRV). The symptoms of these diseases are often observed within Koala populations undergoing environmental stresses, such as overcrowding and poor nutrition. Koala disease has been recorded near to the site (evidenced by sick Koala sighting reported in public databases and the media). The project is unlikely to cause pressure on the local Koala population to the point where these diseases manifest and the project is unlikely to introduce or spread disease or pathogens into significant Koala habitat areas. No direct observations of Koala were recorded on site only indirect evidence in the form of scats was observed.	No mitigation measures are proposed.
Residual Impact Due to current prevalence of disease among the Koala populations, the Action is not likely to cause an increase in disease among the populations. No residual impacts are identified.		

Impact Type	Residual Impact Assessment	Mitigation Measures
Barriers to Dispersal	The referral area is surrounded by developed areas and areas that are approved for development within the RVPDA (Att 3 MNES Ecological Technical Assessment- Plan 3, pp. 7). Movement to the west and south is currently limited by residential developments. To the north, movement is inhibited by Cunningham Highway which is identified as a major barrier to movement. Vegetation present to the north is within the RVPDA and zoned as Urban Living. To the east, rural residential properties are present containing patches of remnant, regrowth and non-remnant vegetation. Further, there are no large patches of Koala habitat on either side of the referral area that would become isolated as a result of the development. The Action will result in the removal of 19.1 ha of habitat critical to the survival of the Koala; however, the removal of this habitat will not impede Koala movement due to the absence of any large habitat to the west, south and north of the referral area.	As the development will not exacerbate fragmentation of habitat or the creation of barriers to movement, no mitigation measures are proposed.
Residual Impact As the development will not exacerbate fragmentation of habitat or the creation of barriers to movement, no residual impacts are identified.		
Hydrological Change	The increase in hardstand areas across the site has the potential to affect site hydrology. Management plans will be implemented during operational works that will address the requirements of State and Local government guidelines and ensure that impacts are minimised. The flow paths on-site were found to be highly eroded. The potential for development that impacts the flow paths is assessed against State and Local Governmental requirements and as such any potential impacts will be appropriately managed and mitigated. The project is unlikely to result in hydrological changes that will result in the degradation of habitat critical to the survival of the Koala.	No mitigation measures are proposed.

Impact Type	Residual Impact Assessment	Mitigation Measures
Residual Impact No residual impacts are identified.		

1.1.5 Stage 5

SHG carried out an assessment of clearing at the site against the Koala Referral Guidelines. The assessment followed the process identified in Figure 1 of the Koala Referral Guidelines. The assessment against the Koala Referral Guidelines was based on relevant database searches and site surveys discussed in **Att 3**.

According to Section 9 of the Koala Referral Guideline, an action is required to be referred if it is determined to adversely affect habitat critical to the survival of the Koala (Section 7) and/or interferes substantially with the recovery of the Koala through the introduction or exacerbation of key threats in areas of habitat critical to the survival of the Koala (Section 8). As discussed earlier, vegetation on-site has been given a score of 6 being habitat critical to the survival of the Koala. Therefore, under the Guideline, **referral is recommended** (refer Figure extract below).

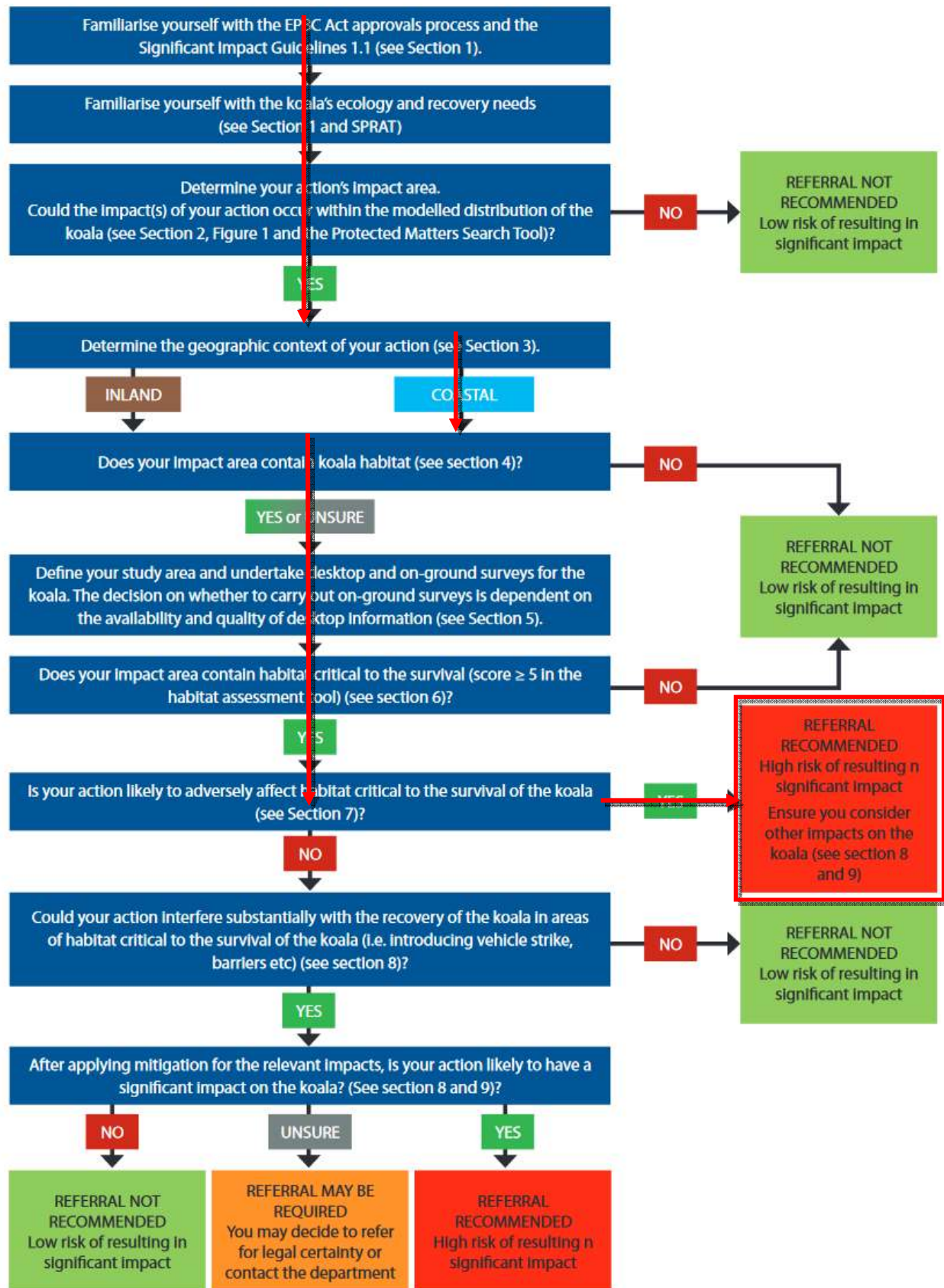


Figure: Summary of the EPBC Act referral guideline pathway for the Koala

Significant Impact Assessment

The Significant Impact Guidelines provides specific definitions for *'important population'* and *'habitat critical to the survival of a species or ecological community'*. This definition is a key consideration when conducting significant impact assessments for a threatened species or ecological community listed under the EPBC Act. The definitions are presented below.

Population of a Species

A 'population of a species' is defined by the Significant Impact Guidelines as:

"An occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- *A geographically distinct regional population, or collection of local populations*
- *A population, or collection of local populations, that occurs within a particular bioregion.*

Important Population

An 'important population' is defined by the Significant Impact Guidelines as:

"An 'important population' is a population that is necessary for a species' long term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- *Key source populations either for breeding or dispersal*
- *Populations that are necessary for maintaining genetic diversity*
- *Populations that are near the limit of the species range*

Habitat Critical to the Survival of the Species

The Significant Impact Guidelines provide the following definition for *'habitat critical to the survival of a species'*

"Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- *For activities such as foraging, breeding, roosting or dispersal*
- *For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)*
- *To maintain genetic diversity and long-term evolutionary development*
- *For the reintroduction of populations or recovery of the species or ecological community.*

Such habitat may be, but is not limited to:

- *Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community*
- *Habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.*

Such habitat can be further explained as an identified area of viable habitat that contains habitat attributes that are essential for the conservation of a threatened species. These areas are typically under a regime of special protection and management to ensure the critical habitat remains a stronghold for the species to ensure its long-term survival and viability in the wild. Such habitat may also include an area of land not currently occupied by the species, however, can act as a sanctuary by possessing the necessary habitat attributes to facilitate the recovery of a declining population of the species.

Koala Significant Impact Assessment

Conservation Status – The Koala is listed as Vulnerable under the EPBC Act.

Description – Koalas (*Phascolarctos cinereus*) are native Australian tree-dwelling marsupials with predominantly grey coloured fur.

Distribution – The Koala is found from north-east Queensland to the south-east corner of South Australia. As a consequence of translocations, the Koala are found outside their historic range, for example, Kangaroo Island. The distribution of the Koala is influenced by altitude, temperature and leaf moisture. The density of the Koala population in coastal regions is generally greater than inland areas. Koalas are known to naturally inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by *Eucalyptus* sp.

Habitat – Koala habitat can be broadly defined as any forest or woodland containing species that are known Koala food trees, or shrubland and emergent food trees. Preferred food and shelter trees are naturally abundant on fertile clay soils. Along the Great Dividing Range and the coastal belt throughout the species' range, Koalas inhabit moist forests and woodlands mostly dominated by *Eucalyptus* sp.

Koalas are highly territorial, and individuals maintain their own home range which may overlap with other individuals. Home ranges are variable depending on the location, with those in "poorer" habitats being larger than in higher quality habitats. There is little evidence for longer movements in most cases, though dispersing individuals, mostly young males, may occasionally cover distances of several kilometres over land with little vegetation. In SEQ, the average distance between natal and breeding home ranges was similar for males and females, at approximately 3.5 km. Maximum dispersal distances were up to approximately 10 km for males and females. Other studies have reported movement of up to 16 km in rural SEQ.

Threats – Habitat loss and fragmentation, vehicle strike and predation by domestic or feral dogs are the main threats to the Koala. Extreme environmental events, such as drought, can also cause significant mortality.

Significant Impact Assessment – The *EPBC Act referral guidelines for the vulnerable Koala* summarise the significant impact decision for the Koala. The following points help to summarise the guideline:

- Impacts on 'habitat critical to the survival of the species' and impacts that 'substantially interfere with the recovery of the species' are the focus of assessing significance;
- Habitat protection and impact mitigation is focused on areas of habitat that are large and well connected;

- The loss of 20 hectares or more of high-quality habitat critical to the survival (habitat score of 8) is highly likely to have a significant impact for the purposes of the EPBC Act;
- The loss of two hectares or less of marginal quality habitat critical to the survival (habitat score of 5) is highly unlikely to have a significant impact on the koala for the purposes of the EPBC Act;
- The loss of between 2 and 20 ha of habitat critical to the survival may have a significant impact on the koala for the purposes of the EPBC Act. Whether this is more likely or unlikely depends on the characteristics of your action.

To determine whether the proposed action is likely to have a significant impact on the Koala, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 4** below. An assessment against the *EPBC Act referral guidelines for the vulnerable Koala* is provided earlier.

Table 4: Significant Impact Assessment – Vulnerable Koala

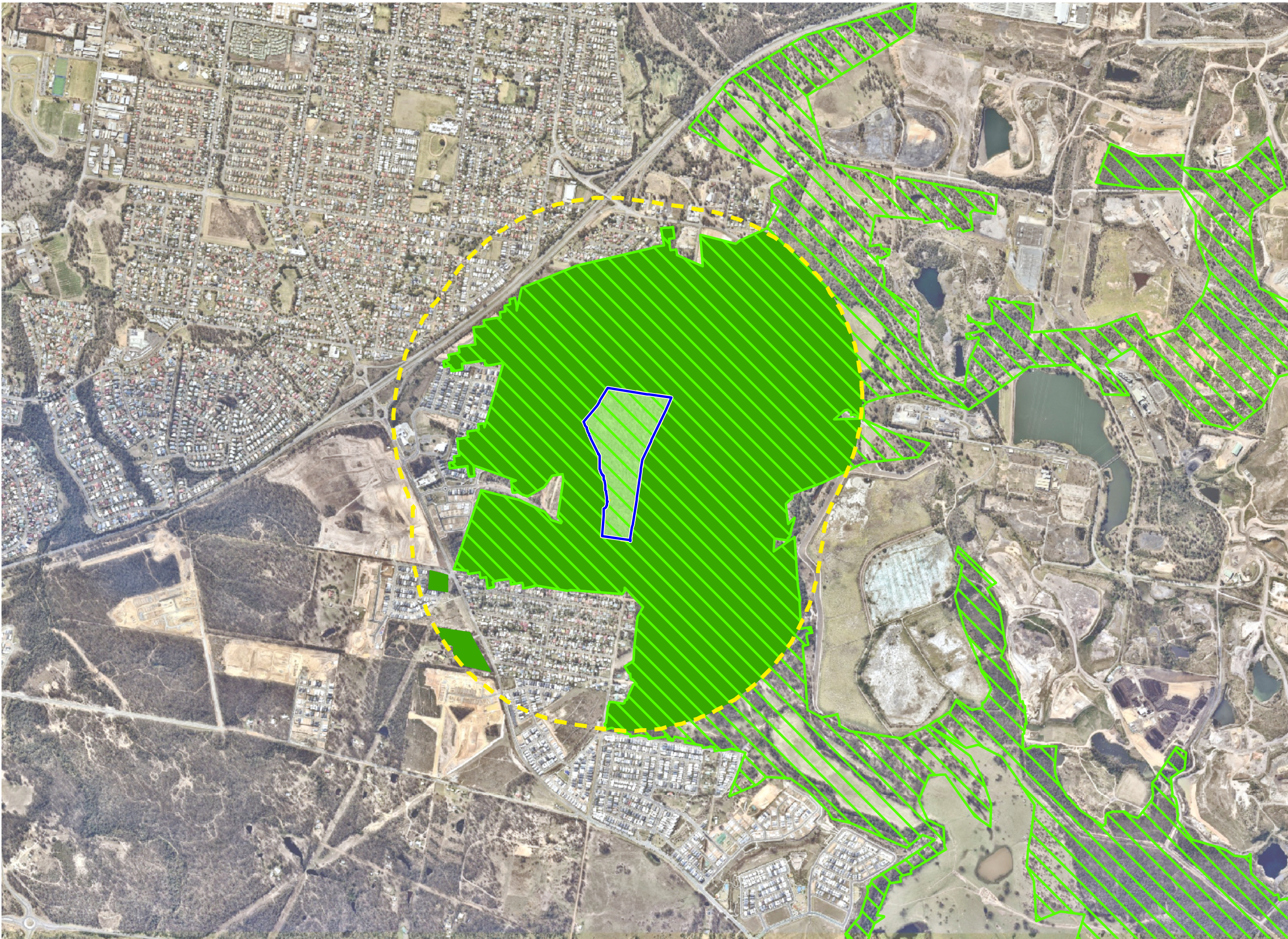
Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of an important population of a species	The site is not considered to maintain an important population of Koala. Of relevance, the proposed location for the referred action is within the Ripley Valley Priority Development Area, which means that the site will become more fragmented from the surrounding landscape due to current and future urban development. Despite the site containing a number of known Koala habitat trees field assessments did not detect direct observations of Koala on-site. Scats were recorded in low numbers indicating low Koala usage. In addition, Any Koalas utilising the referral area are unlikely to be necessary for maintaining genetic diversity given dispersal barriers (major roads and urbanisation) that have been constructed that inhibit gene flow amongst Koalas in the region. It is not anticipated that the removal of vegetation on-site would affect the viability of the Koala population in the area.	No significant impact

Significant Impact Criteria	Description	Impact
2. Reduce the area of occupancy of an important population	The site is not considered to maintain an important population of Koala. Field surveys did not directly observe Koalas on-site, with only low numbers of scats recorded, suggesting the vegetation on-site is not frequently utilised by Koalas. In addition, there is no important population of Koalas recorded in the locality. The site demonstrates evidence of historical and contemporary disturbance and is located within a landscape intended for development under RVPDA to the south, west and north. Presently, there is residential development located to the west and south of the site with some areas of retained vegetation to the north and east. No Koalas have been recorded on-site, or immediately adjacent to the site (only evidence of their activity has been recorded), and as there is not an important Koala population in the locality, the removal of vegetation on-site is not considered to reduce the area of occupancy for Koalas.	No significant impact
3. Fragment an existing important population into two or more	The site is not considered to maintain an important population of Koala. Field surveys only detected low numbers of Koala scats on-site, suggesting the vegetation on-site is not frequently utilised by Koalas. The site is not considered to support an important population of Koalas. The surrounding landscape to the west, south and north has limited capacity for connectivity due to the open landscape, existing residential developments, proposed development and major roads. Given the limited potential dispersal of Koala in and out of the referral area, the proposed action is unlikely to fragment a population into two or more populations. As a result, the removal of vegetation on-site will not exacerbate existing fragmentation of adjoining Koala habitat. The project is not considered likely to fragment an existing important population.	No significant impact

Significant Impact Criteria	Description	Impact
4. Adversely affect habitat critical to the survival of a species	Field surveys did not directly observe Koalas on-site (only low number of scats were recorded), suggesting the vegetation on-site is not frequently utilised by Koalas. The site is not considered to support an important population of Koalas. Following assessment, a critical habitat score of 6 has been obtained for the site and therefore, although this habitat is not considered to be unique or of special value, it is considered habitat critical for the survival of the Koala. The proposed action will result in the local clearing of only 19.1 ha of habitat critical to the survival of the Koala. Whilst the site does not pose a threat to a significant population of Koalas, the site does represent critical Koala Habitat under the EBPC Act assessment system.	Has the potential to have a significant impact
5. Disrupt the breeding cycle of an important population	The site is not considered to maintain an important population of Koala. Detailed surveys on site did not identify any breeding Koalas. Evidence of Koala activity on-site was recorded in the form of scats, however, no individuals were recorded despite targeted searches. As such, the site is considered to most likely support transient individuals unlikely to constitute a breeding population or an important population. Therefore, removal of habitat in the referral area is unlikely to disrupt the breeding cycle of Koalas in the local area.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Field surveys did not directly observe Koalas on-site (only low numbers of scats were recorded), suggesting the vegetation on-site is not frequently utilised by Koalas. The site is not considered to support an important population of Koalas. While vegetation across the site has been classed as habitat critical to the survival of the species, its removal is unlikely to have a significant impact on the availability of habitat in the broader landscape, given the vast quantity and availability of habitat in the broader area. The removal of vegetation on-site would not isolate or fragment habitat as it is located near encroaching development to the west and south and proposed developments to the north. The removal of this habitat is considered highly unlikely to lead to species decline.	No significant impact

Significant Impact Criteria	Description	Impact
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Field surveys did not directly observe Koalas on-site (only low numbers of scats were recorded), suggesting the vegetation on-site is not frequently utilised by Koalas. The site is not considered to support an important population of Koalas. Evidence of domestic dogs, wild cat and fox activity were observed on-site using motion sensor cameras. Threats to Koalas are therefore already present on-site. Due to the placement of the site on the edge of a residential development, there is a high likelihood that domestic or feral dogs will continue to use the site frequently. Domestic dogs have the potential to become feral, are considered a major threat to Koala survival and are present in the surrounding landscape. The proposed action is likely to increase the density of domestic dogs in the area, however, their potential to exacerbate impacts on Koalas will be mitigated by effective governance. It is unlikely that the proposal will augment invasive species impacts already present in the area.	No significant impact
8. Introduce disease that may cause the species to decline	Most of South East Queensland's Koala populations have a high prevalence of Chlamydia infection and Koala Retrovirus (KoRV), and sick Koalas have been recorded in the vicinity of the referral area. As such, the project is considered unlikely to cause pressure on the local Koala population to the point where these diseases manifest and the project is extremely unlikely to introduce or spread disease or pathogens into Koala habitat areas.	No significant impact
9. Interfere substantially with the recovery of the species	The interim recovery objective for coastal areas is based upon protecting and conserving large, connected areas of Koala habitat, particularly where Koalas are genetically diverse or distinct, free of disease or have a low incidence of disease or where there is evidence of breeding. None of these attributes are considered to occur on the referral area. The referral site is isolated from areas of broad conservation by urban development, quarry works and major roads/highways, and given the site's position within the Priority Development Area, it is highly likely that further development will occur in the remaining undeveloped lots surrounding the referral area.	No significant impact

5. Contiguous Landscape Analysis



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
©State of Queensland 2021. Updated data available at <http://gldspatial.information.qld.gov.au/catalogue/>
©Nearmap, 2021, ©Atlas of Living Australia - ala.org.au 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for

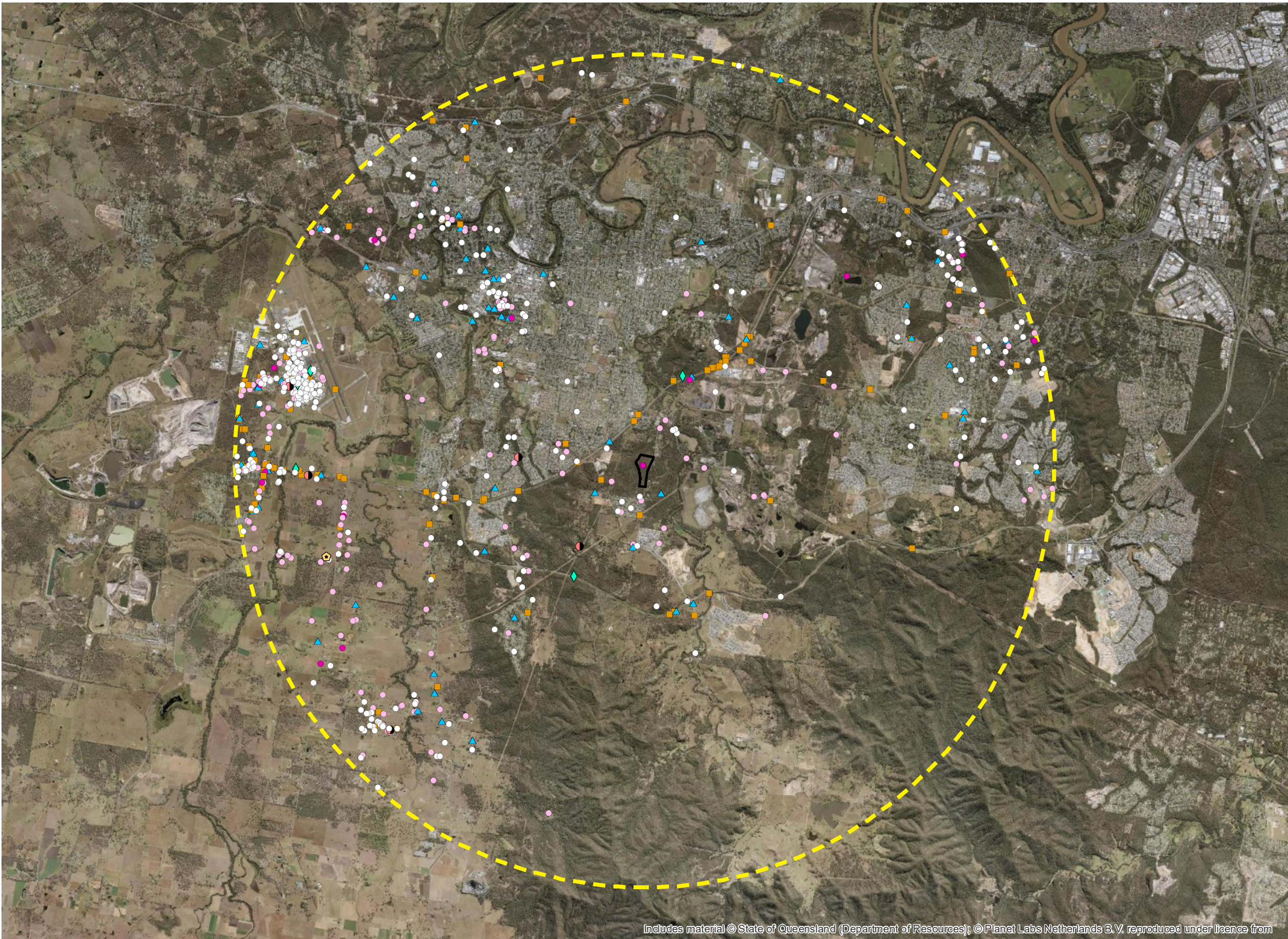
- Legend
- 1km Referral Area buffer
 - Impacted Habitat Critical to the Survival of the Koala
 - Percentage of Referral Area Boundary Length Supporting a Koala Critical Habitat Connection Off and On Site (100%)
 - Size of Koala Critical Habitat Patch > 200m Corridor Connectivity (>1,000 Ha)
 - Percentage of Habitat Critical to the Survival of the Koala within 1km of Referral Area (68%)

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD

0 100 200 300 400 500 Meters

Transverse Mercator | GDA1994 | Zone 56 | 1:20,000 @ A3

6. Qld Koala Hospital Incident Records



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
© State of Queensland 2021. Updated data available at <http://gldspatial.information.qld.gov.au/catalogue/>
© Nearmap, 2021, © Atlas of Living Australia - ala.org.au 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for

Legend

Referral Area

10km Referral Area buffer

Qld Koala hospital records (all)

incident record categories

Deceased

Injured

Sick and/or wasted

Sick & Injured

Orphaned

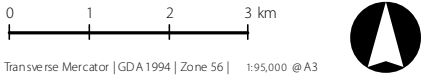
Fall & orphaned

Vehicle hit

Vehicle hit & orphaned

Other incident type/
category not recorded

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD



Includes material © State of Queensland (Department of Resources); © Planet Labs Netherlands B.V. reproduced under licence from

7. Koala Habitat Analysis



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
©State of Queensland 2021. Updated data available at <http://gldspatial.information.qld.gov.au/catalogue/>
©Nearmap, 2021, ©Atlas of Living Australia - ala.org.au 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for

Legend



Referral Area



Habitat Critical to the Survival of the Koala (19.1 Ha)

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD



8. Impacted Habitat Critical to the Survival of the Koala



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
©State of Queensland 2021. Updated data available at <http://gldspatial.information.qld.gov.au/catalogue/>
©Nearmap, 2021, ©Atlas of Living Australia - ala.org.au 2021

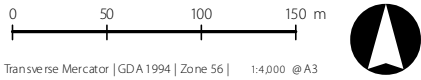
* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for

Legend

Referral Area

Impacted Habitat Critical to the Survival of the Koala (19.1 Ha)

Issue	Date	Description	Drawn	Checked
A	5/10/2021	Preliminary	TF	AD



Jolifields Development Pty Ltd &
The Trustee for Morehampton Capital &
Trustee for the Goldfields QLD Trust



Grey Headed Flying-fox Impact Assessment

Ripley Road, Ripley

Prepared for Jolifields Development Pty Ltd & The Trustee
for Morehampton Capital & Trustee for the Goldfields QLD
Trust

5 October 2021

1. *Pteropus poliocephalus* (Grey-headed Flying-fox)

1.1. Conservation Status

The GHFF is listed as Vulnerable under the EPBC Act.

1.2. Description

The GHFF is the largest Australian bat with a wingspan of up to one metre. It has dark-grey body fur, a grey head, and a distinctive reddish-brown collar. It is also the only flying-fox with hairy legs right down to its ankles.

1.3. Distribution

The GHFF occurs along the south-east coast of Australia, from Rockhampton in central Queensland through New South Wales to western Victoria. During the last few years, the GHFF has also been recorded from Adelaide.

1.4. Habitat

The GHFF is heavily dependent on the availability of foraging resources and roost sites. As canopy feeding frugivores and nectarivores, GHFFs frequent fruiting and flowering trees in rainforests, open eucalypt forests, woodlands, *Melaleuca sp.* swamps and Banksia woodlands (Duncan *et al.* 1999). The GHFF is also known to forage in fruit crops and introduced tree species within urban environments. Roost sites for the GHFF are commonly within dense vegetation close to water, primarily rainforest patches, stands of *Melaleuca sp.*, mangroves or riparian vegetation.

1.5. Recovery Actions

There is now an adopted Recovery Plan for this species at the federal level. It focuses mainly on managing adverse impacts to roosting sites, culling controls, fenced entanglement and public awareness, with reference to foraging habitat. From the recovery guidelines:

Where the existence of important winter and spring flowering vegetation communities is verified in the field, they are considered habitat critical to the survival of the Grey-headed Flying-fox. Back yard fruit trees, orchards or non-native trees that may be used for foraging are not considered to be habitat critical to the survival of the Grey-headed Flying-Fox. Habitat critical to the survival of the Grey-headed Flying-fox may also be vegetation communities which:

- contain native species that are known to be productive as foraging habitat during the final weeks of gestation, and during the weeks of birth, lactation and conception (August to May)
- contain native species used for foraging and occur within 20 km of a nationally important camp as identified on the Department's interactive flying-fox web viewer, or

- contain native and or exotic species used for roosting at the site of a nationally important Grey-headed Flying-Fox camp as identified on the Department's interactive flying-fox web viewer.

Habitat critical to the survival of the Grey-headed Flying-fox should be the focus for protection and any revegetation initiatives aimed to support the species.

Notably, the recovery plan lists habitat loss as a key threat to the Grey-headed Flying-fox. It is understood that mapping of habitat critical to the survival of the grey-headed Flying-fox is an initiative of the recovery plan. The site is not considered to maintain important foraging habitat for the Grey-headed Flying-fox (refer below).

The Queensland Government identifies the following recovery actions:

- Identify and map important foraging and roosting habitats
- Prevent the destruction and degradation of important forested habitat, through: identifying guidelines to protect habitat; appropriate zoning; identifying development alternatives and incentives to retain habitat and educating communities.
- Encourage community partnerships and initiatives that protect important habitats, and where possible re-vegetate with foraging trees for GHFF
- Work with orchardists to improve the image of GHFF, and to identify and implement non-destructive methods to protect fruit crops, such as: appropriate netting (not monofilament netting) that is not hung loose over trees (which can entangle bats and birds)
- Reduce negative public attitudes and conflict with humans
- Develop accurate methods for monitoring population size

1.6. Significant Impact Assessment

EPBC Act, Grey-headed Flying-fox populations are listed as Vulnerable. The species is not specifically listed under Queensland's *Nature Conservation Act 1992* (Qld) (NCA), however, retains a Least Concern status for the purposes of the Act. The *Referral guideline for management actions in grey-headed and spectacled flying-fox camps* summarise the decision process in considering the likelihood of a significant impact on the Grey-headed Flying-fox or Spectacled Flying-fox schematically. The Guidelines are specifically for the assessment of impacts on Flying-fox camps.

GHFFs are heavily dependent on the availability of foraging resources and roost sites. As canopy feeding frugivores and nectivores, GHFFs frequent fruiting and flowering trees in rainforests, open eucalypt forests, woodlands, *Melaleuca* sp. swamps and *Banksia* woodlands (Duncan et al. 1999). The GHFF is also known to forage in fruit crops and introduced tree species within urban environments. Roost sites for the GHFF are commonly within dense vegetation close to water, primarily rainforest patches, stands of *Melaleuca* sp., mangroves or riparian vegetation. The value of vegetation to the grey-headed flying fox is difficult to assess due to the high mobility of the species in conjunction with timing of flowering of tree species within the assessment area. The maximum nightly foraging distance of GHFF is estimated at 50 kilometres, while most forage within a 15 km radius of daytime roost sites (Tidemann 1998).

Grey-headed Flying-foxes were not observed foraging or roosting within the assessment area at Ripley Road, Ripley during field survey efforts, nor were they observed as fly-over species. Suitable foraging habitat exists within the assessment area, therefore the GHFF has the potential to utilise the investigation area for foraging purposes.

The Referral guideline for management actions in grey-headed and spectacled flying-fox camps states that the guideline does not apply to the following relevant points:

- Actions in the vicinity of camps, such as development actions, firework displays or concerts, which may indirectly affect camps of EPBC Act-listed flying-fox species.
- Actions which may impact on the foraging habitat of EPBC Act-listed flying-fox species. Proponents of actions of this kind should refer to the significant impact guideline 1.1. (4.1.5).

To determine whether the proposed action is likely to have a significant impact on the Grey-headed Flying-fox, an assessment against the *EPBC Significant Impact Guidelines 1.1* is provided in **Table 1**.

Table 1: GHFF Significant Impact Assessment

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long-term decrease in the size of an important population of a species	This species was not observed utilising the site nor observed as a fly over species. No roosts are present on/or adjacent to the site. Suitable poor quality foraging habitat is present on-site in the form of eucalypt woodland, dominated by <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), <i>Corymbia intermedia</i> (Pink Bloodwood) and <i>Corymbia citriodora</i> (Spotted Gum). There are no observed roosts on-site, with the nearest active roost sites being Yamanto (479), located 3.7 km north-west of the site, Ipswich Nature Centre, Queens Park, Goleby Ave (595) 4.5 km north of the site and Paice Street, Bundamba (574), located 6.5 km north of the site. The nearest roost of national significance (Mount Ommaney, Westlake Drive (400)) is located approximately 18.85 km north-east of the site. However, the site is not considered to provide critical habitat supporting an important population of the species. The proposed action is unlikely to lead to a long-term decrease in the size of any local GHFF populations.	No significant impact
2. Reduce the area of occupancy of an important population	This species was not observed utilising the site nor observed as a fly over species and no roosts are present adjacent to the site. The proposed action will not reduce the area of occupancy of an important population of GHFF as no part of the Action will occur within an area known to be occupied by the species.	No significant impact
3. Fragment an existing important population into two or more	The SPRAT species profile outlines that while there are spatially structured colonies of GHFF, there are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout the species' geographic range. In addition, given the high mobility of the species, the proposed action is unlikely to fragment a population into two or more populations. Of note, the species was not observed utilising the site nor observed as a fly over species and no roosts are present adjacent to the site.	No significant impact
4. Adversely affect habitat critical to the survival of a species	This species was not observed utilising the site nor observed as a fly over species. Despite this, vegetation across the site is considered to be provide potential foraging habitat for the species. The proposal will result in the removal of 19.1 ha of potential poor quality GHFF foraging habitat. Due to the location	No significant impact

Significant Impact Criteria	Description	Impact
	of the site proximal to White Rock Conservation Park and the Flinders-Karawatha Bioregional Corridor, and the GHFF's high mobility, the small amount of habitat on-site is not considered critical to the survival of this species.	
5. Disrupt the breeding cycle of an important population	The site surveys did not identify GHFF nor any evidence of breeding GHFF. Mating normally occurs within autumn, and females generally give birth in October, where they carry their young to feeding sites for four to five weeks after giving birth. As no roosting camps were observed on or near the site, the proposed action is unlikely to disrupt the breeding cycle of an important population.	No significant impact
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	While potential poor quality foraging habitat is located across the site, its removal is unlikely to have a significant impact on the availability of habitat in the landscape such as White Rock Spring Mountain Conservation Estate which would be available to this highly mobile species.	No significant impact
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The site shows evidence of disturbance with several invasive and pest species observed. The proposed action is unlikely to result in the introduction of invasive species.	No significant impact
8. Introduce disease that may cause the species to decline	The project is unlikely to introduce disease into the area.	No significant impact
9. Interfere substantially with the recovery of the species	Recovery of the species has specifically targeted the broad scale culling of the species. In addition, conservation efforts have led to the protection of known roosting sites and important habitat. The site has not been identified as an important habitat nor roost site and the action is unlikely to interfere with the recovery of the species.	No significant impact

Goldfields

Environmental Policy Statement

It is Goldfields Group policy to carry out all activities in a manner that minimises environmental impacts, conserves natural resources and provides effective stewardship of the environment and its resources. Goldfields Group is committed to making environmental management an integral core value and a vital part of our culture by:

- Integrating environmental considerations into work practices at all levels;
- Informing employees and associates of applicable environmental regulations and measures;
- Providing the resources necessary for employees and associates to conduct their work in accordance with applicable environmental regulations;
- Developing environmental goals and targets relevant to Goldfields Group operations and taking actions to achieve those goals and targets;
- Promoting pollution prevention, waste minimisation, and conservation, through effective management;
- Fostering a work environment in which employees and associates are encouraged to report and raise environmental issues without fear of reprisal;
- Continually improving the effectiveness and efficiency of environmental management through assessments of performance and cost metrics; and
- Complying with applicable laws, regulations and other promulgated environmental requirements.

In addition, every individual at Goldfields Group is expected to:

- Take personal accountability for environmental performance;
- Lead by example and engage with industry, clients and regulators to foster innovation and continual improvement;
- Apply a hierarchy of controls to eliminate, substitute / mitigate and offset environmental impacts;
- Report any environmental non-conformance action to their superior officer or relevant authorities; and
- Continually promote and implement environmentally friendly and sustainable practices in their day-to-day pursuits.