R&A Samanes Pty Ltd
t/a U&i Town Plan
ramon@uitownplan.com.au
Phone: 0411 344 110
ACN: 603 029 107
ABN: 40 603 029 107

Our Ref: R4-20

12 November 2020

Chief Executive Officer
Mareeba Shire Council
65 Rankin Street
Mareeba, QLD, 4880

Attention: Planning Department

Dear Sir/Madam,

SUBJECT: REPSONSE TO INFORMATION REQUEST
DEVELOPMENT APPLICATION SEEKING A DEVELOPMENT PERMIT
RECONFIGURATION OF A LOT – 1 INTO 3 LOTS
LOCATED AT 29 BOYLES ROAD, KURANDA
FORMALLY DESCRIBED AS LOT 2 ON RP726691

We act on behalf of our client, Allyson Sheppard in preparing and submitting the following response to the information request in accordance with section 13 of the *Development Assessment Rules* associated 29 Boyles Road, Kuranda to facilitate the creation of two (2) additional allotments.

The council had conducted an initial assessment of the application and have requested additional information which was included as part of the Confirmation Notice received on the 10 June 2020. We had experienced delays in procuring relevant specialists during the current Covid pandemic to address councils matters of concern and obtained an extension to the response period through to the 10 December 2020. As such, the proposed response is provided within the relevant timeframes.

The Council raised three (3) elements of concern with the development in which we provide the following response with regards to each item.

1. ***Environmental Significance Overlay Code***
   The subject site is entirely situated within a mapped ecological corridor by the Planning Scheme's Environmental Significance Overlay Mapping. The development proposes the creation of two (2) additional lots which include proposed building envelope areas.

   Please provide an Ecological Assessment prepare in accordance with Planning Scheme – Policy 2 – Ecological Assessment Reports in order to demonstrate how the development, which will result in future clearing within an ecological corridor will achieve compliance with PO8 of the Environmental Significance Overlay Code.

   The Ecological Assessment should also justify the size of the building envelopes proposed which both exceed 4,000m^2.

   Response:

   Please see the attached report prepared by 4 Elements Consulting which has been prepared in accordance with the *Planning Scheme – Policy 2 – Ecological Assessment Reports* to address the concerns raised by Council in item 1 above.

The report along with the protected plant survey completed have concluded that the new allotments provided in this development are suitably located near the Boyles Road end of the property where impacts to the biodiversity areas are avoided, by maintaining the significant environmental corridor located across the east of the property, which allows and ensures the regrowth vegetation of importance is left to mature. Accordingly, the development achieves compliance with purpose outcome (H) of the rural residential zone code, with regards to the inherent environmental characteristics, which will be maintained on the site as part of this development.

The report concluded that the proposed 4,000m^2 were supported to have negligible impacts on the environment and ecological corridor, however, to further alleviate Council concerns our client has opted to reduce the building envelope to a maximum of 2,500m^2. These changes will reduce the amount of clearing to almost half of the area previously proposed, which in turn provides a suitable balanced development outcome that considers the important elements on-site.

2. Hill and Slope Overlay Code

Please provide evidence from a suitably qualified professional that the land within the building envelope areas does not exceed a slope of 15%.

Response:

Please see the attached report prepared by 4 Elements Consulting which has been prepared in accordance with the *Planning Scheme – Policy 2 – Ecological Assessment Reports* to address the concerns raised by Council in item 2 above.

It was confirmed on the study site during the field survey that the slope within the building envelopes areas did not exceed a slope of 15%. Nevertheless, subsequent buildings to be constructed on each site will be required to be designed in accordance with the results of subsequent soil tests which will inform the foundations design and structural engineering certification outcomes.

3. Rural Residential Zone Code

The subject site sits outside a zone precinct. Please demonstrate how the proposed development achieves compliance with the Overall Outcome (h) of the Rural Residential Zone Code.

Response:

Please see the attached report prepared by 4 Elements Consulting which has been prepared in accordance with the *Planning Scheme – Policy 2 – Ecological Assessment Reports* to address the concerns raised by Council in item 3 above.

The report along with the protected plant survey completed have concluded that the new allotments provided in this development are suitably located near the Boyles Road end of the property where impacts to the biodiversity areas are avoided, by maintaining the significant environmental corridor located across the east of the property, which allows and ensures the regrowth vegetation of importance is left to mature. Accordingly, the development achieves compliance with purpose outcome (H) of the rural residential zone code, with regards to the inherent environmental characteristics, which will be maintained on the site as part of this development.

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to reduce the building envelope to a maximum of 2,500m^2. These changes will reduce the amount of clearing to almost half of the area previously proposed, which in turn provides a suitable balanced development outcome that considers the important elements on-site.

It is noted that other similar developments within the same zone and located outside of a recognized precinct have been approved by Council (your ref. RAL/18/0025, RAL18/0029).

We wish to conclude by advising that this response to the information request in accordance with section 13 of the *Development Assessment Rules*, has addressed all the items requested and the assessment of the application must proceed to the next phase. We wish to advise that public notification is scheduled to commence on the 18th November 2020.

Should there be any questions or queries in relation to the development application presented, we would appreciate if you could contact our office immediately. We also ask if possible that a copy of all correspondence be forwarded to our office via email.

Yours faithfully,

Ramon Samanes
Director, U&i Town Plan
Bachelor of Applied Science, Majoring in Environmental and Urban Planning

(**See enclosed:** Amended Plan of Development, Ecological Assessment Report & Protected Plant Survey Report)

Development Plan - 1 into 3 Lot Reconfiguration

Plan No: R4-20 (2)
Date: 12.11.2020

Ecological Assessment- Lot 2 RP726691

Boyles Road, Myola

Lot 2 RP 726691

4 elements

Ecological Assessment- Lot 2 RP726691

Boyles Road, Myola Lot 2 RP 726691

Revision History

Version	Purpose	Issued by	Date	Reviewer	Date
1	Draft Report	Matthew Hemmings	1/11/2020	Ryan Hughes	03/11/2020
2	Final Report	Ryan Hughes	10/11/2020	Mellissa Brown	10/11/2020
3	V2	Ryan Hughes	12/11/2020	Mellissa Brown	12/11/2020

4 Elements Consulting
107 Scott Street
Bungalow, QLD 4870
www.4elementsconsulting.com.au

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1.0 Introduction

A residential subdivision has been proposed for Lot 2 RP726691 in Myola (**Figure 1**). Currently, the property is configured as a single 13.70 ha lot, however reconfiguration into three lots for the implementation of two additional ~4000 m^2 building envelopes are proposed. 4 Elements Consulting was commissioned by Allyson Sheppard to conduct an ecological constraints assessment of the proposed subdivision on the property. The proposed subdivision is located within the Mareeba Shire Councils' Environmental Significance Overlay Code (P08) and requires assessment under this instrument to determine what acceptable outcomes are achieved as a result of the proposed subdivision. The proposed lot reconfiguration proposes to clear category C high value regrowth vegetation as listed under the Vegetation Management Act 1999. The ecological constraints assessment below will address any potential impacts to EPBC act 1999 flora and fauna.

1.1 Site Background

The study site is approximately ~350-370 m above sea level and located to the east of Boyles Road, Myola (Lot 2 RP 726691). The majority of the study site is mapped as category C regrowth vegetation under the *Vegetation Management Act 1999*. The study site has primarily been used for a low-density residential dwelling currently with a number of dwellings and cleared areas located in the far south of the property. The property is bordered by similar low-density residential properties to the east and the Cairns Hinterland Steiner School roughly opposite on the western boundary.

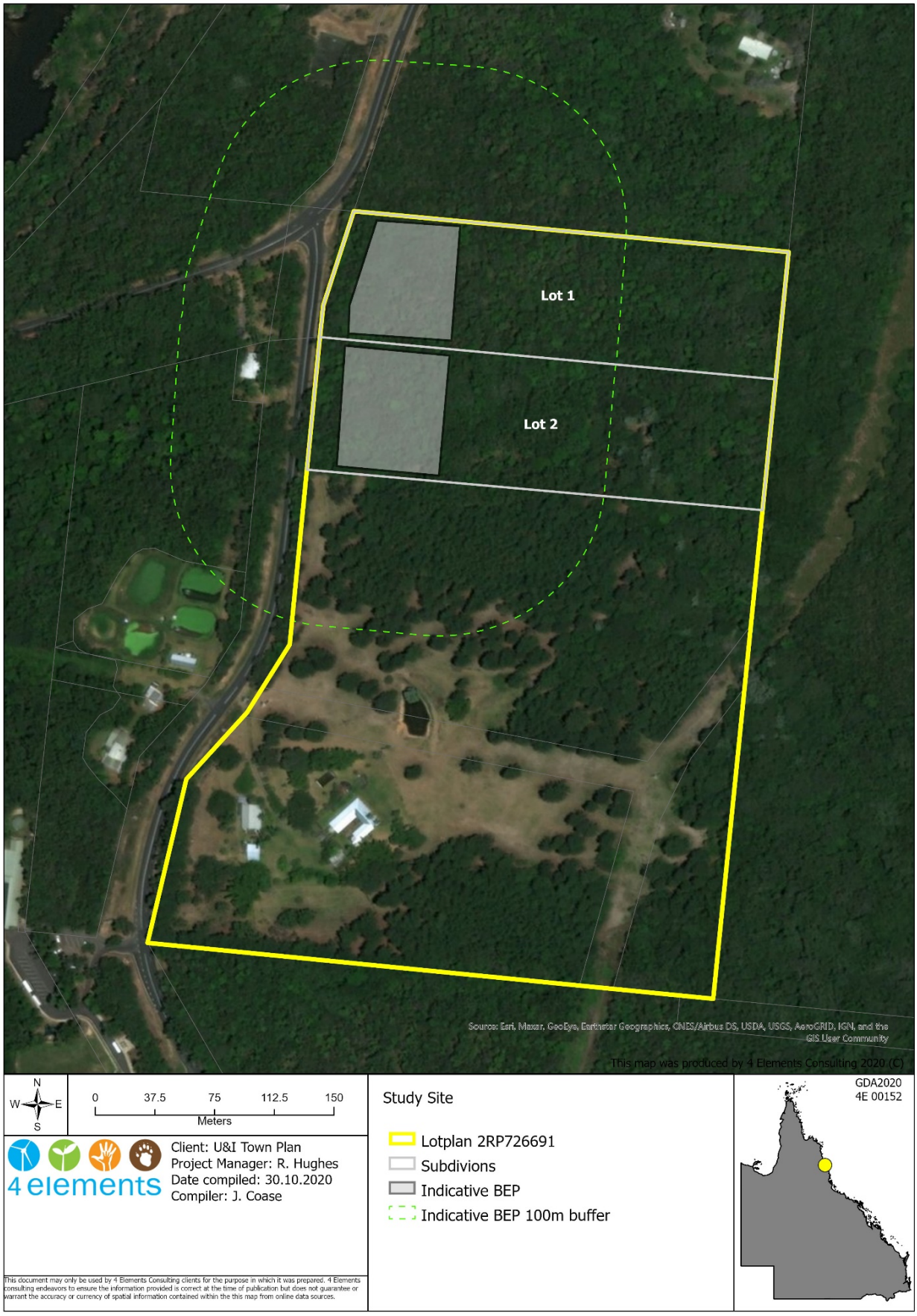


Figure 1 Study Site and Proposed Building Envelopes

1.2 Legislative Context

The following legislation, provided in **Table 1**, are relevant to identifying ecological values and to provide guidance for the assessment of potential project impacts and identify environmental constraints to project activities. These legislation and guidance documents have been considered in this report and the reports provided in the Appendices to this report.

Table 1 Statutory Legislation Applied to the Project and Corridors

Legislative Act	Brief Description
Commonwealth Legislation	
Environment Protection and Biodiversity Conservation Act 1999	The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a mechanism for assessing the environmental impact of activities and development where "Matters of National Environmental Significance" (NES) may be significantly affected. The Act identifies nine matters of NES, which require consideration and analysis, namely: ▸ Ramsar wetland of international importance; ▸ World Heritage properties; ▸ National Heritage places; ▸ Commonwealth Marine areas; ▸ Great Barrier Reef Marine Park; ▸ Nationally listed threatened species and ecological communities; ▸ Nationally listed migratory species; ▸ Nuclear actions (including uranium mining); and ▸ Water resources in relation to coal seam gas and large coal mining development. Where a project or action is believed to potentially cause a significant impact on a matter of NES, it is to be referred to the Australian Government Department of Environment and Science (DES) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval for the proposed action. The EPBC Act processes also allow voluntary referral of a project to seek confirmation that a Project will not have significant impacts on matters of NES. Where an action requires Commonwealth approval, a formal assessment process is undertaken in accordance with provisions of relevant legislation.
State Legislation	
Vegetation Management Act 1999	The *Vegetation Management Act 1999* (VMA) is the planning initiative underlying regional management of vegetation in Queensland, including clearing of vegetation types, termed Regional Ecosystems (REs). The RE classification is a hierarchical system formed by a three-part code with the primary subdivision being bioregion, followed by land zone, and then vegetation. The biogeographic region or bioregion is the primary level of classification for biodiversity values in Queensland

Legislative Act	Brief Description
	describing where the RE is found on a state-wide basis. Land Zones are geological and geomorphic categories that describe the major geologies and landforms of Queensland. The system is based primarily on geology, with geologic age considered an important determinant. The status of REs is based on their pre-clearing and remnant extent and is gazetted under the act and listed in the RE Description Database (REDD) maintained by the Queensland Department of Environment and Science (DES). The VMA aims to conserve remnant endangered and of concern REs, prevent land degradation and further loss of biodiversity, manage the environmental impacts of clearing vegetation and reduce of greenhouse emissions. The VMA status of a RE is described in line with the following: ▸ Endangered. A RE that is prescribed under the regulation and has either of the following attributes: ❖ Less than 10% of its pre-clearing extent remaining; or ❖ From 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha. ▸ Of concern. A RE that is prescribed under the regulation and has either of the following attributes: ❖ From 10% to 30% of its pre-clearing extent remaining; or ❖ More than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha; or ▸ Least concern. A RE that is prescribed under the regulation and has more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is more than 10,000 ha; or ▸ The biodiversity status of a RE is classified by DES based on the condition of remnant vegetation. A RE will have a vegetation management status and/or a biodiversity status of endangered, of concern or least concern; or ▸ Essential Habitat. The VMA also has provision for the regulation of essential habitat for species of state significance. Essential habitat (mapped by DES) is vegetation in which a listed species has been known to occur. Clearing or disturbance to areas of essential habitat will require compensatory habitat measures to be developed. For the project development area, core habitat has been used to describe the combination of critical or essential habitat for both national or state listed significant species.
Planning Act 2016	The Planning Act (2016) (Qld) establishes the framework for Queensland planning system. The purpose of the legislation is to establish an efficient and accountable system of land-use planning and development assessment that will lead to ecological sustainability. The Planning Act defines ecological sustainability as a balance between: ▸ The protection of ecological processes and natural systems at local, regional, state and national levels; ▸ Economic development; and

Legislative Act	Brief Description
	▸ The cultural, economic, physical and social wellbeing of Queenslanders. The Planning Regulation (2017) and the State Planning Policy (2017) are to guide local and state government in land use planning and development by defining the Queensland Government policies relating to matters of State interest.
Nature Conservation Act 1999	The *Nature Conservation Act 1992* (NCA) aims to conserve nature through strategies such as dedicating and declaring protected areas for those parts of Queensland with outstanding biological diversity, natural features and wilderness values. The NCA provides for the protection of near threatened, vulnerable and endangered animals and plants. *Nature Conservation (Wildlife) Regulation 2006* In support of the purpose and the provisions of the NCA, the *Nature Conservation (Wildlife) Regulation 2006* lists all flora and fauna species which are considered to be 'extinct in the wild', 'endangered', 'Vulnerable, 'Near Threatened' and 'Least Concern' wildlife. With respect to clearing activities: ▸ The primary purpose of the NC Act is to conserve biodiversity by creating and managing protected areas, managing and protecting native wildlife, and managing the spread of non-native wildlife. Unless authorised, it is an offence under the NC Act to take, keep, use, or move protected flora and fauna for commercial, recreational or other purposes. Where a proposed development will result in such impacts to flora and/or fauna protected under the NC Act, authorisation from DEH will be required. Under *section 332 of the Nature Conservation (Wildlife Management) Regulation 2006,* mining operations requires an approved Species Management Program (SMP) to undertake any works that will, or potentially will, disturb or interfere with a protected animal breeding place. **s332 - Tampering with animal breeding place** A person must not, without a reasonable excuse, tamper with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring. For subsection (1), an animal breeding place is being used by a protected animal to incubate or rear the animal's offspring if - ▸ The animal is preparing, or has prepared, the place for incubating or rearing the animal's offspring; or ▸ The animal is breeding, or is about to breed, and is physically occupying the place; or ▸ The animal and the animal's offspring are physically occupying the place, even if the occupation is only periodical; or ▸ The animal has used the place to incubate or rear the animal's offspring and is of a species generally known to return to the same place to incubate or rear offspring in each breeding season for the animal. Also, subsection (1) does not apply to a person removing or otherwise tampering with the breeding place if -

Legislative Act	Brief Description
	▸ The removal or tampering is part of an approved species management program for animals of the same species; or ▸ The person holds a damage mitigation permit for the animal and the permit authorises the removal or tampering.
Queensland Fisheries Act 1994	The *Fisheries Act 1994* (Fisheries Act) provides for the use, conservation and enhancement of the community's fisheries resources and fish habitat by providing for, amongst other things, the protection of fish habitats. The *Fisheries Act* has been integrated into the *Sustainable Planning Act 2009* (SP Act) so that development permits under the SP Act are required for certain operational works that are assessable development under the SP Act. Operation works that are assessable development under the SP Act include waterway barrier works and works in a declared fish habitat.
Biosecurity Act (2014)	The Queensland Government's *Biosecurity Act 2014* is administered by the Department of Agriculture and Fisheries (DAF). The Act provides management measures to protect agricultural and tourism industries and the environment from pests, diseases and contaminants. Under the Act, invasive plants and animals are categorised as either a 'Prohibited Matter' or a 'Restricted Matter' and replace the 'Declared' status under the Land Protection (Pest and Stock Route Management) Act 2002 which has been superseded.
Environmental Protection Act 1994	The *Environmental Protection Act 1994* (EP Act) provides the key legislative framework for environmental management and protection in Queensland. The EP Act utilises a number of mechanisms to achieve its objectives. Relevant to this project is the requirement for the establishment of a general environmental duty, under Section 319 of the EP Act. Section 319 of the EP Act places a general environmental duty on the client to ensure that 'it does not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm'. By undertaking the preparation of this detailed ecological investigation, the client demonstrates that it is cognisant of the responsibilities for environmental protection and management in Queensland.

Legislative Act	Brief Description
Water Act 2000	The purpose of the *Water Act 2000* is to provide for the sustainable management of water and other resources. Under Section 266 of the *Water Act 2000*, a riverine protection permit is generally required from the DNRME to: ▸ Destroy vegetation in a watercourse; ▸ Excavate in a watercourse; and ▸ Place fill in a watercourse. Additionally, water supply for construction purposes (e.g. access track construction/ compaction, dust suppression etc) may be required. Where this water supply is proposed to be sourced from nearby watercourses, a permit in accordance with Section 237 of the *Water Act 2000* will be required from DNRME prior to any water being extracted from the watercourse.

1.3 Weed Management Legislation

Invasive plant species have the ability to interrupt natural landscape function and may lead to significant economic impacts. Weeds are managed by being declared under on or all of the three relevant legislation and or local law outlined below.

1.3.1 Weeds of National Significance

The Australian state and territory governments have compiled a list of invasive plant species based on an assessment process that prioritised these weeds based on their invasiveness, potential for spread and environmental, social, and economic impacts. Consideration was also given to their ability to be successfully managed. A list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012.

1.3.2 Biosecurity Act 2014 (Queensland)

1.3.2.1 Prohibited Invasive Plant

Prohibited matter includes a range of invasive plants and invasive animals and other types of pests and diseases listed in the Act. These plants have the potential to have significant impacts and are currently not present or known to be present in Queensland. It is an offence to deal with prohibited matter or fail to report its presence.

1.3.2.2 Restricted Invasive Plants

These species are established in Queensland and seriously threaten Queensland's primary industries, natural environment, livestock, human health and people's livelihoods.

Under the *Biosecurity Act 2014*, there are 7 categories of restricted matter (i.e. restricted matter may include matter such as plants, animal diseases, noxious fish, insects, pest animals and weeds).

Restricted invasive plants may fall into 1, a combination or all of categories 2 to 5 (listed below). Under each category the restricted invasive plant has listed restrictions. The specific restriction requirements also apply to a person when dealing with restricted invasive plants unless they have a restricted matter permit.

Restricted invasive plant categories and restrictions:

- Category 2: the invasive plant must be reported within 24 hours Biosecurity Queensland on 13 25 23.
- Category 3: the invasive plant must not be distributed either by sale or gift or released into the environment.
- Category 4: the invasive plant must not be moved.
- Category 5: the invasive plant must not be kept.
- Category 5: the invasive plant must not be kept.

All landowners have a general biosecurity obligation (GBO) under the *Biosecurity Act 2014 to* take reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control *regardless of its declared status.* Weeds that are not declared under the *Biosecurity Act 2014* may still be declared at the local government level.

1.3.3 Mareeba Shire Council Local Area Pest Management Plan (2015-2020)

This management plan outlines the objectives and strategies for ongoing, coordinated and effective pest management within the Mareeba Shire local government area.

Weed species are allocated a ranking, where weeds with the highest score are given the highest priority for control. Pest plants are given a ranking, where weeds with higher scores are given higher priority for control. The highest score an individual pest plant can receive is 45. This score is based on the listing under national and state legislation, the current distributional extent and potential economic, social and environmental impacts as well as the likelihood of a beneficial control outcome.

The Mareeba Shire priority weeds, WoNS and declared weeds *Biosecurity Act 2014* occurring within or near the site are listed in Section 3.3.

2.0 Methodology

2.1 Desktop review

4 Elements Consulting completed a review of relevant mapping, databases, legislation and associated plans and policies to identify potential matters of ecological significance including species and communities, and other ecological features that may occur on or within proximity planned housing development. This review included an assessment of the following:

- Wildlife Online database of flora and fauna (DEHP 2014). This database holds records of plants and animals that have either been sighted or collected within a given radius of the site (a search parameter was prescribed limiting the search area to a 10 km radius around the site. The records held in this database are maintained by DEHP;
- Protected Matters database of MNES (DAWE 2020). This database applies a range of bio-models to predict the presence of species of flora and fauna and other MNES within a given radius of the site (a search parameter was prescribed limiting the search area to a 5 km radius) as cited under the Commonwealth's EPBC Act;
- Protected Matters database of MSES (DEH, 2019). This database applies a range of bio-models to predict the presence of species of vegetation and other MSES within a given radius of the site (a search parameter was prescribed limiting the search area to 10 km);
- Review of relevant legislation and associated plans and policies, including but not limited to the QLD NC Act, VM Act, EPBC Act, and the Water Act;
- Mareeba Shire Planning Scheme Environmental Significance Overlay Code P08. Identify and protect matters of environmental significance, which include matters of state environmental significance (MSES) as defined under the State Planning Policy 2017 (SPP).
- Literature review. A range of scientific papers, recovery and conservation plans and other literature were reviewed for a number of related matters (such as targeted threatened species);
- Digital geological mapping on GeoResGlobe which details surface geology; and
- Australian Virtual Herbarium (for voucher notes and distribution records of threatened flora species.

3.0 Field Investigation

A field investigation was undertaken by an ecologist on 28 October 2020. The entire vegetated areas of the property were traversed on foot by an ecologist. The purpose was to assess the ecological condition of the study site and provide information on the following:

- Presence of threatened flora and fauna;
- Presence of invasive weed species and relevant Biosecurity listing;
- Determine the presence of any regulated vegetation (VMA 1999) and/or threatened ecological communities (EPBC Act 1999);
- Determine the presence of any mapped waterways and or wetlands;
- Assess locations of any locally and regionally significant ecological corridors.

3.1 Potential Habitat Assessment

The study site traverse included evaluating the area for potential occurrence of threatened flora and fauna species to occur within the target areas. All species are assessed under the *Nature Conservation Act 1992* and the *Environment Protection and Biodiversity Conservation Act 1999*. Recorded features included:

- Presence/absence of suitable habitat for EVNT species;
- Condition and disturbance history of habitat;
- Location of site within known distribution of the species;
- Connectivity with habitat where species is known to occur;
- Structural and floristic characteristics of the vegetation;
- Soil type and structure (visual only);
- Presence of water in any form e.g. rivers, dams, creeks, drainage lines, soaks;
- Size and abundance of hollows and coarse woody debris (CWD);
- Presence of sandbanks, shallow wading areas, rock walls, saltmarsh, roost areas, etc; and
- Presence of mistletoe, nectar, gum, seed, sap sources, browse trees.

3.2 Field Survey

3.2.1 Vegetation Communities

The vegetation throughout much of the property was in a regrowth condition (category C and R see **Figure 2**). The communities aligned with the pre-clearance regional ecosystems as mapped on the study site (RE 7.11.5),

the exception being the distinct lack of *Eucalyptus tereticornis* that dominates RE 7.11.44. Occasionally, medium sized *Eucalyptus pellita* and *Corymbia intermedia* were encountered up to ~60 cm diameter at breast height (DBH). Although much of the mature aged canopy trees have been removed through historical clearing of the study site and broader property. No hollow bearing trees were encountered in the PPS meander contributing further evidence of an immature regrowth community being the representative vegetation condition across the property.

Vegetation within the study site consisted broadly of open wet sclerophyll forest. The canopy (10-15 m) was generally dominated by *Eucalyptus pellita*, *Corymbia intermedia* and occasionally *Corymbia torelliana*. Fire exclusion was evident over the entire property and has permitted a dominant rainforest understorey including *Polyscias australianum, Guioa lasioneura, Alstonia meulleriana* and *Glochidion hylandii*. These species have formed a dense shrub and understorey layer that is suppressing recruitment of the Eucalypt canopy. The typical grassy understory with a sparse shrub layer was largely absent from all parts of the study site. Fire intervals of a low intensity at 2-5-year intervals are required for maintaining a typical grassy understorey. No evidence of any fire scars on Eucalypt trees and advanced growth of a number of fire sensitive rainforest indicate lack of fire exceeding five (5) years.

Within ephemeral drainage lines the rainforest incursion was further pronounced with higher proportions of epiphytes and lianas and a dense shrub layer was occasionally present containing a shrub layer rainforest element (**Plate 1**). Highly modified non-remnant vegetation was present in the south of the study site.

Plate 1 Riparian Vegetation Present in the East of the Property

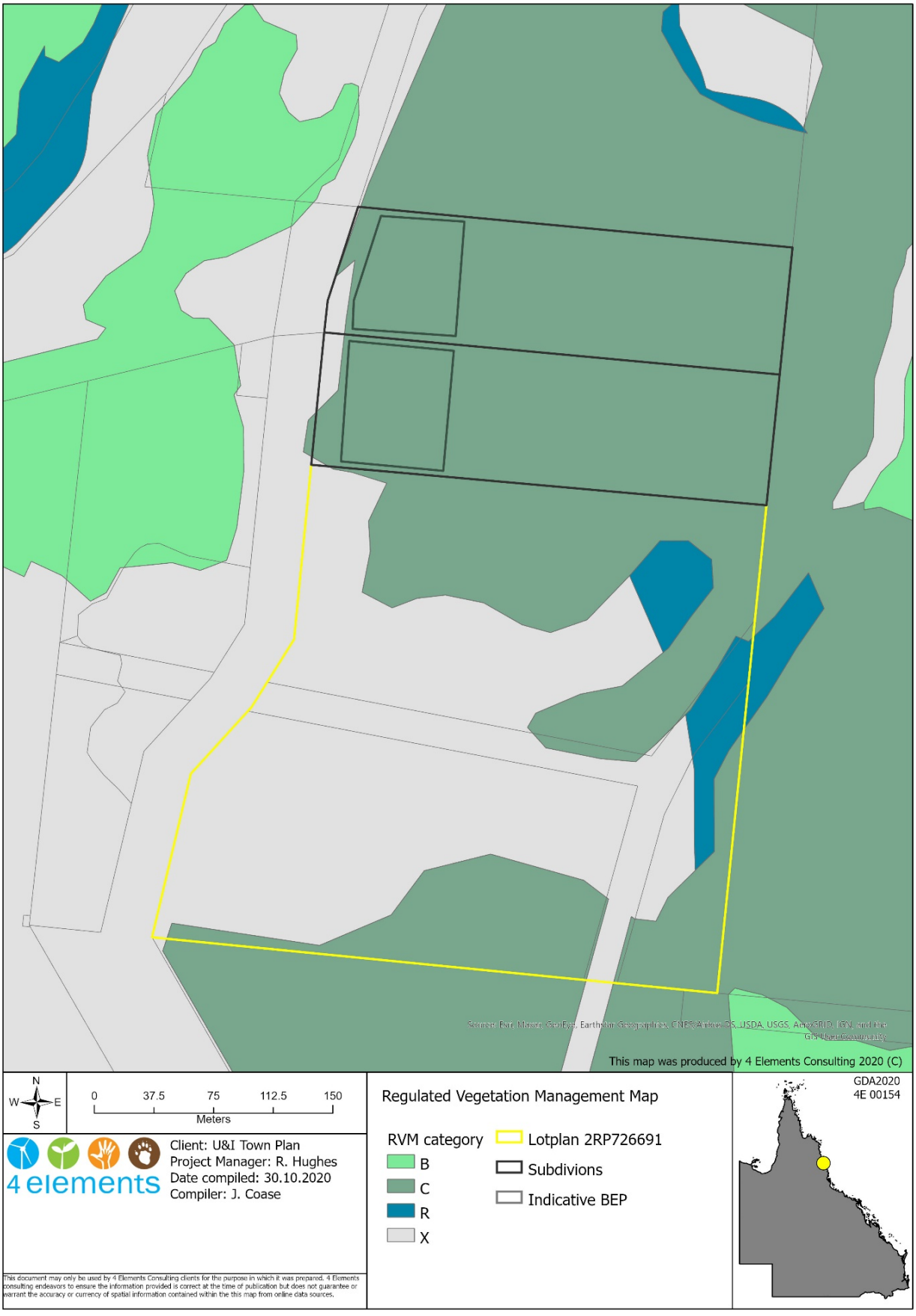


Figure 2 Vegetation Categories on Site

3.2.2 Habitat Attributes

Table 2 Habitat Attributes Present on the Site

Habitat Type	Study Area	Potential Value for Threatened Species
Connectivity	The study site maintains high connectivity with the surrounding vegetation communities, with forested corridors connecting Formartine State forest to the south and Kuranda National Park to the North. Minor roads, powerline easements and residential properties are present within the region.	Property represents a minor portion of larger foraging ranges for most species occurring in the property. Property represents generic habitat for a number of least concern species.
Ground Cover	Ground cover was present throughout the site. particularly in drier sections where a grassy understory was still present	Generic ground layer habitat was present across the property. May provide generic habitat for a range of common ground dwelling small mammals, amphibians and reptiles.
Leaf Litter	Due to an emerging rainforest canopy, thick leaf litter is present on the site.	Dense leaf little provides structural refuge and foraging habitat for a range of common birds, mammals, amphibians and reptiles.
Coarse Woody Debris	Present on site throughout, however most debris are small and not hollow bearing. Two stag *Acacia celsa* trees were found near the southern housing alignment S16.80813° E145.59027° and S16.80809° E145.59016°. there is potential roosting habitat within these trees.	Moderate value. Generic habitat feature. May provide denning and foraging cover for a range of species, particularly small mammals (rodents and microbats) and reptiles.
Tree Hollows	Limited presence of tree hollows with the exception of a hollow termite mound in a tree (S16.80899° E145.58953°) (see **0**)	Minimal value of site, given the lack of tree hollows in the Eucalyptus species on site. Arboreal hollows were only observed within arboreal termitaria occasionally on site (**Plate 2**). Providing refuge for obligate hollow denning species.
Shrub layer containing Melaleuca, Acacia, Banksia, Xanthorrhoea species	Largely supressed by the advancing rainforest succession across the property.	Minimal value to any species.

Habitat Type	Study Area	Potential Value for Threatened Species
Primary Nectar Sources	Limited to *Eucalyptus pellita, Coyrmbia intermedia* and *Melaleuca dealbata* trees on site. Mistletoe spp. were present on site particularly within the *Acacia Celsa* within the cleared area nearest the housing pads.	High. These trees may provide a seasonal supply of nectar sources for a wide range of nectivorous species including the Spectacled Flying Fox.
Sap and Gum Sources	Limited to *Eucalyptus pellita* and other *Coyrmbia* trees on site	Moderate. Limited numbers of Eucalypt trees present on site. Rainforest incursion limiting the regrowth of open forest species for sap and gum sources.
Koala browse trees	*Eucalyptus pellita* feed trees are present within the study site. Connectivity to the surrounding vegetation communities of adjacent properties is high.	Minimal. Site is in a stage of regrowth with a developing rainforest incursion and as a result is not optimal habitat for koala. No proximate records exist.
Fleshy fruiting Species including *Ficus spp.*	Recorded occasionally in the understorey i.e. *Ficus rubignosa.*	Minimal. *Ficus spp.* Represent a minor component of the vegetation present within the property.
Passerine bird habitat	Dense stands of emerging rainforest trees, vine thickets and tall Eucalyptus emergent trees present.	Moderate. Generic passerine bird habitat is found throughout the study site. Evidence of Red-tailed Black Cockatoo feeding trees observed on site see Plate 3
Rock Outcrops	None	None
Water bodies	None	None. Ephemeral creeks and minor lagoons were recorded outside of the proposed clearing areas.

Plate 2 Arboreal termite mound found on a *Eucalyptus pellita*

Plate 3 Red-tailed Black Cockatoo feeding scar on *Acacia flavescens*

3.3 Invasive Weeds

Weeds were generally a very minor occurrence throughout the study site where regrowth vegetation was present. Within ephemeral drainage lines a higher number of herbaceous weeds were encountered. Of the 28 species encountered during the meander surveys, most were located along Boyles Road and the cleared paddock to the south.

Weeds of national significance (WoNS) restricted invasive category three species were found only within the road reserve along Boyles Road and were not present within the property (Lot 2 RP 726691).

4.0 Desktop Analysis Results

4.1 Mapped Vegetation Communities

RE & Biodiversity Status	Description (REDD v 11.1)	Location	Site Value
Wet Tropics, Land Zone 12 – Granite and Rhyolite Derived Landforms			
7.11.5a LC/NOC Category C	*Eucalyptus pellita, Corymbia intermedia, C. tessellaris* open forest with *Acacia celsa, A. cincinnata, A. mangium* and *A. flavescens*. Lowlands and foothills on metamorphics, of the very wet and wet rainfall zones.	Present as a majority portion of the study site.	Potential habitat for NCA listed species: *Aphyllorchis queenslandica, Buckinghamia ferruginiflora, Freycinetia marginata, Randia audasii, Sphaerantia chartacea, Vrydagzynea grayi, Whyanbeelia terrae-reginae.* Pre-clear extent = 30,000 ha; 2017 extent = 27,000 ha
7.11.5c LC/NOC Category C	*Corymbia intermedia, Eucalyptus pellita, E. tereticornis, C. tessellaris, C. torelliana,* open forest to woodland with *Acacia celsa, A. mangium, Lophostemon suaveolens* and *Syncarpia glomulifera*. Lowlands and foothills on metamorphics, of the wet and moist rainfall zones.	Present as a minor portion of the study site restricted to the central east of the property.	Potential habitat for NCA listed species: *Aphyllorchis queenslandica, Buckinghamia ferruginiflora, Freycinetia marginata, Randia audasii, Sphaerantia chartacea, Vrydagzynea grayi, Whyanbeelia terrae-reginae.* Pre-clear extent = 30,000 ha; 2017 extent = 27,000 ha
7.11.44 OC/OC Category C	*Eucalyptus tereticornis* (forest red gum) open forest to woodland. Coastal metamorphic foothills.	Present as a minor portion of the study site in the south of the property.	Potential habitat for NCA listed species: *Randia audasii* Pre-clear extent = 10,000 ha; 2017 extent = 9,000 ha

4.2 Matters of National and State Environmental Significance

Desktop searches for potentially occurring threatened species and habitats were conducted under both the *Environment Protection and Biodiversity Act 1999* (EPBC Act) and the *Nature Conservation Act 1992* (NC Act). Results from both databases (Protected Matters Search Tool and Wildlife Online Database) are detailed in **Appendix B** and **Appendix C**.

4.3 NC Act Wildlife Online

The Wildlife Online database search tool returned records for 33 NCA listed species. These species comprised 7 amphibian, 8 bird, 1 insect, 6 mammal, 1 reptile and 10 plants. See **Appendix B** for the complete search results.

4.4 EPBC Act Protected Matters Search Tool (Species)

Database searches under the Protected Matters Search Tool (PMST) returned a result of 49 listed threatened species, 23 migratory and 29 marine species. One species, *Pristis pristis,* was excluded given it is a pelagic/ marine aquatic habitat species. Listed threatened species included 12 Bird, 5 frog, 11 mammal, 1 reptile and 19 plants. Thirty (30) bird species listed as also migratory and marine were recorded in the search tool. **Appendix C** provides the complete search results for the PMST search tool.

An assessment for the potential occurrence of these species on the study site, for both the EPBC and NC threated species, is provided in **Appendix A**. **Table 3** below provides a summary list for these species and their relevant legislative listing.

Table 3 PMST (EPBC Act 1999)

Common Name	Scientific Name	Status NC Act	Status EPBC Act
Threatened Fauna			
Frogs			
Australian Lace-lid	*Litoria dayi*	V	V
Kuranda Tree Frog	*Litoria myola*	CR	E
Waterfall frog	*Litoria nannotis*	E	E
Mountain mist frog	*Litoria nyakalensis*	CR	E
Common Mistfrog	*Litoria rheocola*	E	E
Tapping green eyed frog	*Litoria serrata*	-	V
Sharp-snouted Day Frog	*Taudactylus acutirostris*	Ex	Ex
Reptiles			
Estuarine Crocodile	*Crocodylus porosus*	V	-
Red Knot	*Calidris canutus*	E	E
Curlew Sandpiper	*Calidris ferruginea*	CE	E
Great Knot	*Calidris tenuirostris*	CE	E
Southern Cassowary	*Casuarius casuarius johnsonii*	E	E
Macleay's fig-parrot	*Cyclopsitta diopthalma macleayana*	-	V
Beach stone-curlew	*Esacus magnirostris*	-	V
Red Goshawk	*Erythrotriorchis radiatus*	V	E
Gouldian Finch	*Erythrura gouldiae*	E	E
Grey Falcon	*Falco hypoleucos*	-	V

Common Name	Scientific Name	Status NC Act	Status EPBC Act
White-throated Needletail	*Hirundapus caudacutus*	V, Ma, Mi	LC
West Alaskan Bar-tailed Godwit	*Limosa lapponica baueri*	V	V
Northern Siberian Bar-tailed Godwit	*Limosa lapponica menzbieri*	CE	E
Eastern Curlew	*Numenius madagascariensis*	CE	E
Australian Painted Snipe	*Rostratula australis*	E	V
Buff-Breasted Button Quail	*Turnix olivii*	E	E
Masked Owl (northern)	*Tyto novaehollandiae kimberli*	V	V
Fish			
Lake Eacham Rainbow Fish	*Melanotaenia eachamensis*	E	-
Opal Cling Goby	*Stiphodon semoni*	-	CR
Mammals			
Northern Bettong	*Bettongia tropica*	E	E
Northern quoll	*Dasyurus hallucatus*	-	E
Spotted-tail quoll	*Dasyurus maculatus gracilis*	E	E
Lumholtz's Tree Kangaroo	*Dendrolagus lumholtzi*	-	NT
Diadem leaf-nosed bat	*Hipposideros diadema reginae*	-	NT
Semon's leaf-nosed bat	*Hipposideros semoni*	E	V
Ghost bat	*Macroderma gigas*	E	V
Black-footed tree rat	*Mesembriomys gouldii rattoides*	-	V
Tube-nosed Insectivorous Bat	*Murina florium*	-	V
Koala	*Phascolarctos cinereus*	V	V
Spectacled flying-fox	*Pteropus conspicillatus*	V	V
Large-eared horseshoe bat	*Rhinolophus robertsi*	V	V
Bare-rumped sheathtail bat	*Saccolaimus saccolaimus nudiclunatus*	E	V
Water Mouse	*Xeromys myoides*	V	V
Threatened Flora			
-	*Acalypha lyonsii*	-	V
-	*Archontophoenix myolensis*	E	E
-	*Alloxylon flammeum*	V	V
-	*Alpinia hylandii*	-	NT
-	*Canarium acutifolium*	V	V
-	*Carronia pedicellata*	E	E
-	*Calochlaena villosa*	-	NT
-	*Crepidomanes majoriae*	-	V
-	*Ctenopterus walleri*	-	NT
-	*Diplazium cordifolium*	V	V
Dark-stemmed antler orchid	*Dendrobium mirbelianum*	E	E

Common Name	Scientific Name	Status NC Act	Status EPBC Act
	Syn: Durabaculum mirbelianum		
Queensland bluegrass	*Dicanthium setosum*	V	LC
-	*Diplazium pallidum*	E	E
Ant Plant	*Myrmecodia beccarii*	V	V
Lesser Swamp-orchid	*Phaius australis*	E	E
-	*Phaius pictus*	V	V
Native Moth Orchid	*Phalaenopsis amabilis subsp. rosenstromii*	E	E
Blue Tassel-fern	*Phlegmariurus dalhousieanus*	E	CR
Rat's tail tassel-fern	*Phlegmariurus filaformis*	E	E
Square tassel-fern	*Phlegmariurus tetrastichoides*	V	V
Middle Filmy Fern	*Polyphlebium endlicherianum*	E	V
-	*Polyscias bellendenkerrensis*	V	V
-	*Randia audasii*	-	NT
	Rhomboda polygonoides	V	V
	Syzygium hodgkinsoniae	V	V
-	*Senegalia albizioides*	-	NT
Dwarf Butterfly Orchid	*Vappodes lithocola*	E	E
-	*Wetria australiensis*	-	V
Key: Ex: extinct, CE: Critically Endangered; E: Endangered; V: Vulnerable; NT: Near Threatened			

4.5 EPBC Act and MNES Search Tool (Places of Environmental Significance)

Matters of National Environmental Significance (MNES) are matters pursuant to the EPBC act. The results of the MNES search which provides details on environmentally significant areas and habitat types is provided in **Table 4** below. To conduct this search tool, a 10 Kilometre radius buffer was added around a central point on the property. This provides results for all possible MNES matters that may occur on the property.

Table 4 PMST results (Significant Places)

Category	Result
Matters of National Environmental Significance	
World Heritage Properties	1
National Heritage Places	2
Wetlands of International Importance	None
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	1
Listed Threatened Species	49
Listed Migratory Species	23

Category	Result
Other Matters Protected by the EPBC Act	
Commonwealth Land	None
Commonwealth Heritage Places	None
Listed Marine Species	29
Whales and other cetaceans	None
Critical Habitats	None
Commonwealth Reserves Terrestrial	None
Commonwealth Reserves Marine	None
Nationally Important Wetlands	2

4.6 Migratory and Marine Species

A total of 23 migratory and 29 marine species (adjusted for the exclusion of species solely dependent on aquatic marine habitats) were identified in the PMST search report. A summarised list of these species is provided in **Table 5** below.

Table 5 Migratory Species

Common name	Scientific name	EPBC Act Status	NCA Act status
Magpie Goose	*Anseranas semipalmata*	Ma	LC
Common Sandpiper	*Actitis hypoleucos*	Mi, Ma	SLC
Great Egret	*Ardea alba*	Ma	LC
Cattle Egret	*Ardea ibis*	Ma	LC
Fork-tailed Swift	*Apus pacificus*	Mi, Ma	SLC
Sharp-tailed Sandpiper	*Calidris acuBlackminata*	Mi, Ma	SLC
Red Knot	*Calidris canutus*	Mi, E	E
Curlew Sandpiper	*Calidris ferruginea*	Mi, CE	E
Pectoral Sandpiper	*Calidris melanotos*	Mi, Ma	SL
Great Knot	*Calidris tenuirostris*	CE, Mi	E
Lesser Frigatebird	*Fregreta ariel*	Mi, Ma	SL
Great Frigatebird	*Fregata minor*	Mi, Ma	SL
White-throated Needletail	*Hirundapus caudacutus*	V, Ma, Mi	LC
Bar-tailed Godwit	*Limosa lapponica*	Mi, V	V
Barn Swallow	*Hirundo rustica*	Mi	SL
Black-faced Monarch	*Monarcha melanopsis*	Mi	SL
Spectacled Monarch	*Monarcha trivirgatus*	Mi	SLC
Black-winged Monarch	*Monarcha frater*	Mi	SLC
Yellow Wagtail	*Motacilla flava*	Mi	SLC
Eastern Curlew	*Numenius madagascariensis*	Mi, CE	E
Rufous Fantail	*Rhipidura rufifrons*	Mi, Ma	SLC
Osprey	*Pandion haliaetus*	Mi, Ma	SLC

Common name	Scientific name	EPBC Act Status	NCA Act status
Common Greenshank	*Tringa nebularia*	Mi, Ma	SLC
Black-eared Cuckoo	*Chrysococcyx osculans*	Ma	LC
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Ma	LC
Rainbow Bee-eater	*Merops ornatus*	Ma	LC
Flycatcher Satin	*Myiagra cyanoleuca*	Mi	SLC
Painted Snipe	*Rostratula benghalensis (sensu lato)*	E, Ma	V
Oriental Cuckoo	*Cuculus optatus*	SLC	Mi
Latham's Snipe	*Gallinago hardwickii*	SLC	Mi
Key: Mi: Migratory, Ma: Marine, SLC: Special Least Concern			

4.7 Matters of National Environmental Significance (MNES) continued

The following table details the guidelines to which a certain application may have a significant impact on a sensitive environmental matter pursuant under the EPBC Act. **Table 6** below details the impact the current project may have for places of national environmental significance. The PMST search tool identified one Threatened Ecological Community (TEC) that may potentially occur on the study. This TEC is not present in any part of the study site, especially given that much of the property is classed as regrowth vegetation. Furthermore, vegetation on the property consists of Regional Ecosystems 7.11.5a (*Eucalyptis pellita* open forest) and 7.11.44, (Blue gum forest) with rainforest an invasive rainforest understorey incursion, thus limiting the ability for broad leaf tee-tree (*Melaleuca viridiflora*) woodlands to establish.

Table 6 Matters of National Environmental Significance (MNES)

Matters of National Environmental Significance	Triggers
Listed Threatened Ecological Communities	
An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will: ▸ reduce the extent of an ecological community ▸ fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines ▸ adversely affect habitat critical to the survival of an ecological community ▸ modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns ▸ cause a substantial change in the species composition of an occurrence of an ecological community, including causing a	One threatened Ecological Community is considered a potential occurrence under the EPBC: **Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coast north Queensland.** The project site does not intersect this listed threatened ecological community **No significant impact.**

Matters of National Environmental Significance	Triggers
decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting ▸ cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: ❖ assisting invasive species, that are harmful to the listed ecological community, to become established, or ❖ causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or ❖ interfere with the recovery of an ecological community.	
World Heritage Property/National Heritage Places	
An action is likely to have a significant impact on natural heritage values of a World Heritage property if there is a real chance or possibility that the action will: Values associated with geology or landscape ▸ damage, modify, alter or obscure important geological formations in a World Heritage property ▸ damage, modify, alter or obscure landforms or landscape features, for example, by excavation or infilling of the land surface in a World Heritage property ▸ modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes, in a World Heritage property ▸ divert, impound or channelise a river, wetland or other water body in a World Heritage property, and ▸ substantially increase concentrations of suspended sediment, nutrients, heavy metals, hydrocarbons, or other pollutants or substances in a river, wetland or water body in a World Heritage property. Biological and ecological values ▸ reduce the diversity or modify the composition of plant and animal species in all or part of a World Heritage property ▸ fragment, isolate or substantially damage habitat important for the conservation of biological diversity in a World Heritage property	**Wet Tropics of Queensland** This project site does not intersect or contain an environmental area within the Wet Tropics World heritage area. **No significant impact**

Matters of National Environmental Significance	Triggers
▸ cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a World Heritage property, and ▸ fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a World Heritage property.	
National Heritage Places	
An action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause: ▸ one or more of the National Heritage values to be lost ▸ one or more of the National Heritage values to be degraded or damaged, or ▸ one or more of the National Heritage values to be notably altered, modified, obscured or diminished.	**Wet Tropics of Queensland** Wet Tropics World Heritage Area (Indigenous Values) are not present on the property. National heritage places are not present on the property. **No significant impact**

4.8 Significant Impact Assessment for MNES

Individual significant impacts assessments (SIA) have been conducted on those species identified as potentially at risk of impact from the development. The SIA's differ between federally listed and state listed species and are explained in the following sections

4.8.1 Threatened Species

The Department of Agriculture, Water and Environment (DAWE) notes an action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of a population;
- Reduce the area of occupancy of the species;
- Fragment an existing population into two or more populations;
- Adversely affect habitat critical to the survival of a species;
- Disrupt the breeding cycle of a population; and/or
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Individual impact assessments were conducted on EPBC listed species considered to have a moderate likelihood or confirmed presence on site. These potentially occurring species are:

- Bare-rumped Sheathtailed bat
- Large-eared Horseshoe Bat
- Spectacled Flying Fox
- Koala

Marginal generic suitable habitat is present on the study site for these species. The fauna species listed here may use the site as infrequent visitors for foraging, however the development footprint of the site represents a very minor portion of a larger foraging range for these species.

4.8.2 Migratory Species

The Department of Environment and Science (DES) notes an action is likely to have a significant impact on a migratory species if there is a possibility it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The species considered moderate and highly likely to occur on site are:

- Oriental Cuckoo
- Satin Flycatcher
- Rainbow bee-eater
- Osprey
- Rufous fantail
- Black-winged Monarch
- Spectacled Monarch
- Black-faced Monarch
- Barn Swallow
- White throated needletail
- Fork-tailed swift

It is considered highly unlikely that a total vegetation clearance for the proposed subdivision will impact on ecologically significant habitat to these species such that it interferes with the breeding, foraging or roosting of migratory species. External to the site, there are large tracts of available vegetation for these species to utilise.

The results of this assessment determined there will be no significant impact on threatened or migratory species and this project will not be referred to the Department of Environment and Energy under the EPBC Act.

4.9 Matters of State Environmental Significance (MSES)

The following table (**Table 7**) details the guidelines to which a certain application may have a significant impact on a sensitive environmental matter pursuant under the *Nature Conservation Act 1992.*

Table 7 Matters of State Environmental Significance

Matters of State Environmental Significance	Triggers
Regulated Vegetation (VMA)	
The prescribed regional ecosystems that are endangered regional ecosystems comprise a matter of State Environmental Significance. The prescribed regional ecosystems that are of concern regional ecosystems comprise a matter of State environmental significance. A prescribed regional ecosystem is a matter of State environmental significance if it is— (a) a regional ecosystem that intersects with an area shown as a wetland on the vegetation management wetlands map (to the extent of the intersection); or (b) an area of essential habitat on the essential habitat map for an animal that is endangered wildlife or vulnerable wildlife or a plant that is endangered wildlife or vulnerable wildlife. A prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse.	▸ Category C vegetation is present of the property ▸ Essential Habitat is present on the property for *Litoria serrata* (green eyed tree frog), *Litoria myola* (Kuranda tree frog) and *Alpinia hylandi* (a native ginger). Field investigation determined that in the current condition of the property it is unlikely that either of these species would be a likely occurrence.
Connectivity Areas	
(1) This section applies to a prescribed regional ecosystem— (a) to the extent the ecosystem contains remnant vegetation; and	▸ The vegetation on site is continuous with large tracks of protected vegetation in the locality. The vegetation proposed for clearance on the property is not required to maintain connectivity to ecosystems within the region. ~0.9ha clearance of category C high value regrowth is required for the

Matters of State Environmental Significance	Triggers
(b) if the ecosystem contains an area of land that is required for ecosystem functioning (a connectivity area). The prescribed regional ecosystem is a matter of State environmental significance if the administering agency is satisfied, having had regard to criteria in the environmental offsets policy about connectivity areas, that— (c) the connectivity area is of sufficient size or configured in a way that maintains ecosystem functioning; and (d) the prescribed regional ecosystem will remain despite a threatening process within the meaning of *the Nature Conservation Act 1992*.	development. No loss in connectivity to other sites will occur as a result of this clearing.
Wetlands and Watercourses	
(2) Each of the following matters is a matter of State environmental significance— (a) a wetland; i. in a wetland protection area; or ii. of high ecological significance shown on the Map of referable wetlands; (b) a wetland or watercourse in high ecological value waters.	▸ Category R (Reef regrowth watercourse vegetation is located approximately 120 metres from the proposed clearance area to the south east. No impact is expected given that clearing is not expected to take place within these mapped regrowth areas. Furthermore, erosion and sediment control measures must be put in place to mitigate sedimentation and runoff issues.
Designated Precinct in a Strategic Environmental Area	
(1) A designated precinct in a strategic environmental area is a matter of State environmental significance.	The project area does not intersect or contain a strategic environmental area.
Protected Wildlife Habitat	
(1) An area that is shown as a high-risk area on the flora survey trigger map and that contains plants that are endangered wildlife or vulnerable wildlife is a matter of State environmental significance. An area that is not shown as a high-risk area on the flora survey trigger map, to the extent the area contains plants that are endangered wildlife or vulnerable wildlife, is a matter of State environmental significance. A non-juvenile koala habitat tree located in an area shown as bushland habitat, high value rehabilitation habitat or medium value rehabilitation habitat on the	▸ A Protected Plant Search (PPS) was conducted for the study site. No threatened plants were found on the site. ▸ No Koala Habitat Values were mapped on the site. Marginal suitable feeding trees are present. ▸ No habitat for threatened wildlife was found on site. Suitable generic habitat for a range of species was identified.

Matters of State Environmental Significance	Triggers
map called 'Map of Assessable Development Area Koala Habitat Values' that applies under the South East Queensland Koala Conservation State Planning Regulatory Provisions is a matter of State environmental significance. A habitat for an animal that is endangered wildlife or vulnerable wildlife, or a special least concern animal is a matter of State environmental significance.	
Protected Areas	
A protected area is a matter of State environmental significance.	There are no protected areas under the *Nature Conservation Act* present on the site.
Highly Protected Zones of State Marine Parks	
A highly protected area of a relevant Queensland marine park is a matter of State environmental significance.	There are no marine parks or land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone present on the site.
Fish Habitat Areas	
An area declared under the *Fisheries Act 1994* to be a fish habitat area is a matter of State environmental significance.	There are no fish habitat areas under the *Fisheries Act 1994* present on the study site.
Waterway Providing for Fish Passage	
1) Any part of a waterway providing for passage of fish is a matter of State environmental significance only if the construction, installation or modification of waterway barrier works carried out under an authority will limit the passage of fish along the waterway.	▸ No part of the study site spans an area deemed to be a water way for water barrier works (stream).
Marine Plants	
A marine plant within the meaning of the *Fisheries Act 1994* is a matter of State environmental significance.	There are no marine plants under the *Fisheries Act 1994* recorded on the site.
Legally Secured Offset Areas	
A legally secured offset area is a matter of State environmental significance.	There are no legally secured offset areas intersecting the site.

4.9.1 Mareeba Shire Council Environmental Significance Overlay

Table 8 below details the outcomes against the Mareeba Shire Council Environmental Significance Overlay. There are no significant residual impacts from the proposed development.

Table 8 Site Outcomes against Environmental Significance Overlay

Performance outcomes	Acceptable outcomes	Comment
REGULATED VEGETATION		
PO1 Vegetation clearing in areas mapped as 'Regulated vegetation' identified on the **Environmental Significance Overlay Maps (OM-004a-o)** is avoided unless: (a) it is demonstrated that the area does not support regulated vegetation as mapped; (b) the loss or reduction in regulated vegetation is for community infrastructure and associated access facilities that cannot be avoided; (c) wildlife interconnectivity is maintained or enhanced at a local and regional scale; and (d) the loss or reduction in regulated vegetation is minimized and any residual impacts are offset.	**AO1.1** No clearing of native vegetation is undertaken within areas of 'Regulated vegetation' identified on the **Environmental Significance Overlay Maps (OM-004a-o)**.	**(C) Wildlife connectivity** will be maintained as after the development is finalised. ~0.9ha of Category C regrowth vegetation will be cleared from the proposed development. The remaining Category C vegetation on the eastern half of the property will be permitted to return to remnant vegetation and maintain wildlife connectivity should this vegetation be protected. (**D) Residual impacts** from vegetation clearing could be maintained with the implementation of an (EMP) Environmental Management Plan
PO2 **Development on sites adjacent to areas of 'Regulated vegetation' identified on the Environmental Significance Overlay Maps (OM-004a-o) protects the environmental significance of regulated vegetation and:** **(a) does not interrupt, interfere, alter or otherwise impact on underlying natural ecosystem processes such as water quality, hydrology, geomorphology and biophysical processes;**	**AO2** Development (excluding roads, earthworks, drainage infrastructure and underground infrastructure) is not located within 20 meters of 'Regulated vegetation' areas identified on the **Environmental Significance Overlay Maps (OM-004a-o).**	The proposed subdivision is located on Regulated Vegetation Category C high value regrowth. a) The implementation of an erosion and sediment control plan will be required to mitigate potential impacts to described natural ecosystem processes. b) Wildlife movement will be unaffected from the proposed development. Intact vegetation exists to the east of the property block.

Performance outcomes	Acceptable outcomes	Comment
(b) does not negatively impact the movement of wildlife at a local or regional scale; and avoids noise, light, vibration or other edge affects, including weed and pest incursion		
REGULATED VEGETATION INTERSECTING WATERCOURSES		
PO3 **Vegetation clearing in areas mapped as 'Regulated vegetation intersecting a watercourse', identified as 'Waterway' and 'Waterway buffer' on the Environmental Significance - Waterway Overlay Maps (OM-004p-z) is avoided unless wildlife interconnectivity between habitats is maintained or enhanced at a local and regional scale, to the extent that migration or normal movement of significant species between habitats or normal gene flow between populations is not inhibited.**	**Where within a 'Waterway buffer' on Environmental Significance - Waterway Overlay Maps (OM-004p-z)** **AO3.1** A minimum setback in accordance with **Table 8.2.4.3B** is provided between development and the top of the high bank of a 'Waterway' identified on the **Environmental Significance - Waterway Overlay Maps (OM-004p-z)**.	Category R Reef regrowth vegetation is located outside of the proposed clearing area approximately 100m east from the proposed building envelope clearing areas on the property. No vegetation clearing will occur within mapped category R waterway areas or waterways as defined under the *Vegetation Management Act 1999*.
	Where within a 'Waterway buffer' on Environmental Significance - Waterway Overlay Maps (OM-004p-z) **AO3.2** No clearing of native vegetation is undertaken within the minimum setback identified at **AO3.1**.	
WATERWAYS AND WETLANDS		
PO4 **'High ecological significance wetlands' identified on the Environmental Significance Overlay Maps (OM-004a-o) and 'Waterways' on Environmental Significance - Waterway Overlay Maps (OM-004p-z) and are protected by:**	**Where within a 'Waterway buffer' on Environmental Significance - Waterway Overlay Maps (OM-004p-z)** **AO4.1** A minimum setback in accordance with **Table 8.2.4.3B** is provided between development and the top of the high bank of a 'Waterway'	**AO4.1**The waterway at the east of the study site runs north into the Barron River. Additional riparian habitats are mapped as **Category R Great Barrier Reef Riverine** regrowth vegetation. The distance from these areas from the proposed clearing areas is greater than 100m away (see Section 3 Figure 2). Regrowth vegetation will be

Performance outcomes	Acceptable outcomes	Comment
(a) maintaining adequate separation distances between waterways/wetlands and development; **(b) maintaining and enhancing aquatic and terrestrial habitat including vegetated corridors to allow for native fauna (terrestrial and aquatic) movement;** **(c) maintaining waterway bank stability by minimising bank erosion and slumping;** **(d) maintaining water quality by providing buffers to allow filtering of sediments, nutrients and other pollutants; and** **(e) retaining and improving existing riparian vegetation and existing vegetation associated with a wetland.**	identified on the **Environmental Significance - Waterway Overlay Maps (OM-004p-z)**. **Where within a 'High ecological significance wetland buffer' on Environmental Significance Overlay Maps (OM-004a-o)** **AO4.2** A minimum buffer of 200 meters is provided between development and the edge of a 'High ecological significance wetland' identified on the **Environmental Significance Overlay Maps (OM-004a-o)**. **Where within a 'Waterway buffer' on Environmental Significance - Waterway Overlay Maps (OM-004p-z) or 'High ecological significance wetland buffer' on Environmental Significance Overlay Maps (OM-004a-o)** **AO4.3** No stormwater is discharged to a 'Waterway' on **Environmental Significance - Waterway Overlay Maps (OM-004p-z)** or 'High ecological significance wetland' identified on the **Environmental Significance Overlay Maps (OM-004a-o)**. **Where within a 'Waterway buffer' on Environmental Significance - Waterway Overlay Maps (OM-004p-z) or 'High ecological significance wetland buffer' on Environmental Significance Overlay Maps (OM-004a-o)** **AO4.4**	maintained acting as a vegetation buffer for potential sedimentation impacts associated with the proposed clearing and development of the site. **AO 4.3 and AO4.4** Wastewater and stormwater management plan may be required provided unless indication of where stormwater and wastewater will flow to can be provided prior. a) All riparian vegetation on the property is expected to be retained during and after the proposed development has been conducted. b) No high ecological significance wetlands are located within the property.

Performance outcomes	Acceptable outcomes	Comment
	No wastewater is discharged to a 'Waterway' on **Environmental Significance - Waterway Overlay Maps (OM-004p-z)** or 'High ecological significance wetland' identified on the **Environmental Significance Overlay Map (OM-004a-z)**.	
WILDLIFE HABITAT		
PO5 **Development within a 'Wildlife habitat' area identified on the Environmental Significance Overlay Maps (OM-004a-o):** **(a) protects and enhances the habitat of Endangered, Vulnerable and Near Threatened (EVNT) species and local species of significance;** **(b) incorporates siting and design measures to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site;** **(c) maintains or enhances wildlife interconnectivity at a local and regional scale; and** **(d) mitigates the impact of other forms of potential disturbance (such as presence of vehicles, pedestrian use, increased exposure to domestic animals, noise and lighting impacts) to protect critical life stage ecological processes (such as feeding, breeding or roosting).**	**AO5** No acceptable outcome is provided	A) Building envelopes found on the western end of the property bordering a Boyles Rd. Remaining habitat on the eastern part of the property is expected to be maintained (~3.6ha) B) Assessment of ecological values (Ecological Assessment of habitat and threatened species potential) were assessed on site. Design measures will be incorporated to adhere to these findings. No significant ecological values are expected to be impacted from the proposed development. C) Wildlife interconnectivity will be maintained as the eastern section of this property will not be disturbed. All clearing will occur in close proximity to Boyles Road i.e. reducing fragmentation impacts associated with clearing vegetation. D) Development sites are located on the western section of the property on a road edge. Forms of potential disturbance are to

Performance outcomes	Acceptable outcomes	Comment
Note—Development applications must identify any EVNT species or their habitats that may be affected by the proposal. In particular, applications are to identify and describe how the development avoids adverse impacts on ecological processes within or adjacent to the development area. **Note—A supporting Ecological Assessment Report is prepared in accordance with Planning Scheme Policy**		be limited to the cleared area of approximately ~0.9 ha, thus mitigating impacts to the remaining ecosystems on the property. Remaining intact habitat to protect life-stage ecological processes will be maintained on the property.
LEGALLY SECURED OFFSET AREAS		
PO6 **Development within a 'Legally secured offset area' identified on the Environmental Significance Overlay Maps (OM-004a-o) or other known Legally Secured Offset Area is consistent with the binding requirements of the offset and does not prejudice, undermine, or negatively impact the inherent ecological values, including all naturally occurring native flora, fauna and their habitat within the Legally Secured Offset Area.** **Note—A supporting Ecological Assessment Report is prepared in accordance with Planning Scheme Policy 2** **– Ecological Assessment Reports.**	**AO6** No acceptable outcome is provided.	Development is not within a **Legally secured offset area**
PROTECTED AREAS		
PO7 **Development within a 'Protected area' identified on the Environmental Significance Overlay Maps (OM-004a-o) is consistent**	**AO7** No acceptable outcome is provided	Development is not within a **protected area**

Performance outcomes	Acceptable outcomes	Comment
with the values of the Protected Area and: **(a) supports the inherent ecological and community values of the Protected Area asset;** **(b) maintains or enhances wildlife interconnectivity at a local and regional scale; and** **(c) does not prejudice, undermine, or negatively impact the inherent ecological values, including all naturally occurring native flora, fauna and their habitat within the Protected Area.** **Note—A supporting Ecological Assessment Report is prepared in accordance with Planning Scheme Policy 2 – Ecological Assessment Reports.**		
ECOLOGICAL CORRIDORS AND HABITAT LINKAGES		
PO8 **Development located:** **(a) in the Conservation zone, Emerging community zone, Recreation and open space zone, Rural zone or Rural residential zone; and** **(b) within an 'Ecological corridor' or a 'Habitat linkage' identified on the Environmental Significance Overlay Maps (OM-004a-o)** **does not compromise the provision of habitat connectivity of the corridor/linkage, having regard to:** **(a) the environmental values of the area of the site identified**	**AO8** No acceptable outcome is provided	Development is located on **Category C (High Value Regrowth) vegetation and is mapped within the ecological corridor under the Mareeba Shire Environmental significance overlay.** A) As a result of the proposed ~0.9ha vegetation removal, the development is not expected to compromise the mapped ecological corridor. Vegetation clearance is proposed to occur at the edge of Boyles Road to reduce impacts of fragmentation impacts for wildlife.

Performance outcomes	Acceptable outcomes	Comment
in the 'Ecological corridor' or 'Habitat linkage'; **(b) the environmental values of adjoining and nearby land within the 'Ecological corridor' or 'Habitat linkage';** **(c) the extent of any modification proposed to the natural environment including (but not limited to) vegetation and topography;** **(d) the location and design of proposed improvements that may impact on the functions of the 'Ecological corridor' or 'Habitat linkage' including (but not limited to) buildings, structures, fences, lighting, vehicle movement areas and infrastructure services; and** **(e) the ability for the 'Ecological corridor' or 'Habitat linkage' to be enhanced to improve ecological connectivity.** **Note—A supporting Ecological Assessment Report prepared in accordance with Planning Scheme Policy 2 – Ecological Assessment Reports may be appropriate to demonstrate compliance with PO8.**		No part of the proposed clearance area is within a mapped habitat linkage area. A) Existing developed properties occur to nearby the study site. No loss of remaining Category C vegetation outside of the proposed clearing area is expected to be cleared from proposed works. This remaining area of ~3.6ha of Category C vegetation should be permitted to mature which will provide a higher quality wildlife habitat then currently exists on the property currently. B) Land clearing within the proposed building envelope is expected to be the predominant modification of the natural environment on the property. The retention of ~3.6ha of Category C remnant vegetation will improve habitat connectivity for a greater number of species once it is permitted to reach a more mature structure. C) Building structures (two dwellings) and associated infrastructure is to be built within the building envelope, no impacts to the vegetation is expected to occur outside of this area from the proposed development.

Performance outcomes	Acceptable outcomes	Comment
		D) Potential minor ecological corridors provided by the property area maintained with the remaining property outside of the building enveloped being maintained for native vegetation growth.

4.9.2 Rural Residential Zone Code (6.2.10)

This code applies to assessing the development of Lot 2 RP 726691 which is located within the Rural Residential Zone.

Rural residential areas such as this site is intended to support rural residential development of varying densities, to prevent further fragmentation and alienation of rural areas, conservation areas and biodiversity areas within the regional landscape. The new allotments provided in this development are suitably located near the Boyles Road end of the property where impacts to the biodiversity areas are avoided, by maintaining the significant environmental corridor located across the east of the property, which allows and ensures the regrowth vegetation of importance is left to mature as noted in **Table 8** above. Accordingly, the development achieves compliance with purpose outcome (H) of the rural residential zone code, with regards to the inherent environmental characteristics, which will be maintained on the site as part of this development.

4.9.3 Hill and Slope Overlay Code

This code applies to the assessment of the development, where we provide the following assessment based on the results of our field survey conducted. It was confirmed on the study site during the field survey that the slope within the building envelope areas did not exceed a slope of 15% (**see Plate 2 section 3.2**). Nevertheless, subsequent buildings to be constructed on each site will be required to be designed in accordance with the results of subsequent soil tests which will inform the foundations design and structural engineering certification outcomes.

5.0 Discussion

The proposed subdivision will require the clearance of ~0.9 ha of category C high value regrowth vegetation removed to establish two individual building envelopes. The proposal will see the retention of ~3.6 ha of category C vegetation retained and permitted to mature in structure to provide improved habitat over time. No category R Riverine regrowth is proposed to be cleared as a result of this proposal. A vegetation buffer will remain at approximately 100 m to any riparian vegetation or mapped waterways on the property. Essential Habitat is mapped as being present on the property for *Litoria serrata* (green eyed tree frog), *Litoria myola* (Kuranda tree frog) and *Alpinia hylandi* (a native ginger). Field investigation, including a detailed protected plant survey, determined that the current condition of the property is unlikely to support either of these species.

The Mareeba Shire Strategic Ecological corridor is mapped over the property (Lot 2 RP726691); however, it is considered that the location of vegetation removal adjacent to Boyles Road and the retention of ~3.6ha of category C vegetation will mitigate impacts of damaging this linkage and provide an associated beneficial ecological outcome that will improve as the retained vegetation structure matures.

A protected plant survey was undertaken in additional to this ecological assessment which determined that it was highly unlikely (33) threatened flora species identified in the initial desktop assessment considered to have a potential to occur on site were present. This is largely due to a lack of suitable habitat for each of these species given that much of the site has been cleared at least 15 years ago. The regenerating vegetation has established a representative canopy of *Eucalyptus pellita* and *Corymbia intermedia*, however, rainforest incursion is advancing to canopy height which will likely reduce the health of the Eucalypt canopy on the property with continued fire exclusion.

A number of potential threated fauna species were considered as moderately likely to occur on the study site after the initial desktop assessment was conducted (see **Appendix C**). Results from the field survey component of this study however, identified the site contained only marginal generic foraging habitat for each of these species.

When considering the potential for the Koala, the feed tree species *Eucalyptus pellita* was present on the site. Limited information on preferred Koala browse trees is known, however *E. pellita* is likely to be palatable. Like elsewhere in North Queensland, records within the locality are very low for this species. Considering the dense rainforest understorey incursion also present throughout the property there is a very low likelihood this species would be present for more than transient individuals moving through the property to more suitable habitats. The lack of high nutrient alluvial or basalt soils likely reduces the palatability of any potential forage trees further reducing the likelihood of usage by this species.

The Spectacled flying-fox (*Pteropus conspiculatus*) may utilise the site for generic foraging habitat when the *Eucalyptus pellita* and *Coyrymbia intermedia* trees are in flower in early to late summer. However, this site represents a small portion of possible foraging habitat and higher quality habitat remains throughout the region.

Two threatened microbat species were determined as moderately likely to occur on the site. These species are the Bare-rumped sheathtailed bat (*Saccolaimus saccolaimus*) and the Large eared horseshoe bat (*Rhinolophus robertsi*). It is certainly possible for these bats to utilise the site as a minor foraging ground, however, with a lack of tree hollows on site and a small amount of dead roosting trees, it is unlikely these bat species will rely on the site indefinitely for foraging and roosting.

Eleven (11) migratory bird species were considered as having a moderate likelihood of occurrence on the study site. One of these species, the Spectacled Monarch (*Symposiachrus trivirgatus*), was confirmed on the study site during the field survey. Typical generic foraging and nesting habitat is present for this species throughout the study site. Overall, the remaining migratory bird species are only expected to occur on site either as flyovers or for generic foraging habitat i.e. gleaning insects from foliage while passing through on a migrant route. It is unlikely, however, that these species will utilize the site for breeding in large enough numbers that would result in a population decline, given the sites marginal habitat and small size.

6.0 Recommendations

To provide a beneficial environmental outcome, all areas of the property mapped as regrowth vegetation (Category C & R) should be rehabilitated to form a mature Eucalypt canopy of a remnant condition (Category B). This will likely require the implementation of a hazard reduction regime that will reduce the incursion of rainforest species that are likely to outcompete canopy of RE 7.11.5a/c and RE 7.11.44 transitional these systems to alternative rainforest vegetation community. If any vegetation is to be retained within the proposed clearing areas, it should be of larger diameter individual's representative of RE 7.11.5 and RE 7.11.44 i.e. *Eucalyptus pellita, Eucalyptus tereticornis* and *Corymbia intermedia.* These species are the most likely to form hollows as they mature providing important denning habitat for a wide range of least concern and threatened fauna species.

Formulation of a construction management plan and erosion and sediment control planned should be implemented to manage any potential residual environmental impacts associated with sedimentation of waterways. A section of Category R (Reef regrowth watercourse vegetation) is located approximately 120 metres from the nearest housing pad alignment. Whilst this vegetation is not within the housing pad alignment, mitigation measures relating to erosion and sediment control must be adhered to during any earth works that occur on site to prevent any siltation to waterways.

During vegetation clearing works it is a requirement under the *Nature Conservation Act 1992* that a fauna spotter catcher working under a rehabilitation permit be present on site to capture and relocate any fauna that may occur within the clearing alignments.

7.0 References

Churchill, S. (2008). Australian Bats. Crows Nest, NSW, Allen and Unwin.

DAWE (2020). "EPBC Protected Matters Search Tool." from http://www.environment.gov.au/epbc/pmst/index.html.

Department of the Environment, Water, Heritage and the Arts (2008a) '14159 - Approved Conservation Advice for *Dichanthium setosum*'. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=14159 (Accessed: 20 October 2020).

Department of the Environment, Water, Heritage and the Arts (2008b) 'Approved conservation advice for *Carronia pedicellata*'. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=24178 (Accessed: 20 October 2020).

Department of the Environment, Water, Heritage and the Arts (2008c) 'Approved Conservation Advice for *Dendrobium mirbelianum*'. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=14310 (Accessed: 20 October 2020).

Department of the Environment, Water, Heritage and the Arts (2008d) 'Approved conservation advice for *Zeuxine polygonoides*'. Available at: http://www.environment.gov.au/biodiversity/threatened/species/pubs/46794-conservation-advice.pdf.

Higgins, P. J. (1999). Handbook of Australian, New Zealand and Antarctic Birds, Oxford University Press.

Starr, C., et al. (2017). Terrestrial Vertebrate Biodiversity Surveys on Kings Plains and Alkoomie Nature Refuges, Cape York. Mareeba, Northern Gulf Resource Management Group**:** 54.

Hyland, B. P. M., et al. (2010). "Australian Tropical Rainforest Plants." Online key 7. Retrieved 2 July, 2020, from http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/index.html.

Starr, C. and N. Waller (2014). Biodiversity Survey Report, Steve Irwin Wildlife Reserve/ Bertiehaugh Station. Mareeba, Australia, Northern Gulf Resource Management Group**:** 30.

Starr, C., et al. (2016). South Endeavour Nature Refuge Biodiversity Survey Report. Mareeba, Northern Gulf Resource Management Group**:** 52.

Appendix A Potential Occurrence

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Threatened Fauna					
Invertebrates					
Apollo Jewel Butterfly	*Hypochrysops apollo apollo*	-	V	This butterfly has a symbiotic relationship with the Ant Plant (*Myrmecodia beccarii*) which it lays eggs on. This butterfly can occur in Melaleuca woodlands along the coast.	**Unlikely** Suitable habitat does not occur on the study site.
Birds					
Red Knot	*Calidris canutus*	E	E	This is a highly migratory species, breeding in the high Arctic, then migrating south. Red Knots gather in large flocks with other waders. They walk fast, probing rapidly in soft sand and mud for worms and bivalves. They feed by both day and night, regulated by the tide. Coastal sandy estuaries with muddy tidal flats are their preferred habitat.	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Curlew Sandpiper	*Calidris ferruginea*	CE	E	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. Occasionally they are recorded around floodwaters (Higgins and Davies 1996).	**Unlikely** Suitable habitat does not occur on the study site.
Great Knot	*Calidris tenuirostris*	CE	E	In Australasia, the species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons. They are occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes and non-tidal lagoons. The Great Knot rarely occurs on inland lakes and swamps (Higgins and Davies 1996).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Southern Cassowary	*Casuarius casuarius johnsonii*	E	E	This large and conspicuous bird generally requires dense tropical rainforest (such as complex/non-complex notophyll/ mesophyll vine forest) and associated habitat (such as mangrove Melaleuca, eucalypt woodland, swamp and swamp forest), that provides a year-round supply of fleshy fruit (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.
Greater Sand Plover	*Charadrius leschenaultii*	V	V	In the non-breeding grounds in Australasia, the species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons (Bamford 1988; Blakers, Davies *et al.* 1984; Lane 1987; Sibson 1948; Stewart, Rogers *et al.* 2007), and inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs (Abbott 1982; Morris 1989; Sedgwick 1978).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Lesser Sand Plover	*Charadrius mongolus*	E	E	In non-breeding grounds in Australia, this species usually occurs in coastal littoral and estuarine environments. It inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops. It also sometime occurs in short saltmarsh or among mangroves. The species also inhabits saltworks and near-coastal saltpans, brackish swamps and sandy or silt islands in river beds (Marchant and Higgins 1993).	**Unlikely** Suitable habitat does not occur on the study site.
Macleay's fig-parrot	*Cyclopsitta diopthalma macleayana*	-	V	This species can be observed in the rainforest environments within the Cairns region, where it feeds on fruiting fig trees within remnant and urban areas. Commonly utilises hollows of *Alstonia scholaris*	**Moderate** Generic feeding habitat is present on site.
Beach stone-curlew	*Esacus magnirostris*	-	V	This shy curlew can be observed utilizing the sandy shorelines near and within estuaries, beaches and sand spits. It can also be encountered on floodplains, near permanent water bodies along the coastline and mudflats.	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Red Goshawk	*Erythrotriorchis radiatus*	V	E	The Red Goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia (Marchant and Higgins 1993). Riverine forests are also used frequently (Debus 1991; Debus 1993).	**Unlikely** Suitable habitat does not occur on the study site.
Gouldian Finch	*Erythrura gouldiae*	E	E	As with most other grassfinch species, the Gouldian Finch is seldom found far from water, and needs to drink several times during the day. Throughout its range the species inhabits the edges of mangroves and thickets, and savannas dotted with trees.	**Unlikely** Suitable habitat does not occur on the study site.
Grey Falcon	*Falco hypoleucos*	-	V	Inhabits arid and semi-arid zones of Australia where rainfall is less than 500mm annuals (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
White-throated Needletail	*Hirundapus caudacutus*	V, Ma, Mi	LC	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground (Coventry 1989; Tarburton 1993). Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable (Cramp 1985), but there are, nevertheless, certain preferences exhibited by the species. 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 (Higgins 1999).	**Moderate** Suitable roosting habitat for this species does not occur within the study site. May occur infrequently as a flying high above the study site.
West Alaskan Bar-tailed Godwit	*Limosa lapponica baueri*	V	V	Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders.	**Unlikely** No suitable habitat is present on site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Northern Siberian Bar-tailed Godwit	*Limosa lapponica menzbieri*	CE	E	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh. It has been sighted in coastal sewage farms and saltworks, salt lakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. It is rarely found on inland wetlands or in areas of short grass, such as farmland, paddocks and airstrips, although it is commonly recorded in paddocks at some locations overseas (Marchant and Higgins 1993).	**Unlikely** No suitable habitat is present on site.
Eastern Curlew	*Numenius madagascariensis*	CE	E	The eastern curlew is Australia's largest shorebird and a long-haul flyer. It is easily recognisable, with its long, down-curved bill. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger (Garnet *et al* 2011).	**Unlikely** No suitable habitat is present within the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Red-tailed tropicbird	*Phaethon rubricauda*	-	V	A widely dispersed species within the tropical Indian and Pacific oceans. In Queensland, this species nests on islands offshore within the Great Barrier Reef.	**Unlikely** Suitable habitat does not occur on the study site.
Australian Painted Snipe	*Rostratula australis*	E	V	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum *Muehlenbeckia* or *canegrass* or sometimes tea-tree (Melaleuca) (Marchant and Higgins 1993).	**Unlikely** Suitable foraging habitat does not occur on site.
Buff-Breasted Button Quail	*Turnix olivii*	E	E	The Buff-breasted Button-quail occurs in patches of short and sparse grassland, on a terrain of small stones (often on the lower slopes of hills and ridges), and sometimes in open glades amongst Melaleuca, Acacia, Alphitonia or Tristania, in rainforest or open Eucalyptus woodland (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.
Masked Owl (northern)	*Tyto novaehollandiae kimberli*	V	V	In northern Australia, the Masked Owl has been recorded from riparian forest, rainforest, open forest, *Melaleuca* swamps and the edges of mangroves, as well as along the margins of sugar cane fields (Higgins 1999).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Freshwater Fish					
Lake Eacham Rainbow Fish	*Melanotaenia eachamensis*	E	-	This small freshwater fish prefers small streams and lakes but has disappeared from much of its former range. It is now restricted to the headwaters of the Johnstone, Tully and Barron Rivers above an altitude of 500 m (Brooks 2012).	**Unlikely** Suitable habitat does not occur on the study site. Ephemeral drainage lines are not suitable habitat.
Opal Cling Goby	*Stiphodon semoni*	CE	-	In Australia, this species is found in pristine rainforest streams that have significant flow and direct access to marine habitats (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site. Ephemeral drainage lines is not suitable habitat.
Amphibians					
Australian lace-lid	*Litoria dayi*	V	E	This frog is a rainforest species, endemic to the Wet Tropics Bioregion (Williams and Hero 1998; Williams and Hero 2001). It is associated with rainforests and rainforest margins. In montane areas the species prefers fast-flowing rocky streams although they also frequent slower watercourses where ample vegetation exists along the margins. At low elevations, the Lace-eyed Tree Frog favours rock soaks, narrow ephemeral streams and rock outcrops in larger watercourses (DAWE, 2020)	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Kuranda Tree Frog	*Litoria myola*	CE	E	Located in both primary and secondary rainforest communities within riparian habitats (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.
Waterfall frog	*Litoria nannotis*	E	E	This species is patchily distributed across the Wet Tropics of north-eastern Queensland across an altitudinal range of 100-1,300 m. It inhabits fast flowing streams and waterfalls and cascades in rainforest and adjacent sclerophyll forest (DAWE, 2020)	**Unlikely** Suitable habitat does not occur on the study site.
Mountain mist frog	*Litoria nyakalensis*	CE	E	This frog species has not been recorded since 1990; however, there is still insufficient data to list it as extinct. Suitable habitat is considered to be fast flowing streams in rainforest and wet sclerophyll, where they were found near riffles or cascade (Hoskin and Hero 2008).	**Unlikely** The project site does not contain the preferred habitat of this species. There is a distinct lack of permanent water flowing through any part of the project site.
Common Mistfrog	*Litoria rheocola*	E	E	The Common Mist Frog occurs from Broadwater Creek National Park (north of Ingham) to Amos Bay (south of Cooktown) in northern Queensland, at altitudes between 0 and 1,180m above sea level. The species is restricted to fast flowing rocky creeks and streams in rainforest or wet sclerophyll forest (DAWE, 2020).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Tapping green eyed frog	*Litoria serrata*	-	V	The Tapping Green-Eyed Frog is found in a variety of rainforest habitats and adjacent wet sclerophyll forests at a broad altitudinal range of 0m-1300m ((Hoskin, Grigg et al. 2015).	**Unlikely** Suitable habitat does not occur on the study site.
Sharp-snouted Day Frog	*Taudactylus acutirostris*	Ex	Ex	Restricted to montane rainforest habitats and has not been recorded since 1997 (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.
Mammals					
Northern Bettong	*Bettongia tropica*	E	E	This small macropod is found in Eucalypt forest types ranging from tall open forest dominated by *Eucalyptus grandis and E. resinfiera* to dry sclerophyll medium height open forest dominated by *Corymbia citriodora* (DAWE 2020).	**Unlikely** Suitable habitat does not occur on the study site.
Northern Quoll	*Dasyurus hallucatus*	E	LC	The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert (Threatened Species Scientific Committee 2005). Northern Quoll are also known to occupy non rocky lowland habitats such as beach scrub communities in central Queensland.	**Unlikely** No suitable denning opportunities are present on site. With a lack of remnant vegetation or connectivity to suitable habitat, this species is unlikely to be present on site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Spotted-tail quoll (Northern)	*Dasyurus maculatus gracilis*	E	E	The Spotted-tail quoll northern sub-species is predominately recorded in upland closed forests of the Wet Tropics Bioregion. Historical records as far south as the Paluma Range and north to Cooktown have contracted.	**Unlikely** No suitable denning opportunities are present on site. With a lack of remnant vegetation or connectivity to suitable habitat, this species is unlikely to be present on site.
Lumholtz's Tree Kangaroo	*Dendrolagus lumholtzi*	-	NT	This species is associated with rainforest habitats where it feeds on a wide variety of tree species. It may utilize riparian wet sclerophyll habitats with a rainforest element.	**Moderate** Suitable habitat may occur on the study site, in sections containing larger wet sclerophyll trees and rainforest habitats.
Diadem leaf-nosed bat	*Hipposideros diadema reginae*	-	NT	Roosts within caves and disused mine tunnels. Forages in a variety of habitats within 1km of its roost site (Hourigan, 2011).	**Unlikely** Suitable roosting habitat does not occur on the study site or is considered likely to occur within proximity.
Semon's Leaf-nosed Bat	*Hipposideros semoni*	V	E	The distribution for this species is poorly known having been recorded from Iron Range National Park to Cooktown (DAWE, 2020). Foraging habitat is expected to include rainforest and savannah woodland (DAWE, 2020).	**Unlikely** The study site does not represent the expected foraging habitat for this species. No suitable denning opportunities are present on site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Ghost Bat	*Macroderma gigas*	V	E	The Ghost bat occurs in Queensland from Cape York to Rockhampton with a wide ranging of foraging habitat ranging from arid woodland in the Pilbara to tropical woodlands and rainforests (DEE 2018). Key to the ecology of this species is the presence of suitable roosting habitat consisting of deep cave structures and rock crevices with reports of the species utilizing abandoned mining excavations (DAWE, 2020).	**Unlikely** The study site does not represent the expected foraging habitat or denning habitat for this species.
Black-footed Tree-rat	*Mesembriomys gouldii rattoides*	V	LC	The distribution of this species in Queensland is poorly known, however they are mostly recorded in eucalypt forests and woodlands around Mareeba (Burnett 2001; Starr, Diete *et al.* 2017) 2001, Weipa (Starr and Waller 2014) and sparsely across Cape York (Dixon and Huxley 1985). Hollow availability is likely to be an important factor in their abundance.	**Unlikely** The study site does not contain the known preferred foraging or denning habitat for this species.
Tube-nosed Insectivorous Bat	*Murina florium*	-	V	The Tube-nosed insectivorous bat occurs in within the Wet-tropics of north east Queensland with a further geographically distinct population occurring within the Iron Range (Curtis et al 2013). Roosting and foraging habitat is within upland and lowland rainforests and wet-sclerophyll forests dominated by *E. grandis.*	**Unlikely** The study site does not contain the known preferred foraging or denning habitat for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Koala (combined populations of Qld, NSW & ACT).	*Phascolarctos cinereus*	V	V	The Koala is widely distributed in eucalypt forest and woodland along the east and south coast of Australia from Kangaroo Island to Far North Queensland (Curtis and Dennis 2012). Due to complex interactions between Eucalypt trees with soil composition and water availability, palatability of food trees can vary at the local scale with soil fertility and water regimes likely influencing factors (Curtis and Dennis 2012).	**Moderate** Sections of the property that contain large *Eucalptus* trees (such as E. *tereticornis* and E grandis) may provide optimal habitat for the Koala.
Spectacled Flying-fox	*Pteropus conspicillatus*	E	V	The Spectacled flying-fox occurs in the vicinity of tropical forest in the Iron Range and Wet Tropics within Australia (Churchill 2008). This species utilises resources in a diversity of landscapes- farms, eucalypt forests, melaleuca swamps, littoral and coastal forests, mangroves and urban areas (DAWE, 2020). This species generally camps within or near rainforest. They are however capable of covering 50-100 km in a single night. Young are born from October to December, and weaned at 5 months however cared for in creches for many more months (Parsons, Cairns *et al.* 2006).	**Moderate** No roosting camps have been recorded on the study site. There is however a potential for this species to occur as a frequent fly-over. The study site contains a small amount of generic habitat features that could possibly provide a minute portion of a much larger foraging area.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Large-eared horseshoe Nat	*Rhinolophus robertsi*	V	V	This species occurs only in northern Queensland, from the Iron Range southwards to Townsville and west to Chillagoe (Churchill 2008). The species is found in lowland rainforest, along gallery forest-lined creeks within open eucalypt forest, Melaleuca forest with rainforest understorey, open savanna woodland and tall riparian woodland of Melaleuca, *E. tereticornis* and *C. tesselaris* (Curtis and Dennis 2012). It mainly roosts in caves and underground mines located in rainforest, and open eucalypt forest and woodland, however roosts have also been observed in road culverts, and it is suspected that the species also uses basal hollows of large trees, dense vegetation, rockpiles and areas beneath creek banks (DAWE, 2020).	**Moderate** Whilst the site represents low quality roosting habitat for this bat, there is the potential for this bat to utilise the site for foraging and as a fly-through.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Bare-rumped sheathtail Bat	*Saccolaimus saccolaimus nudicluniatus*	V	E	Occasional individuals have been collected from a narrow coastal region (less than 40 km inland) between Ayr and Cooktown, North Queensland, with one isolated specimen from north of Coen on Cape York Peninsula (DAWE, 2020). The species inhabits tropical woodland and tall open forests where it roosts in long, wide hollows in the trunks of various Eucalypts, especially *E. tetradonta* and *E. platyphylla* (DAWE, 2020).	**Unlikely** Foraging and roosting habitat may be present on site.
Water Mouse	*Xeromys myoides*	V	V	Foraging and denning habitat including mangroves and the associated saltmarsh, sedge lands, clay pans, heathlands and freshwater wetlands. This species has recently been recorded in estuarine habitats near to the Cairns Airport.	**Unlikely** The disturbed non-remnant vegetation on the study site does not provide the preferred habitat of this species.
Plants					
-	*Acalypha lyonsii*	-	V	Known to occur within well-developed lowland rainforest in the Cairns region (AVH, 2020).	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Myola palm	*Archontophoenix myolensis*	E	E	Occurs between 350-450m elevation along drainage lines in rainforest habitats (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Queensland tree waratah	*Alloxylon flammeum*	V	V	This species is known to occur on soils derived from basalt, metamorphic rock and humus-rich gravelly loam derived from granite, in rainforest, on the Atherton Tablelands. It has been recorded as a paddock tree on cleared rainforest blocks (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Alpinia hylandii*	-	NT	Occurs above 400m elevation within well-developed rainforest habitats (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Noah's oak	*Buckinghamia ferruginiflora*	-	V	Restricted between the Daintree and Bloomfield Rivers within complex rainforest communities below 350m asl (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Carronia pedicellata*	E	E	This woody climber grows in complex and mesophyll and notophyll vine forests, in deep soils derived from basalt, granite or metamorphic substrates This species occurs from the Bellenden Ker Range to Mission beach, Wooroonooran national park and near Cape tribulation (Department of the Environment, Water, Heritage and the Arts, 2008b).	**Unlikely** Suitable complex rainforest habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Canarium acutifolium*	V	V	In Australia, *C. acutifolium* var. *acutifolium* grows naturally below ca. 100 m (330 ft) altitude in the scarce remaining lowland rainforests of the Wet Tropics region of north-eastern Queensland.	**Unlikely** Study site is located outside of known altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
-	*Calochlaena villosa*	-	NT	Recorded in wet sclerophyll forest on granite-derived soils, beside creek (AVH, 2018).	**Unlikely:** No proximate records or suitable habitat present on the site.
-	*Crepidomanes majoriae*	-	V	Known to occur within well-developed upland rainforest between Kuranda and Paluma (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Ctenopterus walleri*	-	NT	*Ctenopteris walleri* grows as an epiphyte on tree trunks or canopy branches or as a lithophyte on granite or rhyolite in complex notophyll vine forest or in low windswept rainforest above an altitude of 1000 m	**Unlikely:** The nearest record is located to the north of the township of Ravenshoe in within well-developed notophyll vine forest. Suitable habitat was not present within the study site and this species was not observed during the field component of this survey. The survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Dark stemmed antler orchid	*Dendrobium mirbelianum* *Syn: Durabaculum mirbelianum*	E	E	This epiphytic orchid grows on mangrove trees and other humid forest environments over an altitudinal range of 2-150m above sea level. Its range is restricted in North east Queensland, occurring from the Daintree area to Innisfail and Moa (Department of the Environment, Water, Heritage and the Arts, 2008c)	**Unlikely** Lack of suitable habitat is present on site. Study site is outside of recorded altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Queensland blue grass	*Dichanthium setosum*	V	LC	*Dichantheum setosum* is an upright perennial grass species growing to less than 1 metre tall. In Queensland, it occurs in the Leichardt, Morton, North Kennedy and Port Curtis regions. Habitat occurs in open forests and moderately disturbed areas such as cleared woodlands and road sides (Department of the Environment, Water, Heritage and the Arts, 2008a)	**Unlikely** Lack of suitable open forest habitat present on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Diplazium cordifolium*	V	V	This fern species grows within the riparian zone in rainforest environments. Populations of this fern are mostly known from private land (DAWE, 2020).	**Unlikely** Suitable complex habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
-	*Diplazium pallidum*	E	E	Within Australia, this species is restricted to the Wet Tropics Bioregion (DAWE, 2020). It occurs on basaltic soils of coastal lowland rainforest (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat or basaltic soils do not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Climbing Pandan	*Freycinetia marginata*	-	V	Located between Mossman and the Daintree River and Iron Range within complex lowland vine forest below 200m asl (AVH, 2020).	Suitable complex lowland rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Ant Plant	*Myrmecodia beccarii*	V	V	The ant plant occurs in coastal woodland and mangrove between Cooktown and Ingham in Queensland. It is a unique epiphyte (a plant that lives harmlessly on another plant) that has a special association with the golden ant which lives in the chambers of the tuber, and the Apollo jewel butterfly which lays its eggs on the plant. The golden ants carry the butterfly eggs into the chambers where they develop into butterflies.	**Unlikely** Suitable habitat does not occur on site. The study site is outside of the known altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. This species would be readily detectable if present.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Lesser Swamp-orchid	*Phaius australis*	E	E	The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedge land wetlands (Barry 2005), swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found (Sparshott and Bostock 1993).	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Phaius pictus*	V	V	*Phaius pictus* occurs in north-east Queensland, sporadically from the McIlwraith Range, Bloomfield River to Kirrama Range. It is highly localised, restricted to rainforests from 0–600 m altitude, and usually occurs in sheltered humid sites close to streams and seepage among forest litter on boulders (Jones 2006).	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Native Moth Orchid	*Phalaenopsis amabilis subsp. rosenstromii*	E	E	Distributed within tropical rainforest habitats between Iron Range and Townsville (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Blue Tassel-fern	*Phlegmariurus dalhousieanus*	E	CR	Grows as an epiphyte or lithophyte within well-developed rainforest habitats (DEE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
Rat's tail tassel-fern	*Phlegmariurus filaformis*	E	E	An epiphytic fern found on canopy trees in complex vine forest. It has been collected from the Mt Hypipamee area, but not since 1937 (there has been only one collection from anywhere since then) (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
Square tassel-fern	*Phlegmariurus tetrastichoides*	V	V	A tassel-fern found on trees in complex tropical rainforest (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Middle Filmy Fern	*Polyphlebium endlicherianum*	E	V	A filmy fern that grows on rocks (often granite) in creeks and 'cool shady position' (AVH, 2020)	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
-	*Polyscias bellendenkerrensis*	V	V	Known from notophyll vine forest and other rainforest types on granite substrates, in the Wet Tropics (DAWE, 2020).	**Unlikely** Suitable habitat does not occur on site. Lack of granite soils present. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Daintree gardenia	*Randia audasii*	-	NT	Occurs within the Wet Tropics bioregion 0-600m elevation occurring as an understorey shrub in well-developed rainforest (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Velvet jewel orchid	*Rhomboda polygonoides*	V	V	A terrestrial orchid growing between 15 and 30cm tall. Grows within notophyll vine forest, on coarse woody debris, leaf litter and boulders. Grows at an altitudinal range of 450-600m ASL (Department of the Environment, Water, Heritage and the Arts, 2008d)	**Unlikely** Lack of well-developed rainforest on the site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Climbing wattle	*Senegalia albizioides*	-	NT	Grows in monsoon forest and both lowland and upland rainforest below 500m asl (AVH, 2020).	**Unlikely** Lack of monsoon forest habitat present. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Smooth-bark rose apple	*Syzygium hodgkinsoniae*	V	V	The red Lilly Pilly is a small tree growing to approximately 11m tall. It occurs in riverine rainforest environments on rich alluvial basaltic soils. Typically occurs as scattered individuals on watercourses. Occurrences of this tree have been recorded in Kuranda and Gordonvale areas in far North Queensland.	**Moderate** Lack of well-developed rainforest on the site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Dwarf Butterfly Orchid	*Vappodes lithocola*	E	-	This orchid is endemic to north-eastern Queensland on the coastal ranges between Daintree and Cairns at altitudes of 300-800 m.	**Unlikely** Suitable habitat does not occur with the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Tonsil orchid	*Vrydagzynea grayi*	E	E	This orchid is endemic to north-eastern Queensland on the coastal plains south of the Daintree River at approximately 50m asl.	Suitable habitat does not occur on site. The study site is outside of the known altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. This species would be readily detectable if present.
-	*Wetria australiensis*	-	V	Grows as an understorey tree within well-developed lowland rainforest (ATH, 2020).	**Unlikely** Suitable habitat does not occur with the study site. Nearest proximate record occurs near to Lake Placid at 100m asl within complex notophyll vine forest. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
-	*Whyanbeelia terrae-reginae*	-	NT	Grows as an understorey tree within well-developed upland and lowland rainforest 100-400m asl (ATH, 2020).	**Unlikely** Suitable habitat does not occur with the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Reptiles					
Estuarine Crocodile	*Crocodylus porosus*	-	V	Occurs in many estuaries and lowland river systems in north Queensland. Occasionally utilizes coastlines and have been recorded in the open ocean.	**Unlikely** Suitable habitat does not occur within the study site.
Migratory and Marine fauna					
Magpie Goose	*Anseranas semipalmata*	Ma	LC	Magpie goose habitat is preferably large seasonal wetlands, well-vegetated dams, wet grasslands and flood plains. Nesting occurs on floating or trampled down swamp vegetation (DAWE, 2020).	**Unlikely** Lack of suitable habitat on site.
Common Sandpiper	*Actitis hypoleucos*	Mi, Ma	SL	The Common Sandpiper is a migratory species to Australia, and is found in coastal or inland wetland environments (DAWE, 2020).	**Unlikely** Suitable habitat does not occur within the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Great Egret	*Ardea alba*	Ma	LC	The Great Egret is commonly observed along the coasts of Eastern Australia. It hunts for fish and invertebrates in swamps, floodplains, inundated paddocks and open creek systems and urban drainage channels (DAWE, 2020).	**Unlikely** This species typically avoids forested vegetation.
Cattle Egret	*Ardea ibis*	Ma	LC	The Cattle Egret is a self-introduced heron into Australia, originally occurring in South East Asia. This species is commonly observed in paddocks with farm animals and in open areas that have been inundated with water after heavy rains (DAWE, 2020).	**Unlikely** Typically, avoids forested areas. May occur in well developed creek habitat that contains relatively open vegetation
Fork-tailed Swift	*Apus pacificus*	Mi, Ma	SL	The Fork-tailed swift is a non-breeding visitor to all states and territories of Australia (Higgins 1999). In north-east Queensland there are many records east of the Great Divide from near Cooktown and south to Townsville. The species is almost exclusively aerial, and mostly occur over inland plains, over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They also occur over settled areas, including towns, urban areas and cities (DAWE, 2020).	**Moderate** May occur as an infrequent fly-over. Unlikely to use the site for foraging and nesting.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Sharp-tailed Sandpiper	*Calidris acuBlackminata*	Mi, Ma	SL	The Sharp-tailed Sandpiper is a non-breeding migrant to Australia. Habitat preferences consist of wetland environments, both near the coast and inland, where it can be observed on the edge of salt lakes (DAWE, 2020).	**Unlikely** Suitable habitat does not occur within the study site.
Red Knot	*Calidris canutus*	Mi, E	E	This is a highly migratory species, breeding in the high Arctic, then migrating south. Red Knots gather in large flocks with other waders. They walk fast, probing rapidly in soft sand and mud for worms and bivalves. They feed by both day and night, regulated by the tide. Coastal sandy estuaries with muddy tidal flats are there preferred habitat.	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Curlew Sandpiper	*Calidris ferruginea*	Mi, CE	E	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. Occasionally they are recorded around floodwaters (Higgins and Davies 1996).	**Unlikely** Suitable habitat does not occur on the study site.
Pectoral Sandpiper	*Calidris melanotos*	Mi, Ma	SL	The Pectoral Sandpiper migrates from the northern hemisphere to Australia, where it spends winter within wetlands in north East Australia (DAWE, 2020).	**Unlikely** Suitable habitat does not occur on the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Great Knot	*Calidris tenuirostris*	CE, Mi	E	In Australasia, the species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons. They are occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes and non-tidal lagoons. The Great Knot rarely occurs on inland lakes and swamps (Higgins and Davies 1996).	**Unlikely** Suitable habitat does not occur on the study site.
Lesser Frigatebird	*Fregreta ariel*	Mi, Ma	SL	The lesser Frigatebird inhabits tropical to subtropical seas in Australia. They can be found flying near the coastlines where they forage.	**Unlikely** Suitable habitat does not occur within the study site.
Great Frigatebird	*Fregata minor*	Mi, Ma	SL	The Great Frigatebird has a wide distribution in tropical seas. In the Pacific Ocean, their range extends to Hawaii and in Australia, a few pairs have been observed nesting on islands in the coral sea (Atlas of Living Australia, 2020).	**Unlikely** May occur as an infrequent fly-over. Unlikely to use the site for foraging and nesting.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
White-throated Needletail	*Hirundapus caudacutus*	V, Ma, Mi	LC	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground (Coventry 1989; Tarburton 1993). Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable (Cramp 1985), but there are, nevertheless, certain preferences exhibited by the species. 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 (Higgins 1999).	**Moderate** Suitable roosting habitat for this species does not occur within the study site. May occur infrequently as a flying high above the study site.
Bar-tailed Godwit	*Limosa lapponica*	Mi, V	V	Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders.	**Unlikely** No suitable habitat is present within the study site.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Barn Swallow	*Hirundo rustica*	Mi	SL	The Barn swallow is a non-breeding migrant to Australia and usually occurs patchily along the north coast from the Pilbara region, Western Australia, to Fraser Island in Queensland (DAWE, 2020). It is recorded in open country in coastal lowlands, often near water, towns and cities. Birds are often sighted perched on overhead lines (Blakers, Davies *et al.* 1984), and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland (Schodde and Mason 1999).	**Moderate:** Generic habitat occurs within the study site. There is the potential for this species to occur as an infrequent fly-over on the study site.
Black-faced Monarch	*Monarcha melanopsis*	Mi	SL	Habitat of Black-faced Monarchs are generally rainforest environments (DAWE, 2020).	**Moderate** Rainforest environments along creek lines may attract this species, as part of a greater foraging and breeding range
Spectacled Monarch	*Monarcha trivirgatus*	Mi	SL	The Spectacled Monarch occurs mostly in rainforest environments (DAWE, 2020).	**Moderate** Rainforest environments along creek lines may attract this species, as part of a greater foraging and breeding range
Black-winged Monarch	*Monarcha frater*	Mi	SL	Found within the rainforest environments in North east Queensland.	**Moderate** Rainforest environments along creek lines may attract this species, as part of a greater foraging and breeding range

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Yellow Wagtail	*Motacilla flava*	Mi	SL	In Queensland the Yellow wagtail is a regular visitor from Mossman south to Townsville (DAWE, 2020). Habitat requirements for the Yellow Wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves.	**Unlikely** Suitable habitat does not occur within the study site.
Eastern Curlew	*Numenius madagascariensis*	Mi, CE	E	The eastern curlew is Australia's largest shorebird and a long-haul flyer. It is easily recognisable, with its long, down-curved bill. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger.	**Unlikely** No suitable habitat is present within the study site.
Rufous Fantail	*Rhipidura rufifrons*	Mi, Ma	SL	Rufous fantails typically occur in wet sclerophyll and rainforest environments. Populations of this species migrate as far north as southern Papua New Guinea (DAWE, 2020).	**Moderate** Suitable habitat occurs on site. May use site as a small part of a greater foraging range.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Osprey	*Pandion haliaetus*	Mi, Ma	SLC	The Osprey forages and nests in most coastal environments Australia wide. This marine raptor can also travel inland, wherever there are large stands of water or river environments in which to hunt (DAWE, 2020).	**Moderate** Potential to occur occasionally as a flyover. No nest sites present within the study site. No preferred foraging habitat.
Common Greenshank	*Tringa nebularia*	Mi, Ma	SLC	The common Greenshank migrates to Australia as a non-breeding migrant during the boreal winters in the northern hemisphere. Away from the coast, this species inhabits several terrestrial wetlands types, such as rivers, dams, billabongs etc. Along the coast it seeks sheltered environment near mudflats, lagoons and mangroves (DAWE, 2020).	**Unlikely** No suitable habitat is present within the study site.
Black-eared Cuckoo	*Chrysococcyx osculans*	Ma	LC	This species is found over much of mainland Australia, however typically avoids the wet and densely vegetated forests of the east coast. Drier woodlands and densely vegetated creek lines are preferred (DAWE, 2020).	**Unlikely** No suitable habitat is present within the study site.
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Ma	LC	The White-bellied sea eagle is distributed across coastal Australia with the ability to extend inland using major river systems (DAWE, 2020).	**Unlikely** No suitable habitat is present within the study site. May occur as an infrequent flyover

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Rainbow Bee-eater	*Merops ornatus*	Ma	LC	The Rainbow bee-eater is distributed across much of mainland Australia, where it is both a migratory and wintering resident species. The species occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation (Higgins 1999). It usually occurs in open, cleared or lightly-timbered areas that are often, but not always, located in close proximity to permanent water. It also occurs in inland and coastal sand dune systems and has been recorded in various other habitat types including heathland, sedgeland, vine forest and vine thicket, and on beaches (Higgins 1999).	**High:** Given the wide distribution and broad habitat requirements of this species, there is a high likelihood that it will occur on the study site.
Satin Flycatcher	*Myiagra cyanoleuca*	Mi	SL	Satin Flycatchers are a migratory species. These birds travel northwards to Northern Australia and Papua New Guinea in Winter and return south in summer. This species is distributed across eastern Australia to as far south as Tasmania. Habitat for this species can vary, but they typically prefer Wet Sclerophyll forests with a dense understory and are absent in rainforests (DAWE, 2020).	**Moderate** Suitable habitat may be present. Site would represent a small part of a larger foraging range.

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
Painted Snipe	*Rostratula benghalensis (sensu lato)*	E Ma	V	The Australian Painted Snipe has been recorded from wetlands in all States of Australia. This bird generally inhabits shallow terrestrial wetland types, such as permanent and temporary lakes, swamps and claypans (DAWE, 2020).	**Unlikely** Lack of suitable habitat on the study site**.**
Oriental Cuckoo	*Cuculus optatus*	SLC	Mi	Inhabits rainforest margins and dense wet eucalypt forests.	**Moderate** Potential to occur in the more developed forested environments on site.
Latham's Snipe	*Gallinago hardwickii*	SLC	Mi	This bird generally inhabits shallow terrestrial wetland types, such as permanent and temporary lakes, swamps and claypans (DAWE, 2020).	**Unlikely** Lack of suitable habitat on the study site**.**

Appendix B Wildlife Online (NC Act 1992)

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Status: Rare and threatened species
Records: All
Date: All
Latitude: -16.8095
Longitude: 145.5904
Distance: 10
Email: matthew@4elementsconsulting.com.au
Date submitted: Monday 19 Oct 2020 09:04:23
Date extracted: Monday 19 Oct 2020 09:10:02

The number of records retrieved = 33

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria nyakalensis*	mountain mistfrog		CR	CE	1/1
animals	amphibians	Hylidae	*Litoria rheocola*	common mistfrog		E	E	22/17
animals	amphibians	Hylidae	*Litoria nannotis*	waterfall frog		E	E	6
animals	amphibians	Hylidae	*Litoria serrata*	tapping green eyed frog		V		104/19
animals	amphibians	Hylidae	*Litoria myola*	Kuranda treefrog		CR	CE	43
animals	amphibians	Hylidae	*Litoria dayi*	Australian lacelid		V	V	14/6
animals	amphibians	Myobatrachidae	*Taudactylus acutirostris*	sharp snouted dayfrog		PE	EX	1
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	4
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	25
animals	birds	Burhinidae	*Esacus magnirostris*	beach stone-curlew		V		9
animals	birds	Casuariidae	*Casuarius casuarius johnsonii (southern population)*	southern cassowary (southern population)		E	E	119
animals	birds	Estrildidae	*Erythrura gouldiae*	Gouldian finch		E	E	1
animals	birds	Falconidae	*Falco hypoleucos*	grey falcon		V		1
animals	birds	Psittacidae	*Cyclopsitta diophthalma macleayana*	Macleay's fig-parrot		V		329
animals	birds	Turnicidae	*Turnix olivii*	buff-breasted button-quail		E	E	1
animals	insects	Lycaenidae	*Hypochrysops apollo apollo*	Apollo jewel (Wet Tropics subspecies)		V		4
animals	mammals	Hipposideridae	*Hipposideros diadema reginae*	diadem leaf-nosed bat		NT		2/1
animals	mammals	Macropodidae	*Dendrolagus lumholtzi*	Lumholtz's tree-kangaroo		NT		2
animals	mammals	Megadermatidae	*Macroderma gigas*	ghost bat		E	V	1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	1
animals	mammals	Pteropodidae	*Pteropus conspicillatus*	spectacled flying-fox		E	E	26/1
animals	mammals	Vespertilionidae	*Murina florium*	tube-nosed insectivorous bat		V		2
animals	reptiles	Crocodylidae	*Crocodylus porosus*	estuarine crocodile		V		13
plants	land plants	Arecaceae	*Archontophoenix myolensis*			E	E	2/2
plants	land plants	Athyriaceae	*Diplazium pallidum*			E	E	2/2
plants	land plants	Euphorbiaceae	*Wetria australiensis*			V		3/3
plants	land plants	Hymenophyllaceae	*Crepidomanes majoriae*			V		2/2
plants	land plants	Lycopodiaceae	*Phlegmariurus dalhousieanus*	blue tassel-fern		CR	E	1/1
plants	land plants	Mimosaceae	*Senegalia albizioides*			NT		1/1
plants	land plants	Orchidaceae	*Rhomboda polygonoides*			V	V	1/1
plants	land plants	Rubiaceae	*Myrmecodia beccarii*			V	V	2
plants	land plants	Rubiaceae	*Randia audasii*			NT		5/5
plants	land plants	Zingiberaceae	*Alpinia hylandii*			NT		5/5

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 in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix C Protected Matters Search Tool (EPBC Act 1999)

Australian Government

Department of Agriculture, Water and the Environment

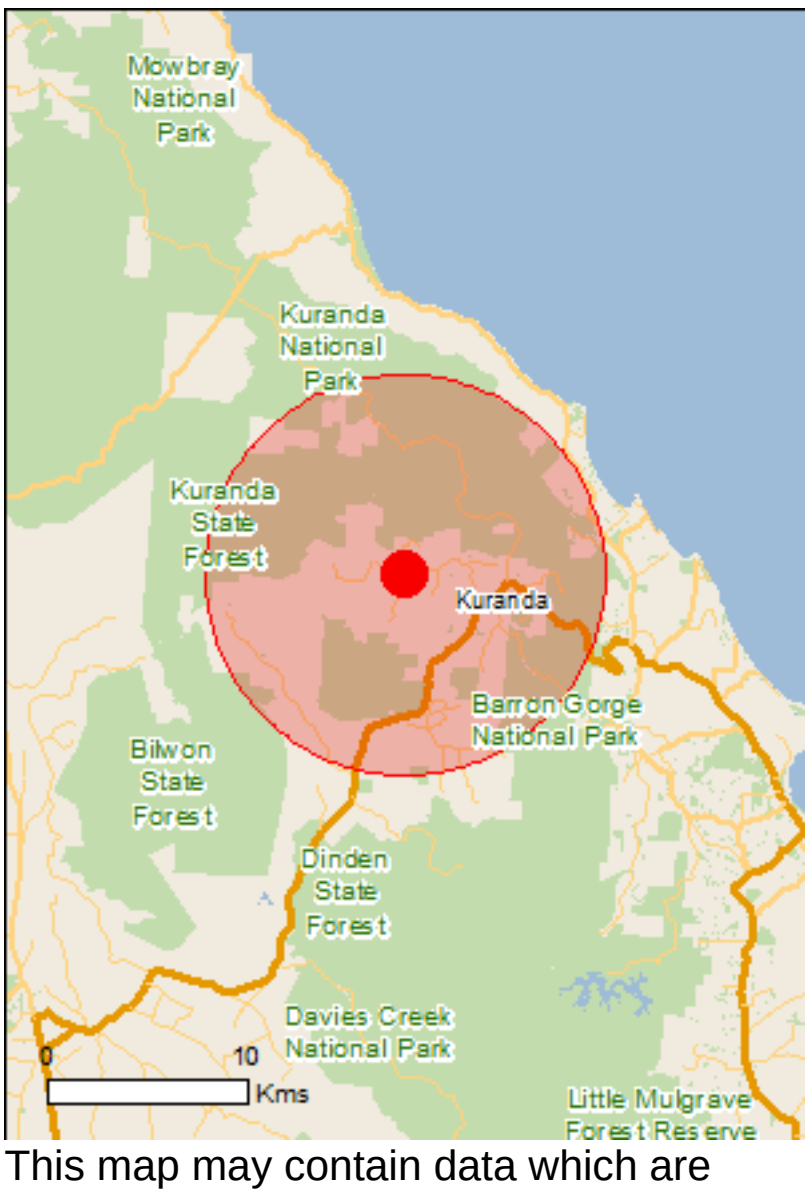
EPBC Act Protected Matters Report

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.

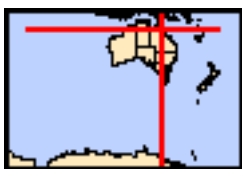
Report created: 19/10/20 10:09:01



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

Coordinates

Buffer: 10.0Km



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:	1
National Heritage Places:	2
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	50
Listed Migratory Species:	24

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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	29
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:	12
Regional Forest Agreements:	None
Invasive Species:	33
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Status
Wet Tropics of Queensland	QLD	Declared property

National Heritage Properties [Resource Information]

Name	State	Status
Natural		
Wet Tropics of Queensland	QLD	Listed place
Indigenous		
Wet Tropics World Heritage Area (Indigenous Values)	QLD	Within listed place

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
Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Casuarius casuarius johnsonii Southern Cassowary, Australian Cassowary, Double-wattled Cassowary [25986]	Endangered	Species or species habitat known to occur within area
Erythrotriorchis 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
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix olivii Buff-breasted Button-quail [59293]	Endangered	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Melanotaenia eachamensis Lake Eacham Rainbowfish [26185]	Endangered	Species or species habitat may occur within area
Stiphodon semoni Opal Cling Goby [83909]	Critically Endangered	Species or species habitat likely to occur within area
Frogs		
Litoria dayi Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]	Vulnerable	Species or species habitat known to occur within area
Litoria myola Kuranda Tree Frog [82063]	Critically Endangered	Species or species habitat known to occur within area
Litoria nannotis Waterfall Frog, Torrent Tree Frog [1817]	Endangered	Species or species habitat known to occur within area
Litoria nyakalensis Mountain Mistfrog, Nyakala Frog [1820]	Critically Endangered	Species or species habitat likely to occur within area
Litoria rheocola Common Mistfrog [1802]	Endangered	Species or species habitat known to occur within area
Mammals		
Bettongia tropica Northern Bettong [214]	Endangered	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 known to occur within area
Dasyurus maculatus gracilis Spotted-tailed Quoll (North Queensland), Yarri [64475]	Endangered	Species or species habitat likely to occur within area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Mesembriomys gouldii rattoides Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]	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 may occur within area

Name	Status	Type of Presence
Pteropus conspicillatus Spectacled Flying-fox [185]	Endangered	Species or species habitat known to occur within area
Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat likely to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Plants		
Alloxylon flammeum Red Silky Oak, Queensland Waratah, Tree Waratah [56400]	Vulnerable	Species or species habitat likely to occur within area
Archontophoenix myolensis Myola Palm, Myola Archontophoenix [64500]	Endangered	Species or species habitat known to occur within area
Canarium acutifolium [23956]	Vulnerable	Species or species habitat likely to occur within area
Carronia pedicellata [24178]	Endangered	Species or species habitat may occur within area
Dendrobium mirbelianum Dark-stemmed Antler Orchid, Mangrove Orchid [14310]	Endangered	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Diplazium cordifolium [15585]	Vulnerable	Species or species habitat known to occur within area
Diplazium pallidum [12764]	Endangered	Species or species habitat known to occur within area
Myrmecodia beccarii Ant Plant [11852]	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
Phaius pictus [22564]	Vulnerable	Species or species habitat likely to occur within area
Phalaenopsis amabilis subsp. rosenstromii Native Moth Orchid [87535]	Endangered	Species or species habitat likely to occur within area
Phlegmariurus filiformis Rat's Tail Tassel-fern [86551]	Endangered	Species or species habitat likely to occur within area
Phlegmariurus tetrastichoides Square Tassel Fern [86555]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Polyphlebium endlicherianum Middle Filmy Fern [87494]	Endangered	Species or species habitat likely to occur within area
Polyscias bellendenkerensis [7237]	Vulnerable	Species or species habitat may occur within area
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area
Vappodes lithocola Dwarf Butterfly Orchid, Cooktown Orchid [78893]	Endangered	Species or species habitat known to occur within area
Zeuxine polygonoides Velvet Jewel Orchid [46794]	Vulnerable	Species or species habitat known to occur within area
Sharks		
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to 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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Migratory Marine Species		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Monarcha frater Black-winged Monarch [607]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat known to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat known to occur within area
[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 may occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat may 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 may occur within area
[Limosa lapponica](#) Bar-tailed Godwit [844]		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]		Breeding 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

Listed Marine Species	[Resource Information]
* 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

Name	Threatened	Type of Presence
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
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may 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
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may 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
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha frater Black-winged Monarch [607]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to 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]		Breeding 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 likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Reptiles		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Barron Gorge	QLD
Cassowary Corridor	QLD
Cassowary Forest	QLD
Jumrum Creek	QLD
Kuranda	QLD
Kuranda	QLD
Kuranda West	QLD
Macalister Range	QLD
Myola Palm	QLD
Smithfield	QLD
Speewah	QLD

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
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 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
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

Name	Status	Type of Presence
		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
Plants		
Andropogon gayanus Gamba Grass [66895]		Species or species habitat likely to occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		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
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to 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
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		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
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		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
Lepidodactylus lugubris Mourning Gecko [1712]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to 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

-16.80947 145.59042

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:

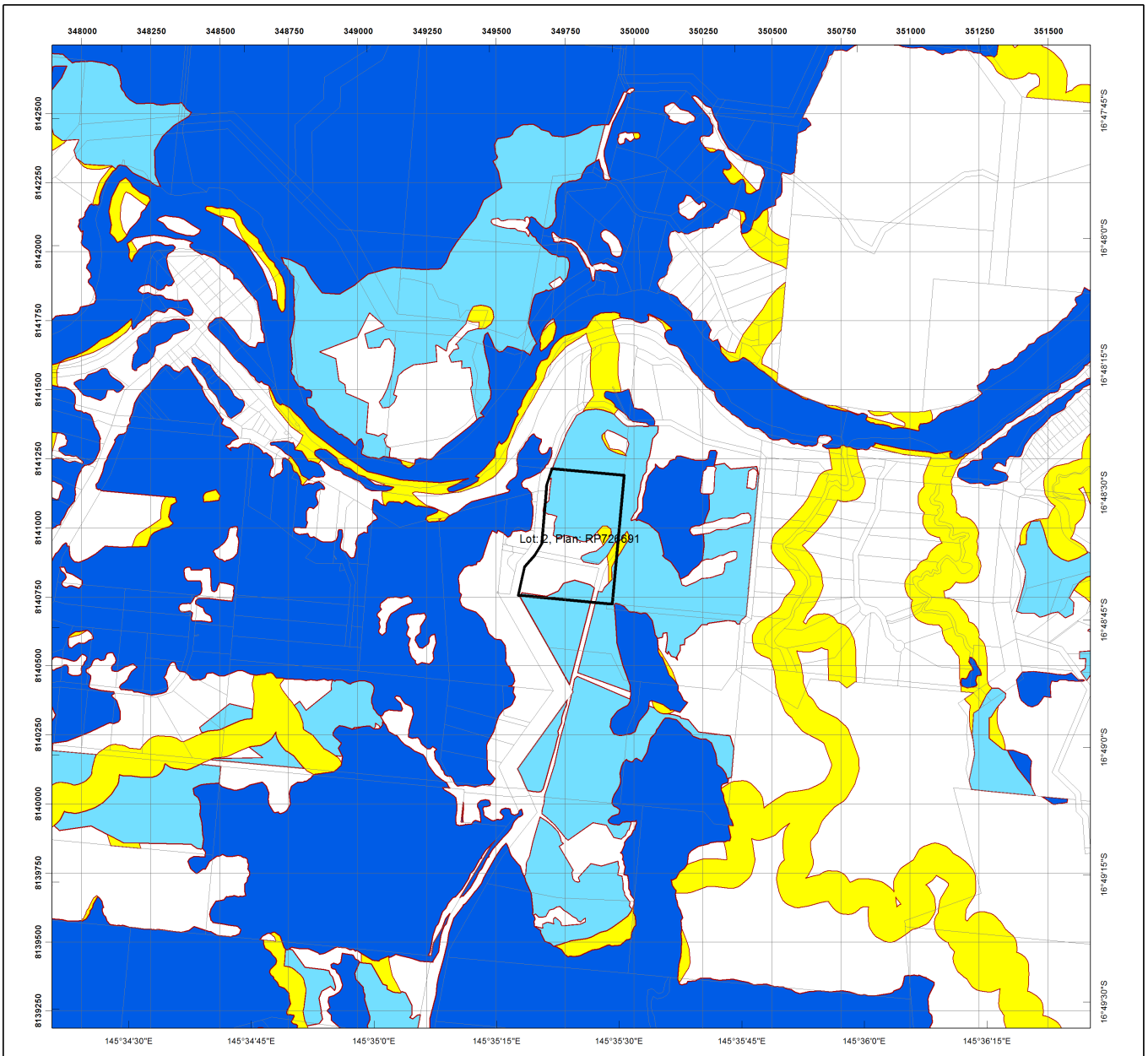
-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, 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.

Department of Agriculture Water and the Environment
GPO Box 858
Canberra City ACT 2601 Australia
+61 2 6274 1111

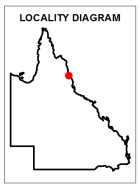
Appendix D Regulated Vegetation Report (VM Act 1999)

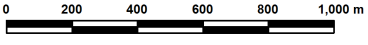


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries





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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

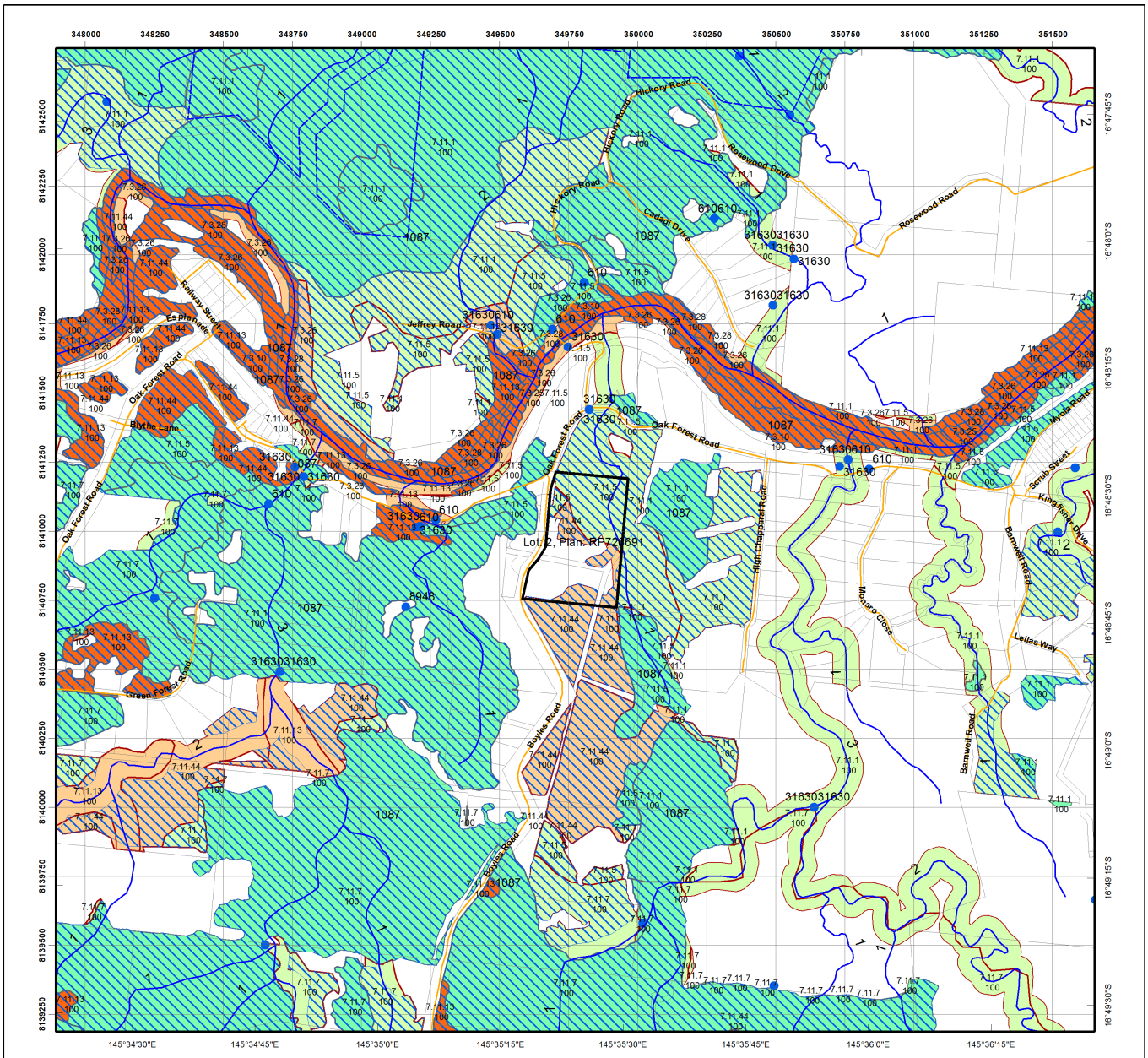
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

This product is projected into:
GDA 1994 MGA Zone 55



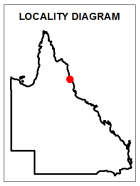
Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

Queensland Government

LOCALITY DIAGRAM



N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 55

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources, Mines and Energy website (http://www.dnrme.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
610	Litoria serrata	tapping green-eyed frog	V	Near rocky creeks but also on overhanging vegetation (especially 1-2m) and forest floor, in wet forest/tropical rainforest/monsoon vine forest including notophyll (simple evergreen & araucarian).	Sea level to 1300m.	None	Near/in streams.
8948	Alpinia hylandii	None	NT	rainforest (mesophyll to notophyll vine forest); tall open forest of Eucalyptus resinifera & Syncarpia glomulifera with dense understorey of rainforest elements	300 to 1100 m	soil derived from metamorphic rock or granite substrates	creek banks, ridges, hillslopes
31630	Litoria myola	Kuranda treefrog	E	Near rocky creeks but also on overhanging vegetation (especially 1-2m) and forest floor, in wet forest/tropical rainforest/monsoon vine forest including mesophyll.	300-400m	None	Near/in streams.

Label	Regional Ecosystem (mandatory unless otherwise specified)
610	7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.16, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.3.50, 7.5.1, 7.5.2, 7.5.4, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.7, 7.8.8, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.33, 7.11.38, 7.11.40, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.49, 7.11.51, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.29, 7.12.33, 7.12.37, 7.12.38, 7.12.39, 7.12.40, 7.12.42, 7.12.43, 7.12.44, 7.12.45, 7.12.46, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.54, 7.12.59, 7.12.61, 7.12.66, 7.12.68
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Protected Plant Survey

Boyles, Myola

Lot 2 RP 726691

4 elements

Protected Plant Survey

Boyles Road, Myola

Lot 2 RP 726691

Ryan Hughes

Revision History

Version	Purpose	Issued by	Date	Reviewer	Date
0.1	Report	Ryan Hughes	03/11/2020	Mellissa Brown	03/11/2020
0.2	Report	Ryan Hughes	09/11/2020	Mellissa Brown	09/11/2020

4 Elements Consulting
107 Scott Street
Bungalow, QLD 4870

www.4elementsconsulting.com.au

Contents

Tables

Figures

Appendices

1.0 Introduction

Four Elements Consulting was contracted by property owner Allyson Sheppard to undertake a Protected Plant Survey (PPS) for a residential subdivision located on Boyles Road, Myola (Lot 2 RP 726691). The subdivision will create an additional two (2) lots in the north of the property. For the purpose of this report, the proposed clearance area and an additional 100m search buffer extending beyond this boundary will be referred to as the study site (**Figure 1).** This survey was required in accordance with the Protected Plants Flora Survey Trigger mapping issued by the Department of Environment and Heritage Protection (DEHP). The DEHP vegetation mapping report (**Appendix A**) has found the subject site to be an area of high risk for protected flora. High risk areas represent potential habitat where endangered, vulnerable or near threatened flora (EVNT flora) are known to exist or are likely to exist within the locality.

Field work was carried out within a single day, Wednesday 28th October 2020. Results of this field investigation did not locate any threatened flora listed under state or federal legislation within the proposed clearing area and 100m buffer area.

1.1 Scope of Works

- Identify all flora species within the study site where access is permitted/ required under the Protected Plants Assessment Guidelines (2006);
- Identify likelihood of occurrence and subsequent impact for any EVNT flora species listed under the *Environmental Protection and Biodiversity Act 1999* (EPBC Act) or the *Nature Conservation Act 1992* (NCA Act);
- Ground truth all regional ecosystems mapped under the Regional Ecosystem Description Database (REDD v 11.1) and map any changes to these.

1.2 Survey Limitations

The survey was undertaken in late October prior to significant rainfall with only 10.5mm recorded at the Kuranda Railway weather station. In the month prior (September) a total of 126.5mm was recorded at the same weather station. This would satisfy the definition of commencement of the wet season i.e. exceeding 50mm after the start of September. This was considered to be a suitable time of survey for most threatened species that are potentially occurring on the site, it was clearly evident that the ground layer was diverse, intact and readily identifiable throughout the areas surveyed. Evidence of this was the frequent presence of ephemeral herbs being recorded regularly and all grasses were displaying seed heads. Despite the relatively dry conditions experienced on site, many of the target species are considered to be detectable outside extended wet conditions, given that they are perennial species that are known to persist through the annual dry season. Any species that were not considered likely to be detected were subject to a habitat assessment within the study site to determine any potential likelihood of occurrence.

Due to the large size of the study site ~5ha, the site was not covered in its entirety. A timed meander was undertaken throughout the study site as per the *Flora Survey Guidelines – Protected Plants*. Care was given to ensure these meanders covered as much of the study site as reasonable and practical.

1.3 Site Access

The study site was positioned within a larger portion of land owned by the land holder of the proposed redevelopment site. A sealed road on the western boundary created a highly modified separation and was not required to be surveyed further to the west of this clearance. All properties further to the east were not surveyed as per section 5.2 of the *Flora Survey Guidelines* (DEHP 2016).

1.4 Location and Land Use

The study site is approximately ~350-370 m above sea level and located to the east of Boyles Road, Myola (Lot 2 RP 726691). The majority of the study site is mapped as category C regrowth vegetation under the *Vegetation Management Act 1999*. The study site has primarily been used for a low-density residential dwelling currently with a number of dwellings and cleared areas located in the far south of the property. The property is bordered by similar low-density residential properties to the east and the Cairns Hinterland Steiner School roughly opposite on the western boundary.

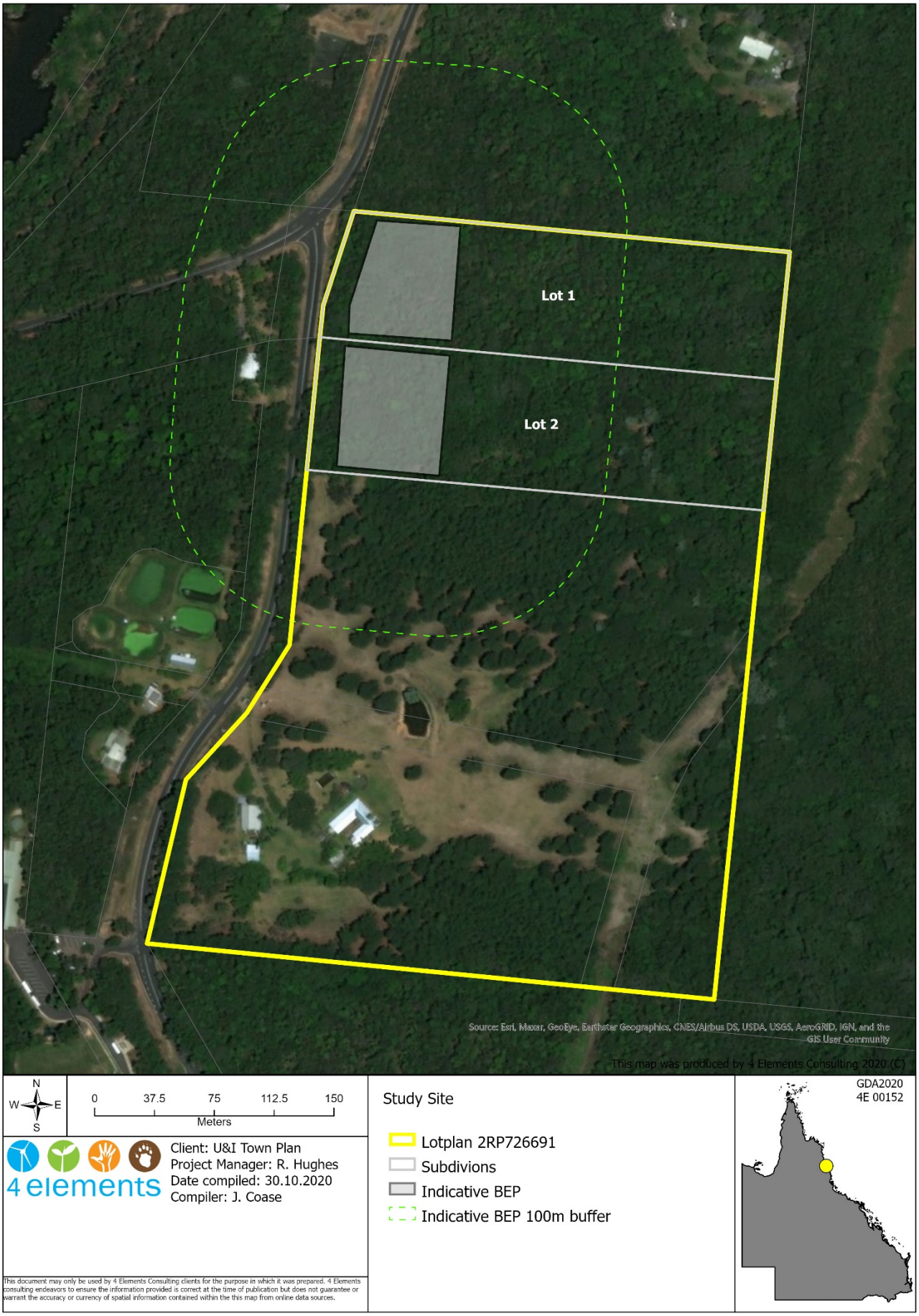


Figure 1 Location of Site with 100 m Survey Buffer

2.0 Methodology

2.1 Desktop Review

A review of relevant database searches was undertaken prior to field investigation. This provided an understanding of the general ecological values of the study area including what vegetation communities and threatened species may occur on site. Primary databases included:

- The Regional Ecosystem Description Database (REDD v 11.1) (Department of Environment and Science, 2018);
- The Commonwealth government's predictive Protected Matters Database Search Tool (http://www.environment.gov.au/epbc/protected-matters-search-tool) was consulted for threatened species and communities listed by the Commonwealth government under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act);
- The Queensland government Wildlife Online database of flora records for the project area;
- Essential Habitat mapping. In association with the RE mapping for the study area.

2.2 Field Survey

The field survey was undertaken Wednesday 28th October 2020. Primary aims of this investigation are explained below.

2.2.1 Timed Meander Survey

As per the Flora Survey Guidelines (DEHP, 2016), a total of two (2) timed meanders were conducted by a suitably qualified person within a 100m radius of the site boundary, where permitted. The time was recorded approximately every 5 minutes until no new plants had been recorded for a total of 30 minutes at which point the survey was concluded. Two observers were present at each meander to record which plants were identified.

All vascular plant species were recorded to compile a list of all species detected. For species that could not be identified in the field, a voucher specimen was collected and used for later identification. No specimens were sent to the Queensland Herbarium as all species could be identified by the consultant.

2.2.2 Weed Assessment

During field investigation, notes were taken of weed infestation. This included the distribution, species and level of incursion present.

2.2.3 Describing Vegetation Communities

Vegetation communities were measured within the site. All discreet vegetation communities that were within the 100 m buffer were sampled to verify the defined Regional Ecosystem utilising a Quaternary level site assessment as per CORVEG methodology (Nelder, 2012).

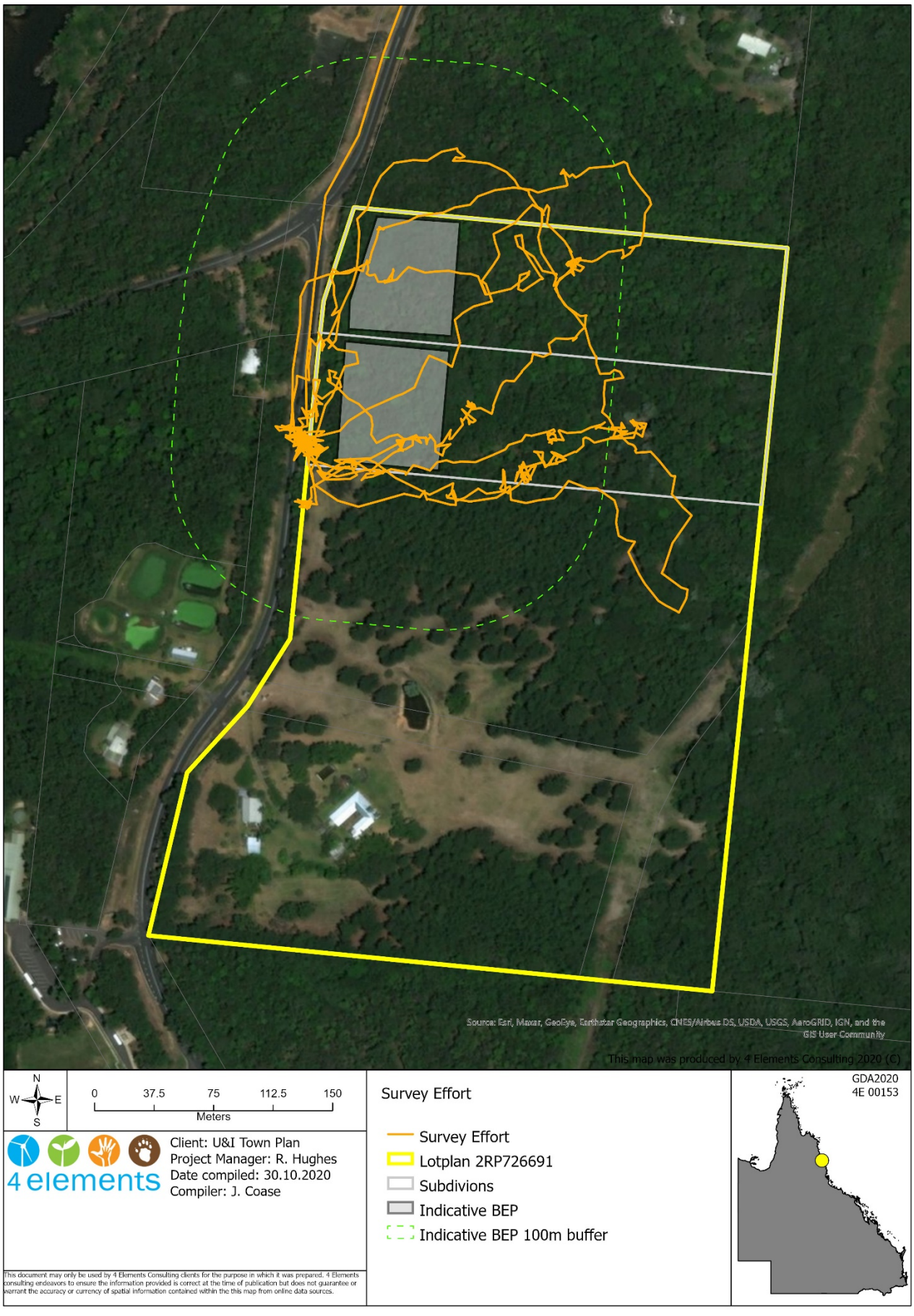


Figure 2 Location of time meander surveys throughout the study site

3.0 Results

3.1 Desktop Analysis Results

3.1.1 NC Act Wildlife Online Search Results

The *Nature Conservation Act 1992* (NC Act) Wildlife Online database search returned records of 10 EVNT flora species occurring within the locality. A radius of 10 km of the site was applied for this report. The complete online search results are provided in **Appendix B**.

3.1.2 EPBC Act PMST Search Results

Searches of the EPBC Act Protected Matters Search Tool returned records of 19 conservation significant flora species occurring within the locality. A radius of 10 km from the centre of the site. The complete online search results are provided in **Appendix C**. Condensed results combined with Wildlife Online and an additional four (4) species based on the consultant's knowledge of the mapped vegetation types present on site. The potentially occurring species within the study site are provided below (**Table 1**).

Table 1 Potentially Occurring Threatened Species (EPBC Act and NC Act)

Common Name	Scientific Name	Status EPBC Act	Status NC Act
Threatened Flora			
-	*Acalypha lyonsii*	-	V
Myola palm	*Archontophoenix myolensis*	E	E
Queensland tree waratah	*Alloxylon flammeum*	V	V
Slender ginger	*Alpinia hylandii*	-	NT
Noah's oak	*Buckinghamia ferruginiflora*	-	V
-	*Carronia pedicellata*	E	E
-	*Canarium acutifolium*	V	-
-	*Calochlaena villosa*	-	NT
-	*Carronia pedicellata*	E	E
-	*Crepidomanes majoriae*	-	V
-	*Ctenopterus walleri*	-	NT
Dark-stemmed antler orchid	*Dendrobium mirbelianum* *Syn: Durabaculum mirbelianum*	E	E
Queensland bluegrass	*Dicanthium setosum*	V	LC
-	*Diplazium cordifolium*	V	E
-	*Diplazium pallidum*	E	E
Climbing Pandan	*Freycinetia marginata*	-	*V*
Antplant	*Myrmecodia beccarii*	V	V
Forest Swamp Orchid	*Phaius australis*	E	E

Common Name	Scientific Name	Status EPBC Act	Status NC Act
Lesser Swamp Orchid	*Phaius pictus*	E	E
Native moth orchid	*Phalaenopsis amabilis subsp. rosenstromii*	E	E
Blue tassel-fern	*Phlegmariurus dalhousieanus*	E	CE
Rat's tail tassel-fern	*Phlegmariurus filaformis*	E	E
Square tassel-fern	*Phlegmariurus tetrastichoides*	V	V
Middle filmy fern	*Polyphlebium endlicherianum*	E	V
-	*Polyscias bellendenkerrensis*	V	V
Daintree gardenia	*Randia audasii*	-	NT
Velvet jewel orchid	*Rhomboda polygonoides*	V	V
Climbing wattle	*Senegalia albizioides*	-	NT
Smooth-bark rose apple	*Syzigium hodgkinsoniae*	V	V
Cooktown orchid	*Vappodes lithocola (Dendrobium lithocola)*	E	-
Tonsil orchid	*Vrydagzynea grayi*	E	E
-	*Wetria australiensis*	-	V
-	*Whyanbeelia terrae-reginae*	-	NT
Key: CE: Critically Endangered; E: Endangered; V: Vulnerable; NT: Near Threatened; LC Least Concern; SLC Special Least Concern.			

Appendix C assesses the risk of EVNT flora species known to occur in the locality and their potential of occurring on site. This risk was considered after the site assessment was completed. The habitat values of the site and the likelihood of detectability of each species for the survey period were considered.

3.2 Regulated Vegetation

Particular habitats which may support Critically Endangered, Endangered, Vulnerable or Near Threatened (EVNT) species may inhabit the site and are mapped by the Department of Natural Resources and Mines as regulated vegetation. The entirety of the site contains regulated vegetation under Category B (Remnant vegetation) (**Appendix D**).

3.3 Site Vegetation Communities

The vegetation throughout much of the site was in a regrowth condition (category C and R). The communities aligned with the pre-clearance regional ecosystems as mapped on the study site (RE 7.11.5). The exception being the distinct lack of *Eucalyptus tereticornis* that dominates RE 7.11.44. Occasionally, medium sized *Eucalyptus pellita* and *Corymbia intermedia* were encountered up to ~60cm diameter at breast height (DBH). Although much of the mature aged canopy trees have been removed through historical clearing of the study site and broader property. No hollow bearing trees were encountered in the PPS meander contributing further evidence of an immature regrowth community.

Vegetation within the study site consisted broadly of open wet sclerophyll forest. The canopy (10-15m) was generally dominated by *Eucalyptus pellita*, *Corymbia intermedia* and occasionally *Corymbia torelliana.* Fire exclusion was evident over the entire property and has permitted a dominant rainforest understorey including *Polyscias australianum, Guioa lasioneura, Alstonia meulleriana* and *Glochidion hylandii*. These species have formed a dense shrub and understorey layer that is suppressing recruitment of the Eucalypt canopy. The typical grassy understory with a sparse shrub layer associated with this RE was largely absent from all parts of the study site. Fire intervals of a low intensity at 2-5-year intervals are recommended for maintaining a typical grassy understorey. In the absence of this fire regime, continued growth of the rainforest element will eventually outcompete the eucalypt canopy and transition to a rainforest community.

Within ephemeral drainage lines the rainforest incursion was further pronounced with higher proportions of epiphytes and lianas and a dense shrub layer was occasionally present containing a shrub layer rainforest element. Highly modified non-remnant vegetation was present in the south of the study site. A detailed description of the site mapped regional ecosystems are provided in the below (**Table 3**).

3.4 Weeds

Weeds were generally a very minor occurrence throughout the study site where regrowth vegetation was present. Within ephemeral drainage lines a higher number of herbaceous weeds were encountered. Of the 28 species encountered during the meander surveys, most were located along Boyles Road and the cleared paddock to the south.

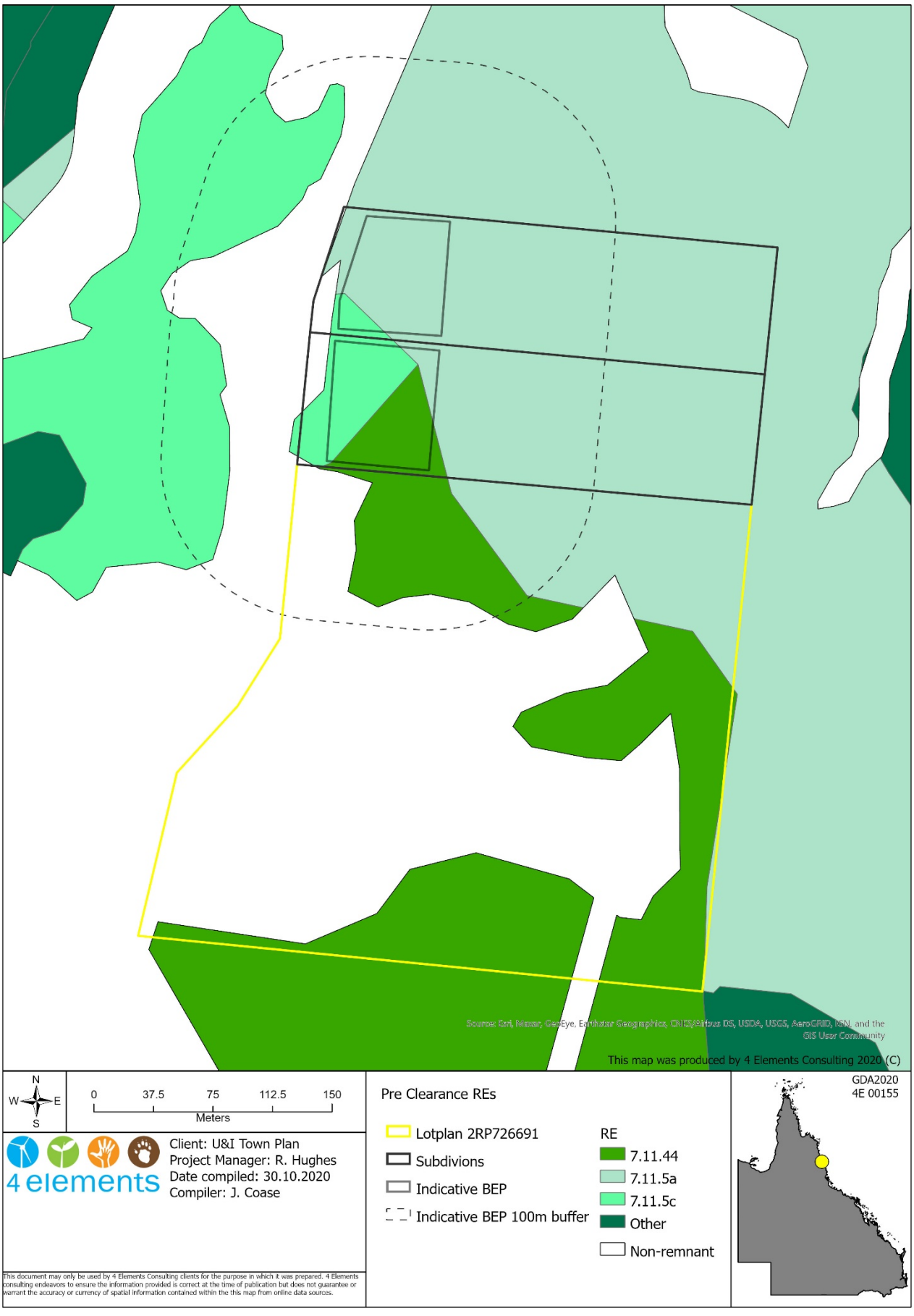


Figure 3 **Study Site Vegetation Communities (REDD 11.1)**

Table 2 Mapped Vegetation Communities Present Within the Study Site

RE & Biodiversity Status	Description (REDD v 11.1)	Location	Site Value
Wet Tropics, Land Zone 12 – Granite and Rhyolite Derived Landforms			
7.11.5a LC/NOC	*Eucalyptus pellita, Corymbia intermedia, C. tessellaris* open forest with *Acacia celsa, A. cincinnata, A. mangium* and *A. flavescens*. Lowlands and foothills on metamorphics, of the very wet and wet rainfall zones.	Present as a majority portion of the study site.	Potential habitat for NCA listed species: *Aphyllorchis queenslandica, Buckinghamia ferruginiflora, Freycinetia marginata, Randia audasii, Sphaerantia chartacea, Vrydagzynea grayi, Whyanbeelia terrae-reginae.* Pre-clear extent = 30,000 ha; 2017 extent = 27,000 ha
7.11.5c LC/NOC	*Corymbia intermedia, Eucalyptus pellita, E. tereticornis, C. tessellaris, C. torelliana,* open forest to woodland with *Acacia celsa, A. mangium, Lophostemon suaveolens* and *Syncarpia glomulifera*. Lowlands and foothills on metamorphics, of the wet and moist rainfall zones.	Present as a minor portion of the study site restricted to the central east of the property.	Potential habitat for NCA listed species: *Aphyllorchis queenslandica, Buckinghamia ferruginiflora, Freycinetia marginata, Randia audasii, Sphaerantia chartacea, Vrydagzynea grayi, Whyanbeelia terrae-reginae.* Pre-clear extent = 30,000 ha; 2017 extent = 27,000 ha
7.11.44 OC/OC	*Eucalyptus tereticornis* (forest red gum) open forest to woodland. Coastal metamorphic foothills.	Present as a minor portion of the study site in the south of the property.	Potential habitat for NCA listed species: *Randia audasii* Pre-clear extent = 10,000 ha; 2017 extent = 9,000 ha

3.5 Study Site Flora

A total of 124 flora species were recorded within the site and associated 100m buffer. A total of 96 species were native and 28 were considered weeds. A full list of all species recorded are included in the below **Table 4**.

Table 3 Complete Flora List

Species Name	Common Name	NC Act	EPBC Act
Trees			
Brown salwood	*Acacia celsa*	LC	-
Yellow Wattle	*Acacia flavescens*	LC	-
Forest She-oak	*Allocasaurina littoralis*	LC	-
White Ash	*Alphitonia petriei*	LC	-
Red ash	*Alphitonia whitei*	LC	-
Hard milkwood	*Alstonia muelleriana*	LC	-
Alligatorbark	*Calophyllum sil*	LC	-
Fishtail palm	*Caryota mitis**	LC	-
Pink Bloodwood	*Corymbia intermedia*	LC	-
Cadaghi	*Corymbia torreliana*	LC	-
Northern laurel	*Cryptocarya hypospodia*	LC	-
Rusty laurel	*Cryptocarya mackinoniana*	LC	-
Murrays Laurel	*Cryptocarya murrayi*	LC	-
Golden bouquet tree	*Deplanchea tetraphylla*	LC	-
Large-fruited mahogany	*Eucalyptus pellita*	LC	-
Rusty Fig	*Ficus rubignosa*	LC	-
Cheese-tree	*Glochidion harveyanum*	LC	-
Hyland cheese-tree	*Glochidion hylandii*	LC	-
Umbrella Cheese-tree	*Glochidion sumatranum*	LC	-
Silky oak	*Grevillea baileyana*	LC	-
Northern guioa	*Guioa acutifolia*	LC	-
Silky tamarind	*Guioa lasioneura*	LC	-
Swamp box	*Lophostomon sauveolens*	LC	-
Brown macaranga	*Macaranga involucrata var. mallotoides*	LC	-
Blush macaranga	*Macaranga tanarius*	LC	-
Silver-leaf tea-tree	*Melaleuca dealbata*	LC	-
Weeping tea-tree	*Melaleuca leucadendra*	LC	-
Caribbean Pine	*Pinus caribaea**	-	-
White plum	*Podocarpus elatus*	LC	-
Ivory basswood	*Polyscias australianum*	LC	-

Species Name	Common Name	NC Act	EPBC Act
Celerywood	*Polyscias elegans*	LC	-
Solitaire palm	*Ptycosperma elegans*	LC	-
Travellers palm	*Ravenala madagascariensis**	-	-
Umbrella Tree	*Schefflera actinophylla*	LC	-
Cocos palm	*Syragrus romanzoffiana**	-	-
Shrub Layer			
Native hydrangea	*Abrophyllum ornans*	LC	-
Becklers myrtle	*Archirhodomyrtus beckleri*	LC	-
Shoe button ardisia	*Ardisia elliptica**	-	-
-	*Bambusa spp.**	-	-
-	*Bursaria spinosa*	LC	-
Vicious hairy mary	*Calmus radicalis*	LC	-
Medicine bush	*Coelospermum reticulatum*	LC	-
Lolly Bush	*Clerodendrum longiflorum*	LC	-
White tamarind	*Cupaniopsis foveolata*	LC	-
Happy plant	*Dracena fragrans**	-	-
Quandong	*Eleocarpus grandis*	LC	-
Python tree	*Gossia bidwillii*	LC	-
Bleeding heart	*Homolanthus novo-guineensis*	LC	-
Native ixora	*Ixora timorensis*	LC	-
Blue umbrella	*Makinlaya macrosciadea*	LC	-
Blue-tongue	*Melastoma malabathricum sub malabathricum*	LC	-
Bollygum	*Neolitsea dealbata*	LC	-
Geebung	*Persoonia falcata*	LC	-
Giant bramble	*Rubus alceifolius*	LC	-
Devil's fig	*Solanum torvum**	LC	-
Light blue snakeweed	*Stachytarpheta jamaicensis**	LC	-
-	*Wilkiea pubescens*	LC	-
Epiphytes			
Twin Flower Mistletoe	*Amyema biniflora*	LC	-
Fruitfly orchid	*Bulbophyllum baileyi*	LC	-
Giant Boat-lipped Orchid	*Cymbidium madidum*	LC	-
Apostle Mistletoe	*Dendrophthoe vitellina*	LC	-
Vines and Lianas			
Chainfruit	*Alyxia spicata*	LC	-
Creeping Cinderella weed	*Calyptocarpus vialis**	-	-

Species Name	Common Name	NC Act	EPBC Act
Kangaroo vine	*Cissus antarctica*	LC	-
Native Grape	*Cissus penninervis*	LC	-
Tasselflower	*Emilia sonchifolia**	-	-
Devil's ivy	*Epipremnum aureum**	-	-
Whipstick vine	*Flagellaria indica**	LC	-
-	*Gynochthodes sessilis*	LC	-
Snake vine	*Hibbertia scandens*	LC	-
-	*Hypserpa smilacifolia*	LC	-
Monkey rope	*Parsonsia straminea*	LC	-
Kuranda passionfruit	*Passiflora kuranda*	LC	-
Native pepper vine	*Piper hederaceum var. hederaceum*	LC	-
Water vine	*Rourea brachyandra*	LC	-
-	*Smilax blumei*	LC	-
Sweet sarsaparilla	*Smilax glyciphylla*	LC	-
Lawyer Vine	*Smilax australis*	LC	-
Small-leaved fire vine	*Tetracera nordtiana*	LC	-
Ferns and Allies			
Maidenhair Fern	*Adiantum hispidulum*	LC	-
Rebecca's tree fern	*Cyathea rebeccae*	LC	-
Old world fork fern	*Dicranopteris linearis*	LC	-
Rasp Fern	*Doodia sp.*	LC	-
Basket Fern	*Drynaria ridigula*	LC	-
-	*Lindsea media*	LC	-
Climbing Maidenhair Fern	*Lygodium microphyllum*	LC	-
Whisk fern	*Psilotum nudum*	LC	-
Bracken Fern	*Pteridium esculentum*	LC	-
Rock felt fern	*Pyrrosia rupestris*	LC	-
Ground Herbs and Grasses			
Billy Goat Weed	*Ageratum conyzoides**	-	-
River grass	*Arundinella nepalensis*	LC	-
Broad-leaved carpet grass	*Axonocarpus compressus**	-	-
Cobbler's pegs	*Bidens pilosa**	-	-
Gotu Cola	*Centalla asiatica*	LC	-
Fleabane	*Conyza bonariensis**	-	-
Yellow Buttons	*Coronidium rupicola*	LC	-
-	*Cyanthillium cinereum*	LC	-
Bunchy Sedge	*Cyperus polystachyos*	LC	-

Species Name	Common Name	NC Act	EPBC Act
Flax Lilly	*Dianella caerulea*	LC	-
Wiry Panic	*Entolasia stricta*	LC	-
Rough-fruited saw sedge	*Gahnia aspera*	LC	-
Flatweed	*Hypochaeris radicata**	LC	-
-	*Lomandra filaformis*	LC	-
Spiny-head mat rush	*Lomandra longifolia*	LC	-
-	*Lomandra multiflora*	LC	-
Guinea Grass	*Megathyrsus maximus var. maximus**	-	-
Molasses Grass	*Melinis minutiflora**	-	-
Red Natal Grass	*Melinis repens**	-	-
Basket Grass	*Oplismenus aemulus*	LC	-
-	*Ottochloa gracillima*	LC	-
Hairy Panic	*Panicum effusum*	LC	-
Two-colour Panic	*Panicum simile*	LC	-
-	*Polygala paniculate**	LC	-
Praxelis	*Praxelis clematidea**	-	-
Lovel flower	*Psuederanthemum variable*	LC	-
-	*Schellhammera multiflora*	LC	-
-	*Scleria sphacelata*	LC	-
Common Wireweed	*Sida acuta**	-	-
Common Saint Paul's Wort	*Sigesbeckia orientalis*	LC	-
Singapore	*Spagneticola trilobata**	LC	-
American rat'stail grass	*Sporobolus jacquemontii**	LC	-
Townsville stylo	*Stylosanthes humilis**	-	-
Signal Grass	*Urochloa decumbens**	-	-
LC: Least Concern *NC Act 1992* * Denotes invasive species			

3.6 Site EVNT Flora

No EVNT flora listed under the *Environmental Protection and Biodiversity Act 1999* or *Nature Conservation Act 1992* were recorded in the study site. The potential occurrence assessment (see **Appendix A**) details the likelihood of all potentially occurring species being present within the study site. Given the regrowth status of all vegetation on the property and the establishing rainforest understorey element there is considered to be an unlikely potential for each of the 33 EVNT species considered for this assessment.

4.0 Clearing of Protected Plants

4.1 General Requirements

A copy of this report must be submitted to DEHP at least one week prior to planned vegetation disturbance and no more than 12 months after the completion of the PPS.

Due to the absence of a protected plant population being present on the study site, a protected plant clearing permit is not required prior to clearing commencing.

Suitably Qualified Person

Ryan Hughes

Ryan has graduated with a Bachelor of Science (Hons I) Griffith University Queensland 2008 and has worked as a Field Ecologist since that time. He has been working as a full time Ecological Consultant for the past 6 years. He has formal training in plant taxonomy and identification from both his tertiary qualifications and completion of Advanced Botanical Identification post-graduate course with UNSW. He is an experienced leader, specialising in flora surveys, ecological assessment and monitoring, vegetation mapping, threatened flora translocation and rehabilitation. He has been involved in threatened flora surveys across many vegetation communities covering the NSW Mid-north Coast, South East Queensland, Brigalow Belt North, Wet Tropics, Einasleigh Uplands, Cape York Peninsular and the Darwin Coastal Bioregion. Sites surveyed have ranged from <100 m2 to >1000 ha.

The ability to identify flora in a range of habitats, and understand their ecology and how this may be affected (directly and indirectly) by an activity or development proposal is a core part of Ryan's profession and expertise. He has detected highly cryptic threatened species within the Atherton tablelands including *Acacia purpureopetala, Denrobium fellowsii, Prostanthera clotteniana, Prostanthera albohirta* during site investigations and routinely assesses sites for the presence of threatened species from major urban growth projects to highway upgrades and other linear infrastructure. Ryan has for the past three (3) years been leading the field team on the Mount Emerald Wind Farm translocation program. This program is focused on the propagation and translocation of a wide range of threatened plant taxa. These include, *Homoranthus porteri, Grevillea glossadenia, Acacia pupureopetala, Prostanthera clotteniana, Plectranthus amoenus, Cycas media, Meleleuca uxorum.*

Ryan has the necessary skills to undertake a wide array of ecological services including vegetation community analysis, identification and condition assessments, baseline monitoring surveys, bio-condition assessments, floristic and structural analysis, threatened species/ community identification and management.

5.0 References

Atlas of Living Australia (2018). *Explore your area*. Url: https://biocache.ala.org.au/explore/your-area#-16.89541 |145.73571|14|ALL_SPECIES (Accessed 29 October 2020)

AVH, 2018, Australia's Virtual Herbarium, Council of Heads of Australasian Herbaria. Available online at http://avh.chah.org.au/, accessed on 29 October, 2020.

Australian Government (2017) *Protected matters search tool*. Url: https://www.environment.gov.au/epbc/protected-matters-search-tool (Accessed 09 October 2020)

Environment and Heritage Protection (EHP) (2016) Flora survey guidelines. Url: https://www.ehp.qld.gov.au/licences-permits/plants-animals/documents/flora-survey-guidelines.pdf (Accessed 09 February 2020)

Hyland, B.P.M., Whiffin, T. and Zich, F.A., 2020, Australian Tropical Rainforest Plants. Edition 8. Online key. Available at: http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004060d07080d04/media/Html/index.html.

Jones, D.L., 2006, A complete guide to native orchids of Australia including the island territories. Reed New Holland, Sydney.

Neldner, V.J., Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (2012) Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 5.0. Updated April 2019. Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane

Queensland Government (2014) *Flora survey guidelines – protected plants*. *Nature Conservation Act 1992*. Url: https://www.ehp.qld.gov.au/licences-permits/plants-animals/documents/gl-wl-pp-flora-survey.pdf (02 November 2020)

Queensland Government (2016) *Protected plants flora survey trigger map*. Url: https://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php (Accessed 02 November 2020)

Appendix A Potential Occurrence Assessment

Common Name	Scientific Name	EPBC Act	NC Act	Preferred Habitat	Likelihood of Occurrence on Study Site
-	*Acalypha lyonsii*	-	V	Known to occur within well-developed lowland rainforest in the Cairns region (AVH, 2020).	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Myola palm	*Archontophoenix myolensis*	E	E	Occurs between 350-450m elevation along drainage lines in rainforest habitats (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Queensland tree waratah	*Alloxylon flammeum*	V	V	This species is known to occur on soils derived from basalt, metamorphic rock and humus-rich gravelly loam derived from granite, in rainforest, on the Atherton Tablelands. It has been recorded as a paddock tree on cleared rainforest blocks (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

-	*Alpinia hylandii*	-	NT	Occurs above 400m elevation within well-developed rainforest habitats (AVH, 2020).	**Unlikely** Suitable habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Noah's oak	*Buckinghamia ferruginiflora*	-	V	Restricted between the Daintree and Bloomfield Rivers within complex rainforest communities below 350m asl (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Carronia pedicellata*	E	E	This woody climber grows in complex and mesophyll and notophyll vine forests, in deep soils derived from basalt, granite or metamorphic substrates This species occurs from the Bellenden Ker Range to Mission beach, Wooroonooran national park and near Cape tribulation (Department of the Environment, Water, Heritage and the Arts, 2008b).	**Unlikely** Suitable complex rainforest habitat does not occur on the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Canarium acutifolium*	V	V	In Australia, *C. acutifolium* var. *acutifolium* grows naturally below ca. 100 m (330 ft) altitude in the scarce remaining lowland rainforests of the Wet Tropics region of north-eastern Queensland.	**Unlikely** Study site is located outside of known altitudinal range. This species was not observed during the field component of this survey. Survey timing was

					considered appropriate for this species.
-	*Calochlaena villosa*	-	NT	Recorded in wet sclerophyll forest on granite-derived soils, beside creek (AVH, 2018).	**Unlikely:** No proximate records or suitable habitat present on the site.
-	*Crepidomanes majoriae*	-	V	Known to occur within well-developed upland rainforest between Kuranda and Paluma (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Ctenopterus walleri*	-	NT	*Ctenopteris walleri* grows as an epiphyte on tree trunks or canopy branches or as a lithophyte on granite or rhyolite in complex notophyll vine forest or in low windswept rainforest above an altitude of 1000 m	**Unlikely:** The nearest record is located to the north of the township of Ravenshoe in within well-developed notophyll vine forest. Suitable habitat was not present within the study site and this species was not observed during the field component of this survey. The survey timing was considered appropriate for this species.
Dark stemmed antler orchid	*Dendrobium mirbelianum* *Syn: Durabaculum mirbelianum*	E	E	This epiphytic orchid grows on mangrove trees and other humid forest environments over an altitudinal range of 2-150m above sea level. Its range is restricted in North east Queensland,	**Unlikely** Lack of suitable habitat is present on site. Study site is outside of recorded altitudinal range.

				occurring from the Daintree area to Innisfail and Moa (Department of the Environment, Water, Heritage and the Arts, 2008c)	This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Queensland blue grass	*Dichanthium setosum*	V	LC	*Dichantheum setosum* is an upright perennial grass species growing to less than 1 metre tall. In Queensland, it occurs in the Leichardt, Morton, North Kennedy and Port Curtis regions. Habitat occurs in open forests and moderately disturbed areas such as cleared woodlands and road sides (Department of the Environment, Water, Heritage and the Arts, 2008a)	**Unlikely** Lack of suitable open forest habitat present on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Diplazium cordifolium*	V	V	This fern species grows within the riparian zone in rainforest environments. Populations of this fern are mostly known from private land (DAWE, 2020).	**Unlikely** Suitable complex habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Diplazium pallidum*	E	E	Within Australia, this species is restricted to the Wet Tropics Bioregion (DAWE, 2020). It occurs on basaltic soils of coastal lowland rainforest (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat or basaltic soils do not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Climbing Pandan	*Freycinetia marginata*	-	V	Located between Mossman and the Daintree River and Iron Range within complex lowland vine forest below 200m asl (AVH, 2020).	Suitable complex lowland rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Ant Plant	*Myrmecodia beccarii*	V	V	The ant plant occurs in coastal woodland and mangrove between Cooktown and Ingham in Queensland. It is a unique epiphyte (a plant that lives harmlessly on another plant) that has a special association with the golden ant which lives in the chambers of the tuber, and the Apollo jewel butterfly which lays its eggs on the plant. The golden ants carry the butterfly eggs into the chambers where they develop into butterflies.	**Unlikely** Suitable habitat does not occur on site. The study site is outside of the known altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. This species would be readily detectable if present.
Lesser Swamp-orchid	*Phaius australis*	E	E	The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedge land wetlands (Barry 2005), swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found (Sparshott and Bostock 1993).	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
-	*Phaius pictus*	V	V	*Phaius pictus* occurs in north-east Queensland, sporadically from the McIlwraith Range, Bloomfield River to Kirrama Range. It is highly localised, restricted to rainforests from 0–600 m altitude, and usually occurs in sheltered	**Unlikely** Suitable habitat does not occur on site. This species was not observed during the field component of this

				humid sites close to streams and seepage among forest litter on boulders (Jones 2006).	survey. Survey timing was considered appropriate for this species.
Native Moth Orchid	*Phalaenopsis amabilis subsp. rosenstromii*	E	E	Distributed within tropical rainforest habitats between Iron Range and Townsville (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
Blue Tassel-fern	*Phlegmariurus dalhousieanus*	E	CR	Grows as an epiphyte or lithophyte within well-developed rainforest habitats (DEE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
Rat's tail tassel-fern	*Phlegmariurus filaformis*	E	E	An epiphytic fern found on canopy trees in complex vine forest. It has been collected from the Mt Hypipamee area, but not since 1937 (there has been only one collection from anywhere since then) (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.

Square tassel-fern	*Phlegmariurus tetrastichoides*	V	V	A tassel-fern found on trees in complex tropical rainforest (DAWE, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
Middle Filmy Fern	*Polyphlebium endlicherianum*	E	V	A filmy fern that grows on rocks (often granite) in creeks and 'cool shady position' (AVH, 2020)	**Unlikely** Suitable complex rainforest habitat does not occur on site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. No proximate records.
-	*Polyscias bellendenkerrensis*	V	V	Known from notophyll vine forest and other rainforest types on granite substrates, in the Wet Tropics (DAWE, 2020).	**Unlikely** Suitable habitat does not occur on site. Lack of granite soils present. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Daintree gardenia	*Randia audasii*	-	NT	Occurs within the Wet Tropics bioregion 0-600m elevation occurring as an understorey shrub in well-developed rainforest (AVH, 2020).	**Unlikely** Suitable complex rainforest habitat does not occur on site.

					This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Velvet jewel orchid	*Rhomboda polygonoides*	V	V	A terrestrial orchid growing between 15 and 30cm tall. Grows within notophyll vine forest, on coarse woody debris, leaf litter and boulders. Grows at an altitudinal range of 450-600m ASL (Department of the Environment, Water, Heritage and the Arts, 2008d)	**Unlikely** Lack of well-developed rainforest on the site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Climbing wattle	*Senegalia albizioides*	-	NT	Grows in monsoon forest and both lowland and upland rainforest below 500m asl (AVH, 2020).	**Unlikely** Lack of monsoon forest habitat present. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Smooth-bark rose apple	*Syzygium hodgkinsoniae*	V	V	The red Lilly Pilly is a small tree growing to approximately 11m tall. It occurs in riverine rainforest environments on rich alluvial basaltic soils. Typically occurs as scattered individuals on watercourses. Occurrences of this tree have been recorded in Kuranda and Gordonvale areas in far North Queensland.	**Moderate** Lack of well-developed rainforest on the site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Dwarf Butterfly Orchid	*Vappodes lithocola*	E	-	This orchid is endemic to north-eastern Queensland on the coastal ranges between Daintree and Cairns at altitudes of 300-800 m.	**Unlikely** Suitable habitat does not occur with the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.
Tonsil orchid	*Vrydagzynea grayi*	E	E	This orchid is endemic to north-eastern Queensland on the coastal plains south of the Daintree River at approximately 50m asl.	Suitable habitat does not occur on site. The study site is outside of the known altitudinal range. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species. This species would be readily detectable if present.
-	*Wetria australiensis*	-	V	Grows as an understorey tree within well-developed lowland rainforest (ATH, 2020).	**Unlikely** Suitable habitat does not occur with the study site. Nearest proximate record occurs near to Lake Placid at 100m asl within complex notophyll vine forest. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

-	*Whyanbeelia terrae-reginae*	-	NT	Grows as an understorey tree within well-developed upland and lowland rainforest 100-400m asl (ATH, 2020).	**Unlikely** Suitable habitat does not occur with the study site. This species was not observed during the field component of this survey. Survey timing was considered appropriate for this species.

Appendix B Wildlife Online Search (NC Act)

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Status: Rare and threatened species
Records: All
Date: All
Latitude: -16.8095
Longitude: 145.5904
Distance: 10
Email: matthew@4elementsconsulting.com.au
Date submitted: Monday 19 Oct 2020 09:04:23
Date extracted: Monday 19 Oct 2020 09:10:02

The number of records retrieved = 33

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria nyakalensis*	mountain mistfrog		CR	CE	1/1
animals	amphibians	Hylidae	*Litoria rheocola*	common mistfrog		E	E	22/17
animals	amphibians	Hylidae	*Litoria nannotis*	waterfall frog		E	E	6
animals	amphibians	Hylidae	*Litoria serrata*	tapping green eyed frog		V		104/19
animals	amphibians	Hylidae	*Litoria myola*	Kuranda treefrog		CR	CE	43
animals	amphibians	Hylidae	*Litoria dayi*	Australian lacelid		V	V	14/6
animals	amphibians	Myobatrachidae	*Taudactylus acutirostris*	sharp snouted dayfrog		PE	EX	1
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	4
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	25
animals	birds	Burhinidae	*Esacus magnirostris*	beach stone-curlew		V		9
animals	birds	Casuariidae	*Casuarius casuarius johnsonii (southern population)*	southern cassowary (southern population)		E	E	119
animals	birds	Estrildidae	*Erythrura gouldiae*	Gouldian finch		E	E	1
animals	birds	Falconidae	*Falco hypoleucos*	grey falcon		V		1
animals	birds	Psittacidae	*Cyclopsitta diophthalma macleayana*	Macleay's fig-parrot		V		329
animals	birds	Turnicidae	*Turnix olivii*	buff-breasted button-quail		E	E	1
animals	insects	Lycaenidae	*Hypochrysops apollo apollo*	Apollo jewel (Wet Tropics subspecies)		V		4
animals	mammals	Hipposideridae	*Hipposideros diadema reginae*	diadem leaf-nosed bat		NT		2/1
animals	mammals	Macropodidae	*Dendrolagus lumholtzi*	Lumholtz's tree-kangaroo		NT		2
animals	mammals	Megadermatidae	*Macroderma gigas*	ghost bat		E	V	1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	1
animals	mammals	Pteropodidae	*Pteropus conspicillatus*	spectacled flying-fox		E	E	26/1
animals	mammals	Vespertilionidae	*Murina florium*	tube-nosed insectivorous bat		V		2
animals	reptiles	Crocodylidae	*Crocodylus porosus*	estuarine crocodile		V		13
plants	land plants	Arecaceae	*Archontophoenix myolensis*			E	E	2/2
plants	land plants	Athyriaceae	*Diplazium pallidum*			E	E	2/2
plants	land plants	Euphorbiaceae	*Wetria australiensis*			V		3/3
plants	land plants	Hymenophyllaceae	*Crepidomanes majoriae*			V		2/2
plants	land plants	Lycopodiaceae	*Phlegmariurus dalhousieanus*	blue tassel-fern		CR	E	1/1
plants	land plants	Mimosaceae	*Senegalia albizioides*			NT		1/1
plants	land plants	Orchidaceae	*Rhomboda polygonoides*			V	V	1/1
plants	land plants	Rubiaceae	*Myrmecodia beccarii*			V	V	2
plants	land plants	Rubiaceae	*Randia audasii*			NT		5/5
plants	land plants	Zingiberaceae	*Alpinia hylandii*			NT		5/5

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 in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix C Protected Matters Search Tool (EPBC Act)

Australian Government

Department of Agriculture, Water and the Environment

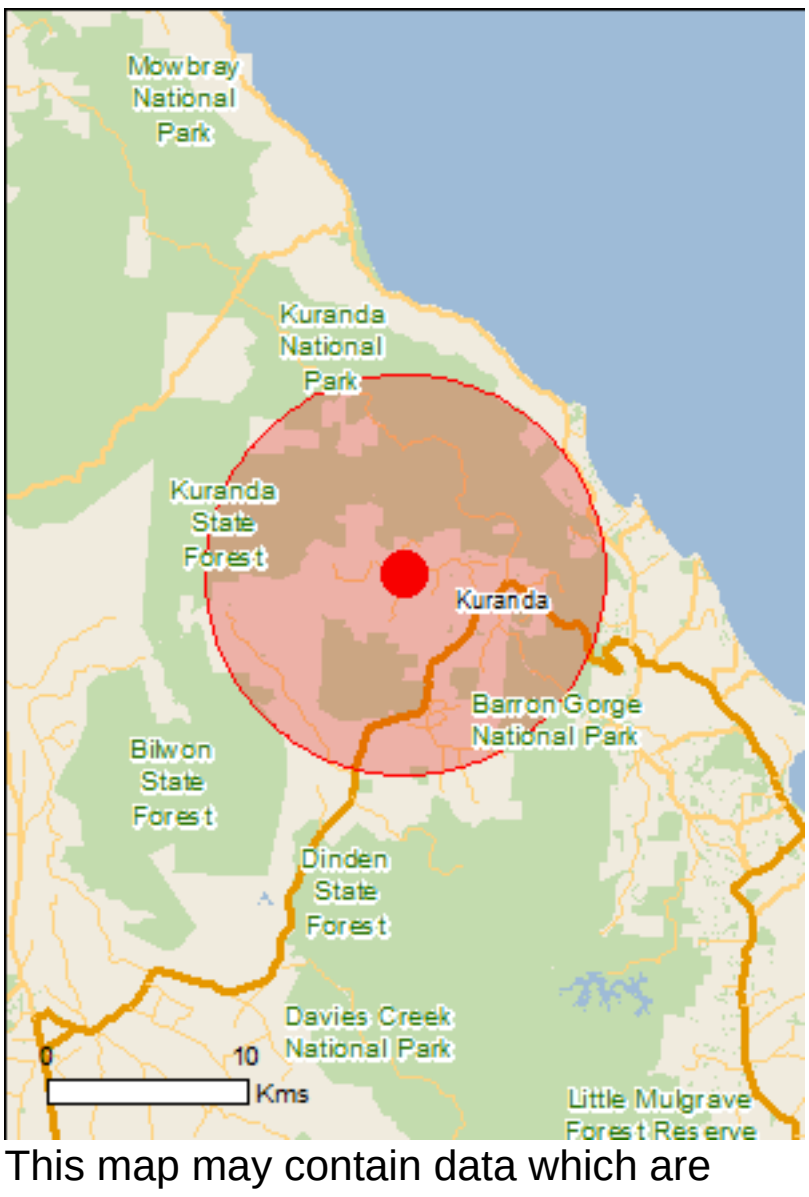
EPBC Act Protected Matters Report

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.

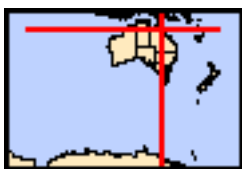
Report created: 19/10/20 10:09:01



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

Coordinates

Buffer: 10.0Km



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:	1
National Heritage Places:	2
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	50
Listed Migratory Species:	24

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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	29
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:	12
Regional Forest Agreements:	None
Invasive Species:	33
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Status
Wet Tropics of Queensland	QLD	Declared property

National Heritage Properties [Resource Information]

Name	State	Status
Natural		
Wet Tropics of Queensland	QLD	Listed place
Indigenous		
Wet Tropics World Heritage Area (Indigenous Values)	QLD	Within listed place

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
Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Casuarius casuarius johnsonii Southern Cassowary, Australian Cassowary, Double-wattled Cassowary [25986]	Endangered	Species or species habitat known to occur within area
Erythrotriorchis 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
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix olivii Buff-breasted Button-quail [59293]	Endangered	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Melanotaenia eachamensis Lake Eacham Rainbowfish [26185]	Endangered	Species or species habitat may occur within area
Stiphodon semoni Opal Cling Goby [83909]	Critically Endangered	Species or species habitat likely to occur within area
Frogs		
Litoria dayi Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]	Vulnerable	Species or species habitat known to occur within area
Litoria myola Kuranda Tree Frog [82063]	Critically Endangered	Species or species habitat known to occur within area
Litoria nannotis Waterfall Frog, Torrent Tree Frog [1817]	Endangered	Species or species habitat known to occur within area
Litoria nyakalensis Mountain Mistfrog, Nyakala Frog [1820]	Critically Endangered	Species or species habitat likely to occur within area
Litoria rheocola Common Mistfrog [1802]	Endangered	Species or species habitat known to occur within area
Mammals		
Bettongia tropica Northern Bettong [214]	Endangered	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 known to occur within area
Dasyurus maculatus gracilis Spotted-tailed Quoll (North Queensland), Yarri [64475]	Endangered	Species or species habitat likely to occur within area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Mesembriomys gouldii rattoides Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]	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 may occur within area

Name	Status	Type of Presence
Pteropus conspicillatus Spectacled Flying-fox [185]	Endangered	Species or species habitat known to occur within area
Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat likely to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Plants		
Alloxylon flammeum Red Silky Oak, Queensland Waratah, Tree Waratah [56400]	Vulnerable	Species or species habitat likely to occur within area
Archontophoenix myolensis Myola Palm, Myola Archontophoenix [64500]	Endangered	Species or species habitat known to occur within area
Canarium acutifolium [23956]	Vulnerable	Species or species habitat likely to occur within area
Carronia pedicellata [24178]	Endangered	Species or species habitat may occur within area
Dendrobium mirbelianum Dark-stemmed Antler Orchid, Mangrove Orchid [14310]	Endangered	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Diplazium cordifolium [15585]	Vulnerable	Species or species habitat known to occur within area
Diplazium pallidum [12764]	Endangered	Species or species habitat known to occur within area
Myrmecodia beccarii Ant Plant [11852]	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
Phaius pictus [22564]	Vulnerable	Species or species habitat likely to occur within area
Phalaenopsis amabilis subsp. rosenstromii Native Moth Orchid [87535]	Endangered	Species or species habitat likely to occur within area
Phlegmariurus filiformis Rat's Tail Tassel-fern [86551]	Endangered	Species or species habitat likely to occur within area
Phlegmariurus tetrastichoides Square Tassel Fern [86555]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Polyphlebium endlicherianum Middle Filmy Fern [87494]	Endangered	Species or species habitat likely to occur within area
Polyscias bellendenkerensis [7237]	Vulnerable	Species or species habitat may occur within area
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area
Vappodes lithocola Dwarf Butterfly Orchid, Cooktown Orchid [78893]	Endangered	Species or species habitat known to occur within area
Zeuxine polygonoides Velvet Jewel Orchid [46794]	Vulnerable	Species or species habitat known to occur within area
Sharks		
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to 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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Migratory Marine Species		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Monarcha frater Black-winged Monarch [607]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat known to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat known to occur within area
[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 may occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat may 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 may occur within area
[Limosa lapponica](#) Bar-tailed Godwit [844]		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]		Breeding 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

Listed Marine Species	[Resource Information]
* 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

Name	Threatened	Type of Presence
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
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may 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
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may 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
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha frater Black-winged Monarch [607]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to 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]		Breeding 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 likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Reptiles		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Barron Gorge	QLD
Cassowary Corridor	QLD
Cassowary Forest	QLD
Jumrum Creek	QLD
Kuranda	QLD
Kuranda	QLD
Kuranda West	QLD
Macalister Range	QLD
Myola Palm	QLD
Smithfield	QLD
Speewah	QLD

Invasive Species

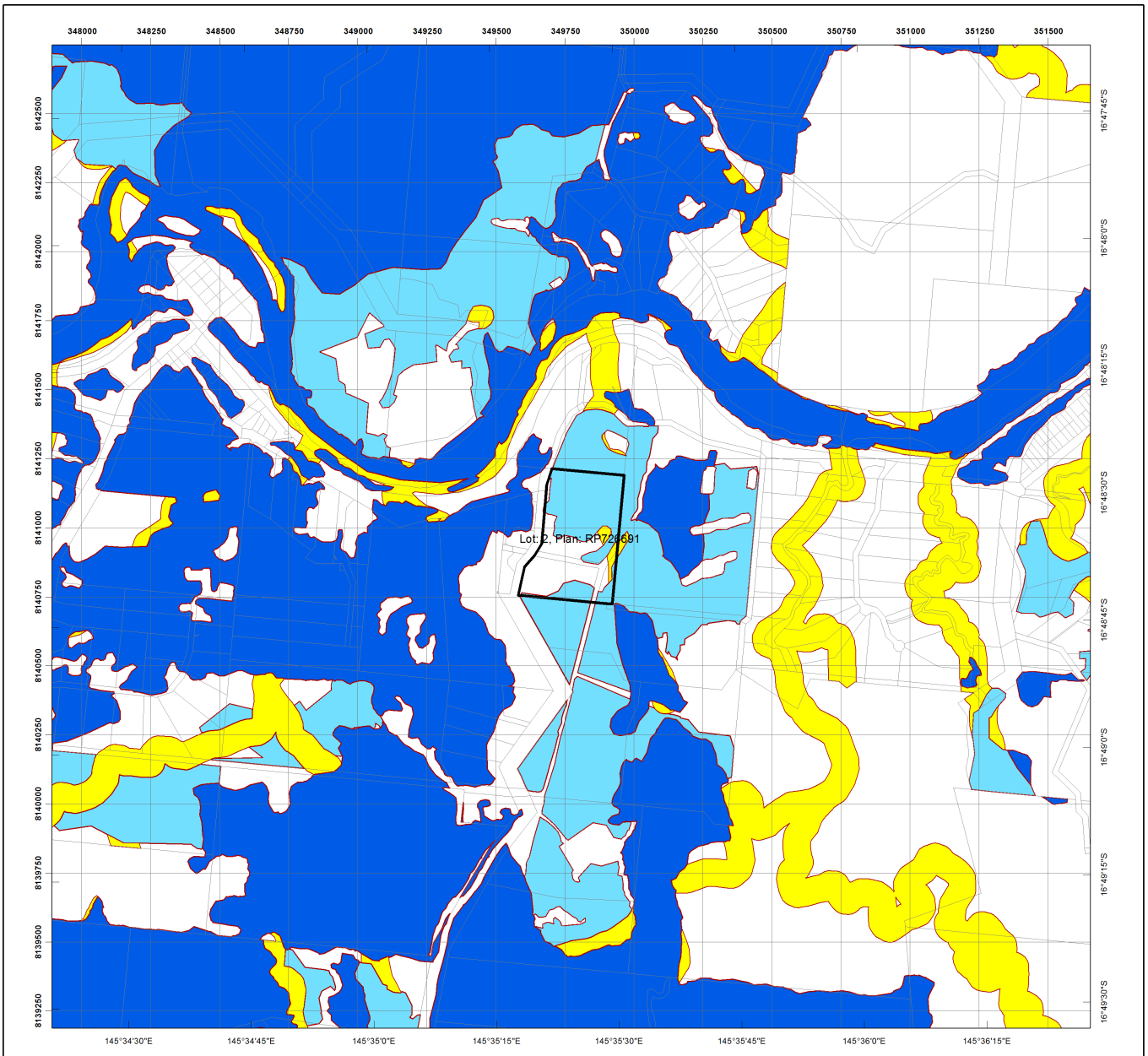
[Resource Information]

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
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 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
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

Name	Status	Type of Presence
		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
Plants		
Andropogon gayanus Gamba Grass [66895]		Species or species habitat likely to occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		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
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to 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
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		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
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		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
Lepidodactylus lugubris Mourning Gecko [1712]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

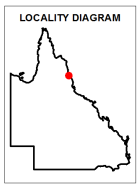
Appendix D Regulated Vegetation Mapping

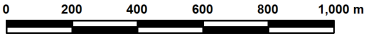


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries





Disclaimer:
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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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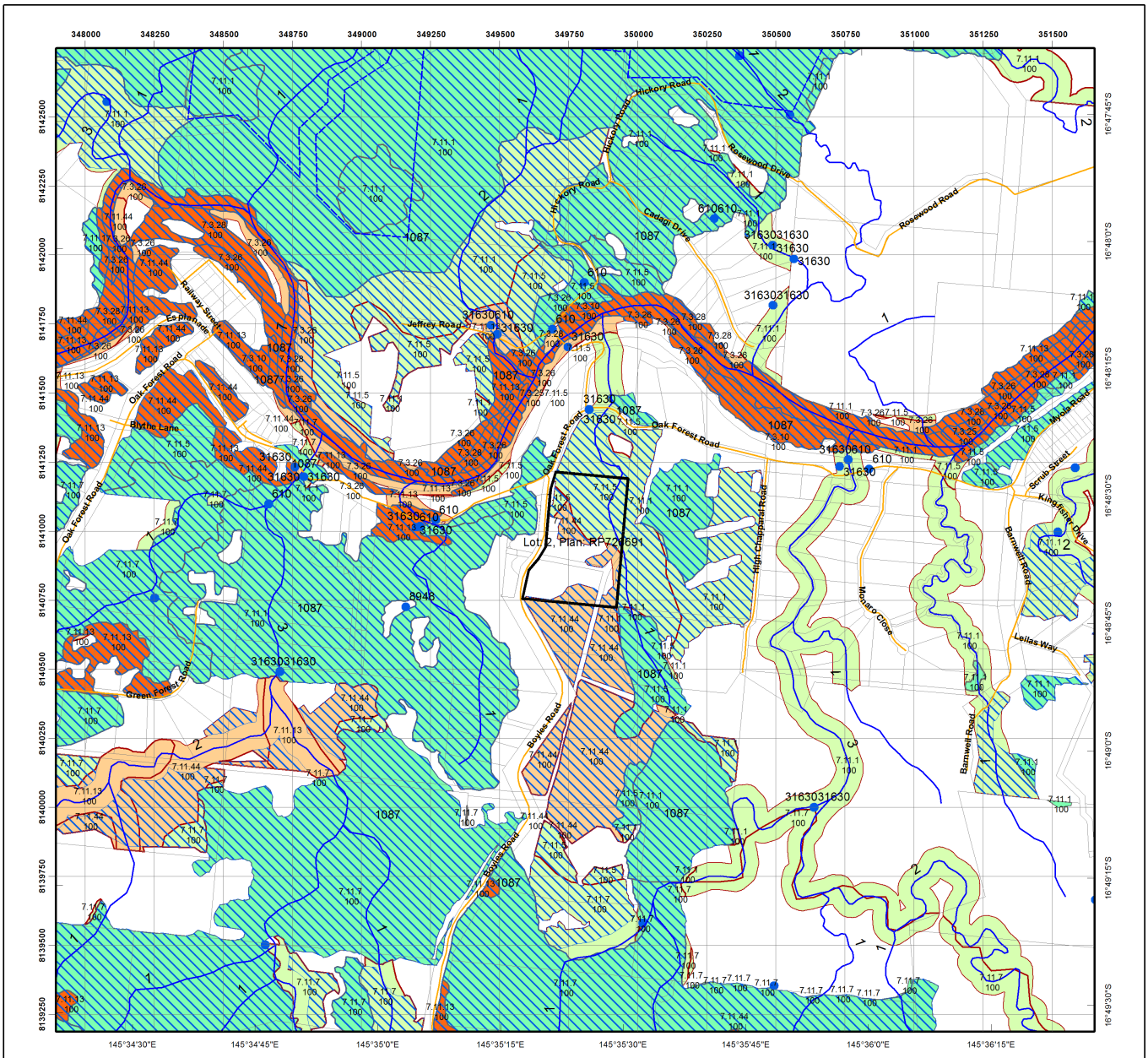
This product is projected into:
GDA 1994 MGA Zone 55



Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

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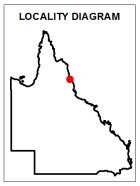
LOCALITY DIAGRAM



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0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 55

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources, Mines and Energy website (http://www.dnrme.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
610	Litoria serrata	tapping green-eyed frog	V	Near rocky creeks but also on overhanging vegetation (especially 1-2m) and forest floor, in wet forest/tropical rainforest/monsoon vine forest including notophyll (simple evergreen & araucarian).	Sea level to 1300m.	None	Near/in streams.
8948	Alpinia hylandii	None	NT	rainforest (mesophyll to notophyll vine forest); tall open forest of Eucalyptus resinifera & Syncarpia glomulifera with dense understorey of rainforest elements	300 to 1100 m	soil derived from metamorphic rock or granite substrates	creek banks, ridges, hillslopes
31630	Litoria myola	Kuranda treefrog	E	Near rocky creeks but also on overhanging vegetation (especially 1-2m) and forest floor, in wet forest/tropical rainforest/monsoon vine forest including mesophyll.	300-400m	None	Near/in streams.

Label	Regional Ecosystem (mandatory unless otherwise specified)
610	7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.16, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.3.50, 7.5.1, 7.5.2, 7.5.4, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.7, 7.8.8, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.33, 7.11.38, 7.11.40, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.49, 7.11.51, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.29, 7.12.33, 7.12.37, 7.12.38, 7.12.39, 7.12.40, 7.12.42, 7.12.43, 7.12.44, 7.12.45, 7.12.46, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.54, 7.12.59, 7.12.61, 7.12.66, 7.12.68
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