PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2017/864

Date: 2 May 2018

Queensland Government

28 SOUTH Environmental

Carseldine Urban Village – 532 Beams Road, Carseldine

Ecological Assessment Report for the proposed Carseldine Urban Village

16 March 2018

Report to the Department of Infrastructure, Local Government and Planning - Economic Development Queensland

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1.0 Introduction

1.1 Economic Development Queensland

Economic Development Queensland (EDQ) is a specialist land use planning and property development unit within the Department of State Development, Manufacturing, Infrastructure and Planning (DSCMIP). EDQ is responsible for the delivery of a range of development projects which facilitate urban and regional renewal and residential projects aimed at responding to an identified need to facilitate growth, affordable housing, employment opportunities and promote further development within Queensland.

Priority Development Areas (PDAs) are regulated under the *Economic Development Act 2012* (ED Act). As such, development within PDAs are not assessable against Local Government planning schemes. Rather, to govern and deliver development within a PDA; a relevant Development Scheme is prepared as the primary mechanism for development assessment. Development Schemes have been prepared with consideration of relevant state and local government legislation, policy and law[1]. The Commonwealth's *Environment Protection and Biodiversity Act 1999* (EPBC Act), other EDQ policies and specific State Government Acts remain applicable to development within PDAs.

1.2 Fitzgibbon Priority Development Area

The Fitzgibbon PDA is located in the north of the Brisbane City Council (BCC) Local Government Area (LGA) and is approximately 295-hectares. The PDA straddles the suburbs of Fitzgibbon, Carseldine, Bald Hills, Taigum and Deagon. The Fitzgibbon PDA is bounded by the Aspley School district to the south, Telegraph Road to the north, Gympie Road to the west and the Gateway Motorway to the east. The location and extent of the PDA is shown in **Attachment 1**.

The overall PDA has been subject to on-going development activities since 2008 which have been mainly focused on the Fitzgibbon Chase residential community development. The Carseldine Urban Village (CUV) renewal was announced on 9 October 2016, as part of the Queensland Government's *Advancing Our Cities and Regions Strategy.*

The PDA includes significant areas bushland and open space which occur in the both the north and south of the PDA and are generally associated with Cabbage Tree Creek and surrounding areas of higher bushland.

[1] For example, Clearing of Regulated Vegetation does not trigger assessment against State Code 16 as all clearing associated with this application is for a PDA-related activity as outlined in Schedule 21, Part 2 (2) (e) of the Planning Reg. To take consideration of this, the Fitzgibbon Development Scheme has identified certain remnant vegetation communities as 'Significant Vegetation and outlined specific criteria for protection of offsets to it.

1.3 Fitzgibbon Development Scheme

1.3.1 Vision

Section 2.2 of the Fitzgibbon Development Scheme (FDS) contains the Vision for the PDA which sets out the strategic direction for the broader PDA, with three distinct areas envisaged being:

- 'Carseldine Urban Village' - Carseldine's "Centro", an active, transit orientated mixed use urban village incorporating substantial bushland and open space;
- 'Fitzgibbon Residential' – Queensland style, some of Brisbane's most affordable and sustainable suburban residential neighbourhoods including substantial bushland and open space; and
- 'Bushland, Sport and Recreation' - the sport and recreational centre of Fitzgibbon including substantial bushland and open space.

Of relevance to this application and report are the CUV and the Bushland, Sport and Recreation areas[2].

As a part of the FDS, a Structure Plan was developed to outline the specific precincts within the PDA. The currently proposed FDS Structure Plan is shown in **Attachment 2**. The Structure Plan illustrates the following key elements:

- An urban village mixed use and activity node focused around the Carseldine Railway Station;
- Residential neighbourhoods along the railway line and adjoining existing residential neighbourhoods to the east of the PDA;
- Substantial bushland and lineal open space areas;
- preservation of proposed busway and railway corridors to enable major infrastructure including a dedicated proposed busway, bus station, and future railway overpasses to service the PDA;
- A north/south connector road from Telegraph Road via Carselgrove Avenue, to Beams Road;
- A mixed-use neighbourhood convenience centre at a key intersection on the north/ south connector road; and
- Other special purpose and rural land.

1.3.2 Priority Development Area Wide Criteria

Section 3 of the FDS sets out the purpose and context of the land use plan, development zones and assessment procedures. The PDA-wide criteria set out within this section identifies the goals applicable to both assessable and self-assessable development within the FDS which includes the Precinct and Sub-Precinct criteria. Within the FDS, numerous precincts have been defined which compartmentalise the PDA into specific areas for development. The FDS Precinct Map is shown in **Attachment 3**. Of relevance to this application and report is Precinct 1, the CUV which is bound: to the north by Beams Road; to the east by the North Coast Train Line; to the south by Cabbage Tree Creek; and to the west by Dorville Road.

[2] Only those Bushland, Sport and Recreation areas within Precinct 1 are applicable to this application and report.

1.3.3 Carseldine Urban Village

As a part of ongoing development and renewal within the PDA, EDQ are proposing to commence the renewal of the CUV. The CUV is in the south of the PDA and is whole comprised of one property described as 532 Beams Road, Carseldine (Lot 322 on SP172124).

The purpose of the renewal of the CUV is to promote the development of future transport orientated development in proximity to Carseldine Train Station and potential future busways; while also stimulating economic growth through commercial, retail, special purpose learning and research areas, enhanced employment opportunities and outdoor recreational and open space areas. As a part of the CUV, large components of key bushland areas will be retained and enhanced through the delivery of the Fitzgibbon Bushland Management Plan (FBMP).

1.4 Proposed Development of the Carseldine Urban Village

EDQ is currently engaged in the application process for a Material Change of Use (MCU), Reconfiguration of a Lot (RoL) and Preliminary Approval for the staged development of the CUV. The proposed development stages and their associated land uses are outlined in **Table 1**. A recent application for a MCU & RoL has been submitted under the FDS for Stage S of the Overall Masterplan. This application is intended to lead the renewal process of the CUV, establishing new Civic and Open Space facilities and stormwater management measures prior to other uses being established. Subsequent applications for Stage 1 and the Overall Masterplan are proposed to follow the Stage S application.

Table 1: Development Stages and Associated Land Uses

Stage	Proposed Land Use(s)
Stage S	- Civic and Open Space - Bushland and Open Space - Existing Carpark Area - New Roads and Parking Bays - Access Easements
Stage 1	- Mixed Use Centre - Mixed Use - New Roads and Parking Bays
Stage 2	- Mixed Use - New Roads and Parking Bays
Stage 3	- Mixed Use - Civic and Open Space - New Roads and Parking Bays
Stage 5	- Mixed Use - Bushland and Open Space - Special Purpose - New Roads and Parking Bays

The proposed Overall Masterplan for the CUV is shown in **Attachment 4**. The location of the CUV with regard to the broader region is shown in **Figure 1**. The location and extent of the CUV boundary in relation to the immediate locality is provided in **Figure 2**.

1.5 Scope and Purpose of this Report

EDQ have previously commissioned significant levels of ecological assessment over the FDS including detailed flora and fauna assessments over the entire CUV[3]. Ongoing ecological assessments and fauna monitoring undertaken by Biodiversity Assessment and Management (BAAM) have occurred periodically within the CUV from 2008 and will continue into the future. The BAAM surveys within the CUV broadly involved: ground-truthing of vegetation communities; searches for threatened flora species, diurnal and nocturnal fauna surveys utilising a range of techniques and the on-going monitoring of nest boxes which have been installed across the CUV and PDA. The extent and level of survey undertaken to date is considered appropriate and sufficient to: determine the ecological values of the CUV; guide impact assessments; and identify management and mitigation measures to be implemented as a part of the renewal process and offsets for development impacts.

EDQ have subsequently engaged 28 South Environmental (28 South) to: review the collated information and results of these assessments; and utilise findings to prepare an Ecological Assessment Report (EAR) for submission as a part of the Stage S Development Application[4] under the FDS. As such, this report relies on the findings outlined within BAAM reports and other ecological studies undertaken within the CUV and FDS. This assessment has also been supported by Site in-field inspections carried out by 28 South over July and August 2017 and February 2018 to review and interpret the findings from the BAAM reports and the proposed Development Application(s).

28 South have also been engaged by EDQ to undertake detailed bushfire hazard assessments and prepare a CUV specific Bushfire Management Plan. This report has been prepared under separate cover and takes into account the management and mitigation measures outlined within bushfire reporting.

The purpose of this report is to provide detailed analysis of the renewal of the CUV; its potential impacts on ecological matters; compliance with relevant environmental planning instruments; and how it will guide development over the CUV in the future. In accordance with the ED Act this application seeks a Preliminary Approval for a MCU and RoL to provide for the Overall Masterplan over the CUV (referred herein as 'the application') however, this EAR is specific to the Stage S Application.

[3] Rowston 2000, Sharpe and Goldingay 2006, BAAM 2008a,b,c, 2010, 2011

[4] We note that this report also makes reference to the future stages and overall masterplan; however, should be read only with reference to the Stage S Application. Future Stage Applications will be subject to further reporting and assessment.

2 Statutory Matters for Consideration

Ecological values and ecologically important areas for CUV have been defined with reference to Federal and State environmental planning instruments. A summary of relevant statutory considerations is provided below.

2.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides the legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. These are defined under the EPBC Act as Matters of National Environmental Significance (MNES). Under the EPBC Act, a referral to the Department of the Environment and Energy (DoEE) is required if the construction or operation of a proposed action (in this instance urban development, civic open space and bushland open space) could cause a Significant Impact on MNES. The determination of whether a Significant Impact will arise is made with reference to the Matters of National Environmental Significance Significant Impact Guidelines 1.1 (DoE, 2013), and other EPBC Act policy statements[5].

A search[6] of the EPBC Act Protected Matters Search Tool (PMST) indicates the potential occurrence of the following MNES in the CUV:

- Listed threatened species and communities; and
- Listed migratory species

A summary of MNES species and communities considered known to, likely to, or potentially occurring within the CUV as identified within BAAM assessments is provided at **Section 5 & 6**. A full list of PMST search results is provided in **Attachment 5**. This assessment has focussed on identifying the presence of threatened ecological communities, and the presence of habitat for threatened and migratory species that may be impacted by future development in the CUV. Consideration of the likelihood of presence has been undertaken to assist in the development of the CUV and how it can avoid, minimise and/or mitigate any potential future impacts through design and management measures.

A search of the Queensland Governments Wildlife Online was also undertaken to determine confirmed records of MNES within a 5km radius of the Site to assist in assessment of MNES. The search also identifies confirmed records of species listed as Endangered, Vulnerable or Near Threatened (EVNT) protected under the *Nature Conservation Act 1992* (NC Act). Results of this Wildlife Online search are provided in **Attachment 6**.

[6] Including significant impact guidelines for individual threatened species, groups of species and threatened ecological communities (refer http://www.environment.gov.au/epbc/publications/guidelines.html).
[6] A 5km radius around the point - -27.35019, 153.02585 was specified on 14/08/2017.

2.2 Matters of State Interest

2.2.1 Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NC Act) remains applicable to all applications under the *Economic Development Regulation 2013* (ED Reg). The NC Act establishes approval triggers and an assessment process for clearing protected plants. The Site is not mapped within a "High Risk Trigger Area". Although the CUV falls outside of this mapping overlay, detailed botanical surveys have been undertaken over the entirety of the Site on a number of occasions to specifically search for threatened flora species.

Potential impacts to fauna species listed under the *Nature Conservation (Wildlife) Regulation 2006* (NC Reg) will also require assessment for any residual impacts created through development. It is noted that regulated vegetation supported within the CUV supports Essential Habitat mapping overlays for Koala. Further assessment of koala has been undertaken and outlined in **Section 6 - 8**.

2.3 Fitzgibbon Development Scheme

The proposed Overall Masterplan for the CUV must be assessed against the FDS. All development within the PDA must align with the ultimate vision outlined in Section 2.2 of the FDS; and generally, accord with the PDA Land Use Plan criteria outlined in Section 3 and Part 3 of the FDS.

With relevance to this reporting, the: Residential; Mixed Use; Bushland and Open Space; and Civic and Open Space Zones within the CUV are applicable for assessment.

2.4 Environmental Values and Sustainable Resource Use

PDA Guideline no. 14 *Environmental Values and Sustainable Resource Use* outlines the values and strategies for protecting the environment and optimising resource use in PDAs. This guideline requires development within a PDA to consider relevant Commonwealth and State Government environmental legislation and planning policies as well as considering the areas noted as being of environmental significance within the PDAs Development Scheme and the inherent environmental values identified within the Site through ecological assessments. This guideline outlines mechanisms by which specific strategies should be developed to manage development and impacts to the environment.

2.5 Development Interfaces

PDA Guideline no. 18 *Development Interfaces* outlines the considerations which development should review during the planning and design phase to ensure that potential impacts are reduced to an acceptable level through a PDA. Development should consider ecological values at the design interface and be informed by ecological assessment.

3 Site Ecological Context

3.1 Historical Aerial Photography and Site Context

A review of publicly available historical aerial photography over the CUV has been undertaken. The CUV and wider locality has been subject to extensive broad scale clearing; however, small components of bushland, most notably along Cabbage Tree Creek have been retained or allowed to regenerate as shown in **Figure 3a** & **b**. A brief review of historical aerial photography from 1946 to current aerial is provided below:

- The 1946 shows that the eastern third of the CUV had been subject to broad-scale clearing and was retained as a cleared open paddock including access to the Cabbage Tree Creek. The higher central third of the CUV was retained in a bushland State; while the western third had been subject to a variety of clearing or thinning activities;

- Imagery from 1951 illustrates that the eastern third of the CUV was maintained in an open grassy state. It is apparent form this image there has been substantial regrowth of vegetation communities in the central and western components of the CUV. The north coast train line which bounds the CUV was established prior to the 1951 image.

- A diagonal strip of clearing is evident in this aerial, occurring from the intersection of Beams and Dorville Road traversing the western and central components of the CUV. Continued regrowth is obvious across the western and central areas of the Site in the 1956 & 1969 images, while continued management of the eastern components is evident.

- The 1981 image illustrates components of the Queensland University of Technology (QUT) campus had been recently established which include buildings, car parks and sporting fields. The establishment of these facilities has resulted in clearing in the central and southern portions of the CUV. Vegetation communities between the campus facilities and Cabbage Tree Creek have been subjected clearing and thinning and the understorey appears to be managed.

- Further expansion of the QUT campus has occurred between 1981 and 1994 with the addition of a small number of buildings in the north-west of the CUV and in the central east and south. It is evident in the 1994 image that an increase in regenerating vegetation in small clumps or strips around the sporting ground and Cabbage Tree Creek in the east of the CUV. A formed pedestrian path is apparent traversing vegetated areas in the south of the site between carparking areas and Dorville Road.

- Current aerial imagery (**Figure 2**) shows that an expansion of the QUT campus has occurred in the central north of the CUV to accommodate a new road, carpark and buildings. The vegetation communities between the campus and Cabbage Tree Creek have regenerated and it appears that these areas have been unmanaged for some time.

3.2 Current Regional Context and Connectivity

The surrounding areas have been subject to intensive urban development which include the establishment of: major rail lines; arterial and local roads; residential, commercial and light industrial development; and associated infrastructure. Connectivity within this highly urbanised setting is typically restricted to vegetated riparian corridors, flood prone lands, council parklands, Boondall Wetlands and bushland open space areas within the PDA.

Higher quality habitats of significance with high levels of connectivity occur within National Parks on ranges in the western components of the region as well as within larger riparian corridors and wetlands in the east of the region. As habitats transition from range areas, vegetated areas become increasingly degraded and fragmented. Those areas immediately surrounding the CUV offer limited well-connected vegetation into and out of the CUV apart from Cabbage Tree Creek. Gympie Road, Doriville Road, Beams Road, dense residential development, and the North Coast Rail Line form significant ecological barriers to fauna movement. The Cabbage Tree Corridor, does however, provide a level of connectivity in this urban setting and fauna movement opportunities are present under and over the linear barriers adjoining the CUV. Cabbage Tree Creek provides one of the only major ecological corridors in the region and opportunity for safe fauna movement and dispersal.

4 Ecological Survey Methodologies

Historical in-field ecological assessments undertaken by BAAM over the CUV were conducted to:

(i) Search for and spatially map any vegetation communities that are analogous with Threatened Ecological Communities (TEC) identified as MNES under the EPBC Act;
(ii) Search for and spatially map any plant species identified as MNES under the EPBC Act;
(iii) Prepare a map of vegetation communities to define the spatial extent of remnant and non-remnant Regional Ecosystems (RE);
(iv) Search for and spatially map any plant species identified as Matters of State Environmental Significance (MSES) listed under the *Nature Conservation (Wildlife) Regulation 2006* (NC Reg);
(v) Assess the CUV to identify habitat types and in-situ fauna habitat values with regard to any fauna species know or likely to occur within the locality which are identified as MNES or MSES;
(vi) Undertake diurnal and nocturnal fauna surveys utilising an array of passive fauna survey methods; and
(vii) Establish and undertake a nest box and squirrel glider monitoring program.

28 South have undertaken further in-field ecological assessments to:

(i) Review and confirm the findings of the aforementioned surveys;
(ii) Review the location of development identified within the Overall Masterplan with regard to ecological features within the CUV; and
(iii) Identify bushfire hazards associated with vegetation types and their orientation within the Site regarding slope and aspect as well as specific management and mitigation measures required.

The below outlines the detailed methodologies undertaken during previous and recent 28 South ecological assessments.

4.1 Desktop Assessments

Environmental mapping, and database searches discussed in **Sections 2.1-2.4** make a significant contribution to desktop assessments. Other database and publicly available sources were also consulted to assist in determining potential ecological constraints and occurrences of MNES and MSES. These include but are not limited to:

- EPBC Act PMST (DotEE, 2017);
- Queensland Wildlife Online database (DSITIA, 2017);
- Atlas of Living Australia[7], (CSIRO, 2017a);

[7] The Atlas of Living Australia is a publicly available database that is populated by a wide range of contributors including 'citizen-based' contributors. The database does not allow for every individual observation to be validated, therefore, this database has been used as secondary supporting information.

- Remnant regional ecosystem mapping Version 8.0 and Essential Habitat Mapping and Database Version 4.0, maps at 1:100 000 scale (DNRM, 2016) shown in **Attachment 7**;
- Protected Plants Flora Survey Trigger Map (DEHP, 2016) shown in **Attachment 7**;
- Geological Survey of Queensland 1:100,000 mapping (DNRM, 2011); and
- Previous ecological survey results undertaken in the CUV.

4.1.1 EPBC Act Listed Threatened Ecological Communities

Database searches identified one critically endangered and one vulnerable Threatened Ecological Communities (TECs) that are listed under the EPBC Act as potentially occurring within the search area, as follows:

- Lowland rainforest of sub-tropical Australia (Critically Endangered); and
- Subtropical and Temperate Coastal Saltmarsh (Vulnerable).

4.1.2 Queensland Regulated Vegetation

The extent and status of the current areas of mapped regulated vegetation are illustrated in **Attachment 7**. A summary of both pre-clearing and current regulated vegetation mapped over the Site is provided in **Table 3**.

Table 3: Regulated Vegetation

Re Type	VMA Class	Short Description	Pre-clear RE Map	Current RE Map
12.3.6	Of Concern	*Melaleuca quinquenervia +/- Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia* open forest on coastal alluvial plains	Yes	No
12.3.7	Of Concern	*Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca* spp. fringing woodland	Yes	Yes
12.3.11	Least Concern	*Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia* open forest on alluvial plains usually near coast	Yes	Yes
12.3.11b	Of Concern	*Eucalyptus tereticornis* and *E. racemosa subsp. racemosa +/- E. siderophloia, Lophostemon suaveolens*, *E. seeana* and *Angophora leiocarpa* open forest often with a dense shrub layer dominated by *Melaleuca nodosa*.	Yes	No
12.5.3	Endangered	*Eucalyptus racemosa subsp. racemosa* woodland on remnant Tertiary surfaces	Yes	Yes
12.5.4a	Least Concern	*Eucalyptus latisinensis +/- Corymbia intermedia, C. trachyphloia subsp. trachyphloia*, *Angophora leiocarpa*, *Eucalyptus exserta* woodland on complex of remnant Tertiary surfaces and Cainozoic and Mesozoic sediments	Yes	No

Queensland Herbarium pre-clear regional ecosystem mapping[8] shows that the in-stream vegetation communities supported RE 12.3.11 in the west of the CUV and RE 12.3.7 in the east. The majority of the alluvial terraces within the CUV were mapped as supporting 12.3.11b with the areas in the east

[8] Sourced from the pre-clear dataset within Queensland Globe.

adjoining the North Coast Train Line are mapped as RE 12.3.6. The higher north-western component of the CUV occurs on Landzone 5 with the mid-slope areas mapped as RE 12.5.3 and the higher ridge being mapped as 12.5.4b.

The current Version 8 RE mapping (**Attachment 7**) illustrates that the vast majority of the eastern and central portions of the CUV do not support remnant regulated vegetation. The lower riparian components of Cabbage Tree Creek are mapped as RE 12.3.7 with fringing alluvial terraces supporting vegetation are mapped as RE 12.3.11. Those higher areas in the north-west of the CUV occurring on Landzone 5 are mapped as supporting RE 12.5.3 with a small area in the extreme north-west being RE 12.5.2.

4.1.3 Significant Flora & Fauna Species

A review of the EPBC PMST results identified that 56 listed flora and fauna species of conservation significance and 39 Migratory fauna species are known or have potential habitat within the search area (**Attachment 5**). Results from records within the Wildlife Online searches (**Attachment 6**) for the CUV indicate that 11 fauna and 5 flora species listed as Endangered, Vulnerable or Near Threatened (EVNT) under the NC Reg or EPBC Act are known from the search area. Conservation significant flora species are discussed in more detail in **Section 5**. Conservation significant fauna species are discussed in more detail in **Section 6**.

4.2 Botanical Survey Methods

The BAAM 2016 flora and fauna assessment utilised the following methods:

> *The vegetation community and flora field components were undertaken on 1 December 2016.*
>
> *Quaternary sites, collected at representative locations throughout the study area, primarily recorded key attributes to rapidly verify existing State mapped regulated vegetation boundaries and regional ecosystem (RE) designations (Neldner et al. 2012), as well as collected botanical data to describe non-remnant/regrowth communities. Quaternary data collection included, but was not limited to:*
>
> - *General information for example date,*
> - *collector and site identifier;*
> - *Notes on species composition and abundance in each stratum;*
> - *Status of vegetation and RE designation (remnant or non-remnant based on field assessment); and*
> - *Weed cover and abundance notes.*
>
> *The information attained through quaternary site data collection informed the verification of any associated, Commonwealth-listed TECs, as well as contributed to an understanding of the relative ecological values across the study area. Collected field data, together with a review of aerial imagery informed assessment of remnant and non-remnant vegetation present within the study area. Locations for potential offset sites and priority areas requiring rehabilitation were also noted, along with the locations of any areas of major weed infestations.*

28 South undertook a number of random meander surveys throughout the CUV to review the information collected through previous ecological surveys and to search for the presence of EVNT flora species.

4.3 Fauna Survey Methods

The BAAM 2016 flora and fauna assessment utilised the following methods:

> *The fauna field components were undertaken on 1 December 2016, involving the following techniques. All site work was performed in accordance with BAAM's Scientific Purposes Permit and Animal Ethics Approval.*
>
> *Diurnal Surveys*
>
> *The subject site was assessed in terms of fauna habitat values, focusing on determining values for species of special conservation significance. Birds were surveyed and identified throughout the survey period from either direct observation or their characteristic vocalisations.*
>
> *Investigation of ground layer (under logs, rocks and leaf litter) and low vegetation (under bark and in tree stumps) was undertaken for amphibians, reptiles, bats and animal signs, e.g. scats, owl pellets, orts (bird feeding remnants), remains and tracks.*
>
> *The locations of any animal breeding places and other notable habitat features was also noted.*
>
> *Nocturnal Survey*
>
> *A combination of high-powered spotlights and head torches and were used to sample nocturnal mammals (flying, arboreal and terrestrial), birds (owls and nightjars), reptiles and frogs within the subject site.*
>
> *An Anabat detection unit was deployed during the nocturnal survey to record the presence of microbats across the site.*

28 South undertook a number of random meander surveys throughout the CUV to review the information collected through previous ecological surveys.

4.4 Survey Limitations

Ecological survey often fails to record all species of flora and fauna present in a CUV for a variety of reasons, including seasonal absence, migratory patterns, cryptic behaviours, temporal survey periods, population fluctuation or reduced flowering during certain seasons. Furthermore, the ecology and nature of some significant and/or cryptic species means that such species are potentially not recorded during short survey periods. Botanical and fauna habitat assessments undertaken for the CUV have overcome some of these limitations by: i) undertaking numerous studies over long temporal periods; and ii) identifying those species that were not recorded but still considered to have a potential of being present (based on: known distribution; habitat availability within the Site; and habitat associations of species).

The extent and level of survey undertaken to date is considered appropriate and sufficient to determine the ecological values of the CUV, guide impact assessments and identify management and mitigation measures to be implemented as a part of the renewal process.

5 Flora Survey Findings

5.1 Threatened Ecological Communities

No TECs were detected within during in-field site assessments. It is considered that the location and habitats present within the CUV are not appropriate to have supported either of the identified TECs noted within the EPBC PMST (**Attachment 5**).

5.2 Regulated Vegetation

Ground-truthing surveys undertaken by BAAM confirmed the presence of regulated vegetation as defined under the VM Act within the CUV. This regulated vegetation correlates with four remnant REs, which includes: two RE that have a Vegetation Management Act Class of Endangered (RE 12.5.2 & 12.5.3); one that is currently Of Concern (REs 12.3.11); and one that is currently of Least Concern (REs 12.3.7). The findings from these surveys agreed with the regulated vegetation mapping designations; however, identified that the boundaries and extent differed from those on state mapping (**Attachment 7**).

The location and extent of these communities were spatially mapped by BAAM and are shown in **Figure 4**[9]. Botanical detail of the BAAM ground-truthed vegetation community mapping is found in **Attachment 8**. A summary of their position and extent within the Site is provided below.

- A small area on the north-westerly facing mid slope in the north-western corner of the Site is considered remnant regulated vegetation analogous with the Endangered RE 12.5.2. This patch occurs as a stand of early mature to mature mixed sclerophyll open forest over a maintained grassy lawn. A small detention basin has been established within this community at a low point in the northern extents.
- The higher and mid-slope areas which occur in the west of the CUV support patches of vegetation analogous with the Endangered RE 12.5.3. These patches occur with variable understorey condition, much of which occurs as maintained lawn around the QUT campus, road or car parking; however, a consolidated parcel in the central areas of the CUV supports a more complex floristic structure including sub-canopy, shrub and native ground layers.
- The higher alluvial terraces of Cabbage Tree Creek in the south of the CUV support patches of vegetation analogous with Of Concern RE 12.3.11. These patches are highly variable in structure. A moderate parcel of this occurs as advanced regrowth; however, is not considered to be remnant. Other parcels of this community occur adjacent to carparking areas and sporting fields and occur over maintained lawn. Two larger parcels directly adjoining Cabbage Tree Creek are however considered remnant with a higher quality vegetative structure. Numerous formed and unformed walking tracks/trails occur within these communities, most over which are subject to regular maintenance.
- The lower riparian components of Cabbage Tree Creek which occur along the southern extent of the CUV were identified as supporting Riverine Open Forest communities which the majority was identified as being analogous with RE 12.3.7. Smaller areas in the far south-east

[9] The spatial extent of this mapping has relied on those supplied by BAAM to EDQ as a part of their ecological assessment.

of the CUV did not meet remnant status criteria, with some sections supporting non-remnant closed forest.

Areas of native regrowth vegetation and scattered mature trees occur across the CUV as illustrated on the aerial imagery in **Figure 2**. The majority of higher quality vegetation within the CUV occurs in remnant communities in the south and west of the Site. The remaining areas of visible vegetation take the form of scattered regrowth trees or landscaping.

5.3 Conservation Significant Flora

Of the 5 significant flora species identified through desktop searches (**Attachment 6**), one was historically identified during survey efforts. The most recent BAAM survey was unable to relocate the specimen of macadamia nut (*Macadamia integrifolia*) listed as Vulnerable under the NC Reg. This individual was recorded as an isolated shrub in the extreme south-east of the CUV within the Cabbage Tree corridor as shown on **Figure 4**[10]:

No other EVNT flora species listed in **Attachment 5** & **6** are expected to occur within the CUV due to the habitats supported and the lack of records from historical and recent surveys.

5.4 Exotic and Pest Flora

Ecological surveys undertaken by BAAM and 28 South have identified that exotic flora species occur across most areas within the CUV; however, large infestations of exotic pest flora are found within Cabbage Tree Creek. Both camphor laurel (*Cinnamomum camphora*) and Chinese elm (*Celtis sinensis*) were prevalent throughout the riparian corridor; however, become dominant in areas to the south of the CUV and within its lower south-eastern riparian corridor. Recent surveys undertaken by BAAM noted the presence of the following pest flora species as listed under the Queensland *Biosecurity Act 2014*:

- Basket Asparagus Fern (*Asparagus aethiopicus*) – Category 3;
- Climbing Asparagus Fern (*Asparagus africanus*) – Category 3;
- *Macfadyena unguis-cati* - Category 3;
- Camphor laurel – Class 3 weed;
- Chinese elm – Category 3;
- Lantana (*Lantana camara*) – Category 3;
- Creeping Lantana (*Lantana montevidensis*) – Category 3; and
- Singapore Daisy (*Sphagneticola trilobata*) – Category 3.

The location of weed species noted above are outlined within **Attachment 8**; however, most of the remnant vegetation communities within Cabbage Tree Creek or its alluvial terraces support a variety of the above species.

[10] The historical location of this individual was has been has relied on those supplied by BAAM to EDQ as a part of their ecological assessment

6 Fauna Assessment

6.1 Fauna Habitat Assessment

The CUV supports a variety faunal habitat ranging from: close riparian forest dominated by dense pest flora infestation; to native remnant open forest; to maintained sporting fields; to urban infrastructure. Contextually, the bushland habitats within the CUV provide higher quality and connective habitat within a highly urbanised setting.

As outlined within **Section 3** many areas of the CUV and much of the surrounding region have been subject broad-scale land clearing for agriculture and more recently urban development. This extensive clearing is likely to have caused the reduction of native fauna abundance, particularly many forest dependant or cryptic fauna species. Existing ecological barriers surrounding the CUV would also provide significant impediments for the re-establishment of some fauna species. Contextually, Cabbage Tree Creek forms one of a small number of major ecological corridors within the region, connecting larger remnants in the west to expansive wetlands and Moreton Bay, increasing its importance to fauna within the region.

Vegetated areas within the CUV have varying degrees of structure, density and quality. The riparian vegetation communities associated with Cabbage Tree Creek and its alluvial terrace are generally well structured; however, do support high levels of weed incursion and numerous maintained access tracks. Remnant vegetation found in the central component of the CUV on higher land are more reflective of relict vegetation communities supporting well-structured native canopy, shrub and ground layers. Vegetation communities supported in the north-west of the Site support good canopy strata; however, lack a shrub layer and occur over maintained lawns or carparking areas. Regardless of the vegetative complexity of these communities, it would be considered that internal connectivity within the CUV remains relatively unimpeded, particularly for avian and arboreal species. Terrestrial connectivity is however, impacted to an extent through a reduction in vegetative strata, particularly in proximity to carparks, buildings and open space areas.

A variety of important ecological features are present within the remnant areas of vegetation within the CUV. Large relict and older regrowth trees were observed to support a wide variety and abundance hollow bearing features. Hollows are an important resource for many native fauna species for denning and breeding purposes. The floristic arrangements within the vegetated areas of the CUV also provides a range of seasonally important foraging resources including foliage and flowering resources. Of particular note, there is an abundance of winter flowing flora species (e.g. Queensland blue gum (*Eucalyptus tereticornis*)) which provide foraging resources during winter and spring when bottlenecks have been identified.

6.2 Fauna Species of Conservation Significance

Detailed fauna surveys undertaken by BAAM have identified the presence of one fauna species listed under the NC Reg. The tusked frog (*Adelotus brevis*) was identified within the Cabbage Tree Creek riparian corridor on the southern boundary of the Site. Surveys also identified the presence of squirrel glider (*Petaurus norfolcensis*) occurring throughout the CUV. Although the squirrel glider is listed as common fauna under the NC Reg, this species has been identified as a locally important species within

the FDS. Other species outlined within the BAAM assessment as potentially occurring within the CUV include: koala (*Phascolarctos cinereus*); grey-headed flying-fox (*Pteropus poliocephalus*); and powerful owl (*Ninox strenua*). These fauna species have been considered in more detail below. Habitats within the CUV also support a wide variety of common native and exotic fauna.

BAAMs collective fauna surveys identified the presence of five amphibian, four reptile, four fish, sixty five avian and eleven mammal species. This sweet of species was comprised of one native fauna species listed under the NC Reg (tusked frog), eight exotic fauna species and eighty common native fauna species. It is expected that a wider suite of common fauna species may over-fly, move through or utilise the CUVs habitats at some point, particularly mobile and robust fauna species.

6.2.1 Koala

The CUV has Essential Habitat mapping (**Attachment 7**) for koala and the majority of bushland areas are comprised of primary and secondary feed trees. Despite this, it is considered unlikely that koala would occur within the CUV.

Previous and recent surveys undertaken across the CUV by BAAM failed to detect the physical presence or passive presence of koala (e.g. scat surveys). No records of koala are noted on Atlas of Living Australia in proximity to the CUV, with records in the broader urban region being restricted to larger areas of remnant vegetation to the west of Gympie Road and east of the Gateway Motorway.

Significant ecological barriers to koala movement such as large arterial roads, dense urban development and major rail lines are a common occurrence within the immediately locality to the CUV. The CUV is bound to the east by the North Coast Rail Line and to the north by Beams Road; further to the west Gympie Road occurs as a six-lane arterial road with a major intersection with Zillmere Road occurring adjacent to the Cabbage Tree Creek Crossing.

Due to these ecological impediments and limited habitat availability apart from vegetated riparian corridors such as Cabbage Tree Creek, it is considered unlikely that koala would only occur in very low densities in locality, if at all. An assessment of the CUV against the Koala is provided below:

1. **Koala Occurrence**
    - No evidence of koala was detected within the CUV. No records of koala within the CUV or immediately adjoining areas are known from the last 5 years.
    - **Score = 0**
2. Vegetation Composition
    - Much of the remnant vegetation within the CUV aligns with forest or woodland with 2 or more koala food trees.
    - **Score 2**
3. **Habitat Connectivity**
    - The site is not located within a contiguous landscape, and occurs in a highly fragmented densely urbanised setting.
    - **Score 0**
4. **Key Existing Treats**
    - The CUV has scored a 0 for Koala occurrence and has a significant amount of dog, vehicle and train presence.

- **Score 0**

5. **Recovery Value**
   - The habitats within the CUV are surrounded by dense urban development with numerous ecological impediments immediately surrounding them. Further no Koala records in the immediate locality are known. It is unlikely that these habitats will be important for achieving the interim recovery objectives for coastal koala communities.
   - **Score 0**

This assessment identifies that the total score for koala habitat assessment is 2. Based on this score the Site does not support habitat critical to the survival of the Koala and does not require referral.

6.2.2 Grey-headed Flying-fox

Historical surveys undertaken by BAAM identified a flying-fox camp in the southern reaches of the CUV and beyond. Recent surveys undertaken by BAAM failed to detect the presence of this camp or characteristic vocalisations of flying-foxes in this locality. Flying-fox camps are often seasonal and can be re-colonised during breeding or non-breeding seasons. Due to this, there is potential for flying-foxes to return to this historical camp at some point, particularly during the winter bottlenecking period when abundant foraging resources would be present within the CUV. It is likely that the grey-headed flying-fox would forage throughout the bushland areas of the CUV when they are available and abundant. Should a flying-camp be re-colonised, it is also likely that grey-headed flying-fox would be present. A review of the proposed CUV development and likely rehabilitation measures in bushland areas to the south of the Site against the Referral Guidelines for management action in grey-headed and spectacled flying fox camps and its outcomes are provided below:

1. Is the camp a Nationally-important Camp
   a. A review of the DotEE interactive flying-fox viewer does not identify a Nationally-important Camp within or in proximity of the CUV or locality.
   b. The camp is not permanent. As such, the camp, when active would have needed to support >10,000 individual grey-headed flying foxes in more than one year, in the last 10 years. Given the urban nature of the locality it is likely that such a large number of grey-headed flying fox would have been noted and the locality be identified on the DotEE interactive flying-fox viewer.
2. Will the CUV and associated rehabilitation have an impact on the camp
   a. The proposed development areas within the CUV are well removed from historical camp areas and well screened by bushland areas.
   b. The proposed rehabilitation works could be considered in-situ management of roosts; however, the intention of rehabilitation is for the betterment of those areas. As such, any actions required from necessary rehabilitation the CUV should avoid roost areas. If rehabilitation is required proximate to the roost a specific flying-fox management plan will be developed to govern works. Impacts can be avoided through staging of rehabilitation works outside of active roost periods.

Given: any temporal flying-fox camps can be completed avoided through specific management measures; there is limited impact to flying-fox foraging resources in an urbanise environment it is

considered that the CUV and any associated rehabilitation works will not give rise to a significant impact to grey-headed flying fox or any nationally important camps.

6.2.3 Tusked Frog

The tusked frog occurs in a variety of habitats ranging from rainforest to dry eucalypt forest. The tusked frog inhabits a variety of habitats which include creeks, rivers, dams and even man-made structures. Rowland (2013) notes that tusked frog occurs in farm dams and garden ponds such as drains and pipes. The tusked frog has a preference for areas of permanent water with abundant debris or emergent aquatic growth; as such, most of the aquatic environments and immediate surrounds found within the CUV are considered potential habitat; however, stormwater infrastructures which are heavily fragmented from Cabbage Tree Creek (e.g. north-western corner of the CUV) and area surrounded by augmented open forest with cleared maintained understoreys are less likely to support this species.

6.2.4 Powerful Owl

Powerful owl is known to preference denser mesic habitats which provide diurnal shelter from weather conditions and aggressive diurnal avian species which mob roosting owls[11]. Surveys identified suitable denser mesic habitats was present within Cabbage Tree Creek. Atlas of Living Australia identifies records of this species on Cabbage Tree Creek in neighbouring suburbs to the west of Carseldine.

Given: i) the presence of suitable foraging habitat; ii) prey species (e.g. gliders, flying-fox etc.); iii) connectivity along Cabbage Tree Creek; iv) the mobility of the powerful owl; and v) relatively proximate records of the species, there is a likelihood that this species would forage within CUV on occasion.

Although suitable habitat and prey for the powerful owl is present within the CUV, given: i) the highly urbanised nature of the locality; ii) the thin nature of the Cabbage Tree Corridor; and iii) the size of a powerful owl home range (400-4000ha), it is unlikely that the bushland habitats would form a core component of habitat for powerful owl. It likely that these habitats would only form a small component of powerful owl foraging resources throughout a much broader urban setting and peri-urban areas further west.

6.2.5 Squirrel Glider

The most recent BAAM surveys detected squirrel gliders at six locations throughout the CUV. Previous surveys undertaken by BAAM and other ecological consultants also recorded squirrel gliders within the CUV and surrounding areas. 28 South have undertaken numerous trapping surveys in habitat proximate to the CUV (including surveys immediately to the west of the Site within Cabbage Tree Creek) which also detected the presence of squirrel glider.

[11] Parvey et al. (1998) suggests that powerful owl prefer rooting in rainforest to open forest even though its extent in the landscape was much less abundant, this is due to the reduction in rate of mobbing by other smaller bird species.

The majority of sightings during the most recent BAAM surveys were restricted to the vegetated areas on the higher alluvial terrace of Cabbage Tree Creek, with other less frequent observations from the north / north-west of the CUV. As previously noted, the CUV supports important ecological features which are important for many native fauna species, particularly squirrel glider. Both hollow bearing trees and winter flowering resources are important elements to sustaining squirrel glider populations.

BAAM note that no squirrel glider records were obtained from the lower riparian areas within the CUV. Research into squirrel glider ecology indicates this species' prefers habitats aligned with drier eucalypt forests and woodland types with one or more species of iron-barked eucalypt (BAAM 2017, Menkhorst *et al*. 1988 and Rowston 1998).

It is considered that squirrel gliders will occur throughout all vegetated areas of the CUV. While not preferring wetter riparian habitats, these form the only viable movement corridors out of the CUV to the east and south-west as well as to the south of Cabbage Tree Creek to similar habitats between the CUV and Little Cabbage Tree Creek.

7 Ecological Impacts, Mitigation and Management Strategies

7.1 Remnant Vegetation Communities

The vast majority of the Overall Masterplan has been focused on establishing development areas, particularly dense urban uses in the north-east of the CUV. Other denser urban uses are also proposed for the central northern areas around the existing child care and east of existing facilities in the west of the CUV. For the most part the Overall Masterplan will avoid areas of remnant vegetation communities. Where impacts are proposed, they are minor and recoverable through the required rehabilitation within the CUV. Given the Overall Masterplan has first taken advantage the larger cleared playing fields it has generally followed the 'avoid, minimise and mitigate' principal.

To establish the level of impact on remnant vegetation communities, a comparison of the Overall Masterplan (with a focus on Stage S in this reporting) is shown in **Figure 5**. With regard to impacts on remnant vegetation communities supported in the CUV and the Overall Masterplan (Stages S, 1 – 3 & 5): 94% is sited in existing cleared areas; and 6% impacting areas of well vegetated or remnant vegetation.

To compensate for the loss of remnant vegetation communities and the habitats supported within them, ecological restoration works should be undertaken through the retained bushland areas. Ecological restoration works should aim to re-establish and/or promote the re-establishment of endemic regional ecosystems in accord with the FBMP.

7.1.1 Stage S

With regard to impacts on remnant vegetation communities supported in Stage S: 94% is sited in existing cleared areas; 6% is sited in RE12.3.11.

The works associated with Stage S development application will require rehabilitation to compensate for the loss of Significant Vegetation totalling 0.2584ha, which in this instance takes the form of RE12.3.11. Per the FBMP, this rehabilitation is requiring a ratio of 2:1, resulting in a requirement for an area of rehabilitation totalling 0.52ha. Compensatory works can be acquitted through revegetation along the eastern banks of Cabbage Tree Creek in non-remnant communities (Vegetation Community 9 – **Figure 5**).

7.2 Threatened Flora Species

Recent surveys have not been able to be relocate the historically noted macadamia nut tree which was previously found within the Cabbage Tree Creek Corridor. Despite numerous botanical surveys undertaken over the Site, no further threatened flora species have been detected within the CUV. Given the locality, habitats present within the CUV and lack of threatened plant records in the locality, it is unlikely that any species identified through desktop survey would occur within the CUV. Further, the proposed Overall Masterplan typically avoids habitats which support a diverse floristic structure that would have a higher likelihood of supporting cryptic threatened flora species.

7.2.1 Stage S

As noted above, no threatened flora species were noted within the CUV and as such none were recorded within Stage S. It is unlikely that any threatened flora species will be impacted within the Stage S areas.

7.3 Threatened Fauna Species

7.3.1 Koala (EPBC and NC Act)

As outlined within **Section 6.2.1** evidence of koala was not detected within the CUV and no records of koala are noted from the immediately surrounding area. Despite suitable habitat for koala being supported within the CUV, it has been determined that habitats within the Site do not constitute that of habitat critical to the survival of the koala. Further, it is unlikely that koala would be present due to the significant ecological barriers present within the CUV and locality. As such the proposed establishment of the Overall Masterplan, and specifically the establishment of Stage S is unlikely to impact koala; and is not considered the development of the CUV warrants a controlled action referral to the Commonwealth DotEE.

7.3.2 Grey-headed Flying-fox (EPBC Act)

It is likely that the grey-headed flying-fox would forage over the CUV, particularly during periods where foraging resources area abundant (e.g. winter). The historically identified flying fox camp which was noted as occurring in the southern extremes of the CUV was not detected during recent BAAM surveys. It is likely that this camp site is seasonal and that grey-headed flying-fox is likely to utilise the camp periodically.

The proposed Overall Masterplan, including Stage S will result in the loss of foraging resources for this species; however, the retention of the vast majority of bushland areas and the provision of ecological restoration within bushland areas would ultimately compensate for lost vegetation and improve the quality of retained vegetation. Impacts to the seasonal camp are unlikely to occurs as no works are proposed in proximity to these areas. Rehabilitation and management works may be proposed and/or required in proximity to camp locations. Any works in these areas will be governed by the prepared FFMP for the location and can avoid impacts to the camp area or undertake works when the camp is not present.

As such, is not considered that the proposed development warrants a controlled action referral to the Commonwealth DotEE to obtain a decision on whether the project is a controlled action under the EPBC Act with regard to grey-headed flying-fox or nationally important camp impacts.

The Stage S component of the Overall Masterplan similarly does not warrant a controlled action referral.

7.3.3 Tusked Frog (NC Act)

The tusked frog was detected during ecological surveys within Cabbage Tree Creek in the south of the CUV. The proposed Stage S components of the Overall Masterplan will have the potential to create

impacts to suitable habitats for this species where stormwater outlets are proposed. This can be managed through best practice civil engineering and contemporary stormwater management measures. Indirect impacts to this species could arise from sedimentation or erosion caused by development within the Overall Masterplan. This however, can be avoided through the use of best practice, contemporary stormwater management practices, water sensitive urban design and erosion and sediment control measures such as those identified in the International Erosion Control Association (IECA) guidelines. Further, ecological restoration works within the bushland areas and within the riparian zone of Cabbage Tree Creek provides opportunity for the development of the Overall Masterplan to improve tusked frog habitat.

The submitted Stage S development application is unlikely to result in significant impacts to the tusked frog.

7.3.4 Powerful Owl (NC Act)

There is a possibility that the powerful owl may forage within the CUV. This is due to: the presence of suitable prey species; and the connectivity of Cabbage Tree Creek with larger core habitat areas to the west. Given the paucity of records within the immediate locality of the CUV, it is unlikely that this area forms a core component of powerful owl habitat; however, may be a periodical foraging resource. Although the presence of larger hollows occurs within the CUV it is unlikely that powerful owl would breed within the CUV due to its highly urban nature and detectability nesting sites.

The proposed Overall Masterplan will result in the removal of a very minor component of potential powerful owl foraging resources and/or home range; however, is unlikely to result in a significant residual impact on this species due to the minor level of potential impact on foraging resources or breeding habitat.

Similarly, the submitted Stage S development application is unlikely to give rise to a significant residual impact powerful owl.

7.3.5 Squirrel Glider (FDS)

The Overall Masterplan (including the Stage S development application area) will result in the loss of squirrel glider foraging and potential denning habitat. Impacts to bushland habitat and potential denning hollows is shown in **Figure 6**. The proposed extent of bushland loss within the CUV may have longer term effects to the existing squirrel glider population due to a reduction in: foraging resources; denning opportunities; and movement opportunities. Secondary impacts from urban development (encroachment, light spill, cats etc.) may also lead to longer term effects to the existing population.

To comply with the vision of the FDS, any subsequent development within the CUV must contribute to the protection and enhancement of existing bushland areas through the FBMP. Further, development must contribute to the improvement and maintenance of existing corridors within and outside of the CUV such as to the east and west along Cabbage Tree Creek. Secondary impacts should be considered within development through design and verge interfaces. Items such as esplanade roads, landscaping and lighting (residential and street) should have consideration of squirrel glider to avoid unnecessary impacts (e.g. low emission and directed LED lighting, screens, forging resources within landscaping etc.)

Squirrel gliders utilise hollow bearing trees and live in communal family groups. As such numerous denning opportunities are required for the sustainability of family groups through the landscape. The proposed Overall Masterplan will result in the removal of approximately 24 habitat trees within the CUV[12]. It is noted that arboricultural assessment and construction methods may significantly reduce this number; however, detailed drawings of civil works and services are not available at the time this reporting has been authored. The detailed Fauna and Flora Management Plan (FFMP) prepared for each Stage will outline this.

Although BAAM has undertaken detailed surveys to located habitat trees (which provides a solid base line of information), hollows are often missed during terrestrial surveys or those observed may not be suitable as habitat features (i.e. very shallow, splinted, facing directly upwards or not a hollow at all).

The removal of existing foraging resources from the CUV and the establishment of urban uses may result in the reduction of movement and dispersal opportunities in the northern components of the CUV. The focus of development areas has, for the most part been in areas of existing clearing; however, small areas in the south of Stage S will require clearing to establish stormwater outlets. The Stage S development will establish civic open space and stormwater management within areas of bushland adjoining Cabbage Tree Creek (**Figure 6**). This will result in the loss of a small area squirrel glider foraging habitat and potential denning features. Compensatory revegetation within the higher banks and terraces areas along Cabbage Tree Creek can re-establish squirrel glider foraging habitat. The works associated with Stage S must establish a minimum of 9 nest boxes to compensate for the loss of habitat trees.

Mitigation measures to potential impacts for squirrel glider can assist to avoid and minimise direct and secondary impacts. To assist in on-going movement opportunities for squirrel glider within and external to the CUV, a detailed FFMP should be prepared for the development phases of CUV and be based on the ultimate goals of the FBMP. This should outline detailed rehabilitation works and management units within the CUV or broader areas within the PDA. This will: establish proposed management and mitigation measures and responsibilities; location of works; vegetation management plans; and fauna management practices and maintenance measures going forward.

Any proposed landscape plans should also consider squirrel glider and utilise native endemic feed species. Movement corridors both over internal roads and Doriville Road should also be a focus of the FFMPs, identifying the requirements for rehabilitation around each crossing and any necessary fauna movement structures.

7.4 Mitigation and Management through Ecological Restoration Strategies

As outlined in the FBMP, there is significant opportunity to improve habitat quality and connectivity between remnant and non-remnant bushland areas of the CUV and broader PDA through ecological restoration works. Improving the quality and filling in obvious gaps in the context of retained bushland

[12] Numbers will be subject to final civil design and on-ground clearing assessment works which may identified more or less hollows than terrestrial surveys have.

will enhance the level and quality of connectivity through the CUV and PDA and into the surrounding habitats.

Specific mitigation and management strategies to the CUV include the provision of fauna movement measure such as: glider poles (both high and low poles); rope bridge crossings; nest boxes; and suitable launch points at the North Coast Rail crossing, Dorville Road crossing, internal CUV road crossing (between areas bushland habitats/corridors); will assist in improving connectivity through the CUV and to adjoining habitats. The establishment of a wide variety of nest boxes throughout the bushland areas of the CUV, with a focus on the southern and central bushland areas will provide a level of denning and breeding habitat for hollow dependant fauna.

Where development works have exhausted ecological restoration measures within the CUV, the Bushland and Open Space areas within the north of the PDA may present further opportunity to acquit restoration requirements. Further, State, Brisbane City Council controlled or private land in proximity to the PDA/CUV should be targeted to localise works and benefit local ecological systems, particularly those to the south of the CUV and along Cabbage Tree Creek as outlined within the FBMP.

7.4.1 Ecological Restoration Strategies

Section 3.11 of the FDS identifies that where significant vegetation is cleared, development will be required to rehabilitate land in the Bushland and Open Space zone in accordance with the FBMP and site specific strategies. Ecological restoration should focus on establishing or remediating endemic ecosystems within remnant and non-remnant bushland areas. A mixture of landscape embellishment, assisted natural regeneration and ecological restoration strategies will be engaged throughout bushland areas as shown in **Figure 7** and governed by Stage specific strategies in each FFMP.

Works will aim at reducing weed abundance while promoting a diverse native floristic arrangement, with a particular focus on establishing endemic species that provide variable seasonal foraging resources and habitat amenity for targeted species. Winter flowering species are especially important for fauna within the locality, particularly squirrel glider, parrots and flying-foxes. Works must avoid any temporal flying-fox camps that may establish periodically.

A detailed FFMP, specific to each component of development or Stage within the CUV will be prepared as a part of the Operational Work Approval process. All FFMP will build on the requirements for rehabilitation within the existing FBMP; however, provide finer levels of detail with regard to:

- identification of project management responsibilities and timeframes;
- location and description of all vegetation to be retained and that is to be removed including appropriate maps and area calculations which will clearly demonstrate complacence with the FBMP;
- provide a tree retention plan identifying the trees to be retained, i.e. the extent of works measures used to protect retained vegetation including individual trees and specific habitat trees on the verge of development areas (within 20m either side of this verge);
- measures to manage habitat loss and fauna within areas to be disturbed, i.e. sequential clearing practices and use of Department of Environment and Heritage Protection certified fauna spotter/ catchers;

- specify the detailed requirements and strategies to achieve the rehabilitation outcomes in the Bushland and Open Space zone in accordance with this FBMP;
- non-remnant vegetation within the Cabbage Tree Creek corridor and its habitat and wildlife movement corridor values within the CUV;
- remnant vegetation within the Cabbage Tree Creek corridor and its habitat and wildlife movement corridor values within CUV;
- the Cabbage Tree Creek corridor and its habitat and wildlife movement corridor values adjacent / to the south of the CUV in consultation with land owners and by agreement;
- non-remnant vegetation in other Bushland and Open Space zoned areas or Civic and Open Space areas within the PDA (i.e. within Precinct 4 or 6)

Fauna habitat impacts must be quantified, and nest box replacement strategies outlined within each FFMP. Fauna movement measures relevant to the FFMP must also be outlined. A basic overview of opportunities and strategies for restoration works is provided in **Figure 7**. It is also recommended that landscaping treatments through the Overall Masterplan and in particular Stage S, particularly verge areas should be incorporated into each FFMP.

Table 1 of the FBMP identifies the ratios required for rehabilitation with regard to 'significant vegetation'. The FFMP(s) prepared for development of stages within the CUV should refer to these requirements to identify the level of rehabilitation required. The FBMP notes that *within Precinct 1 a minimum of 50 per cent of the offset area is to include revegetation and rehabilitation of non-remnant vegetation.* Should rehabilitation works require extra land outside of that within bushland areas of the CUV, Bushland areas in the north of the broader PDA are to be the first area targeted for works, followed by adjoining government owned land.

7.4.2 Fauna Movement Management and Strategies

Cabbage Tree Creek provides a significant urban ecological corridor connecting habitats to the east and west of the CUV. Bushland habitats occurring within the CUV remain connective with those supported along Cabbage Tree Creek. Areas surrounding the CUV to the north-west, north and north east do not support any habitat features of significance and present limited opportunity for fauna movement outside of common robust fauna, particularly avian species.

As a part of the FDS and FBMP, fauna movement measures are required as a part of ongoing development. The FDS notes that: '*Bushland and open space areas will support wildlife movement and will have a strong connection with existing corridors and habitat beyond the PDA and also function as a system of parks accommodating a range of active recreational uses*'. To retain and promote habitat amenity for native fauna residing: within; moving through; or utilising bushland habitats within the CUV, the following strategies are require:

- the establishment of a range of nest boxes throughout retained areas (a minimum of one nest box per hollow impacted);
- installation of glider poles with launch structures;
- rope bridges; and
- ecological restoration works.

Collectively these measures and strategies aim to retain and improve a level of connectivity throughout and external to the CUV. Squirrel gliders are a key focus of fauna movement and bushland regeneration measures within the CUV. The FDS recognises the importance of squirrel glider within the CUV and surrounding habitats. Works to improve fauna movement within and outside of the CUV will afford a level of benefit for many other native fauna species. Specific fauna movement measures and strategies within the CUV area outlined in the below sections.

7.4.3 Internal Fauna Movement Measures and Strategies

The proposed Overall Masterplan will result in the establishment or continued use of roads and pedestrian paths which traverse bushland and open space areas that support fauna habitat, most notably Stages S (**Figure 8**). In order to provide and promote continued fauna and in particular glider movement, fauna road crossing measures should be installed at a minimum of three-four locations as shown in **Figure 8**. The main crossings in Stage S / Bushland and Open Space Zone should focus on establishing denser mid storey of glider foraging species (e.g. endemic banksia, melaleuca and acacia species) and glider launch poles. If practical to install, rope bridges will assist with other arboreal fauna movement between bushland areas.

The other two crossings points are located over the existing driveway in the central west of the CUV. Although not connecting larger components of bushland, by improving opportunities for fauna to move along this corridor, it will provide a connection to foraging and other resources retained in the north-western corner of the CUV and dispersal options. Crossings in these locations should focus on establishing canopy movement and refuge through the installation of nest boxes and if necessary establish poles for glider launch points. The thin linear strip of Bushland and Open Space adjoining Dorville Road should be planted out with mid-storey glider forging species. This will improve the habitat amenity of this corridor and the visual amenity from Dorville Road.

7.4.3.1 Island Plantings and Landscaping Strategies

Within the Overall Masterplan, there is opportunity to establish low levels of fauna connectivity through landscaping embellishment. Within Open Space areas of the Overall Masterplan, particularly the fringing areas of Stage S and around the existing facility, there remains opportunity to establish islands or strips of foraging habitats. Islands or strips should focus on establishing scattered Eucalypts with denser clumping of shrub plantings[13]. Shrub plantings should be comprised of native endemic floras species known to be prolific flowers including squirrel glider foraging species.

7.4.4 External Fauna Movement Measures and Strategies

There are two major connections to external habitats along Cabbage Tree Creek which require fauna movement measures to assist in improving connectivity as shown in **Figure 8**. Connectivity to the south of Cabbage Tree Creek will be inherently retained and improved through ecological restoration and will not require further measures. The two major corridors to the east and west

[13] This needs to avoid the creation of bushfire hazard.

7.4.4.1 Dorville Road and Cabbage Tree Creek Strategies

Ongoing rehabilitation of Cabbage Tree Creek to the west of the CUV has resulted in the improvements of habitats for a wide variety of native fauna and flora. It is also noted that as a part of the development approval over 779 Zillmere Road, Aspley (A004328665), ecological restoration works with a focus on squirrel gliders has been undertaken. This work includes revegetation along its northern and north-eastern boundaries and the establishment 17 nest boxes and 12 glider poles along the fringe of Dorville Road and Cabbage Tree Creek.

Due to the existing slope of Cabbage Tree Creek in proximity to the Dorville Road culvert crossing, it is unlikely that fauna movement measures underneath Dorville Road is possible. Consistent water levels and dense weeds occurring within the Cabbage Tree Creek also reduce the ability for fauna to move under Dorville Road.

Due to these constraints to fauna movement, it is considered that alternate strategies are required. These measures should aim at:

- removing the existing level of weed infestation from Cabbage Tree Creek
- rehabilitating this area with endemic vegetation communities in proximity to the crossing location;
- rehabilitation must focus on shrubs and canopy trees that provide squirrel glider resources.
- establishment of a rope bridge between vegetated areas either side of Dorville Road (Rope bridges have been successfully utilised in road infrastructure projects of greater width and significance than the existing Dorville Road corridor[14]);
- consideration of rope crossing height and type – i.e. a safe distance above the existing powerlines (or a small component of the lines lowered were the crossing point is proposed).
- launch poles and connection ropes are to be established either side of the Dorville Road corridor to allow for immediately glider use prior to revegetation works establishing appropriate height; and
- Install remote fauna camera traps on crossing structures and poles to monitor fauna movement.

7.4.4.2 North Coast Rail Line and Cabbage Tree Creek Strategies

The south-eastern corner of the CUV is located where Cabbage Tree Creek and the North Coast Rail Line intersect. Habitats on both sides of the intersection remain heavily infested with weeds and debris; however, the shape and orientation of Cabbage Tree Creek in this location compared to the Dorville Creek crossing affords better opportunity for fauna movement within dry areas. Higher flows through this intersection would likely render crossing points generally impassable; however, only for a short temporal period.

[14] Significant study in the use and appropriateness of crossing structures has been undertaken for a wide variety of recent highway upgrades, most notably the Pacific Highway upgrade between Woolgoolga and Ballina. Positive monitoring results suggest rope bridges provide the best outcome for a wider array of fauna; however, movement poles are appropriate for glider species such as squirrel glider (Goldingay et al. 2013).

Due to the regular increase in flow levels establishing a permanent dry passage is unlikely to be achievable. Further, any revegetation works in proximity to the culvert would need to be considerate of the height and location of the train line to avoid disturbance to the rail network.

To overcome constraints to fauna movement through this corridor crossing the following should be established:

- removal of dense weed infestations within Cabbage Tree Creek and on the adjoining banks;
- the establishment of appropriate lower growing native riparian vegetation communities including dense graminoids underneath and in immediate proximity to the rail corridor;
- the establishment of dense native vegetation communities tolerable of riparian habitats within Cabbage Tree Creek;
- the establishment of dense native vegetation on higher banks adjoining crossing areas
- erect tall glider launch poles on either side of the rail crossing. Poles must be of a height to allow suitable glider distance to clear rail power lines;
    - Should it be permissible, a rope bridge crossing the rail corridor is recommend; however, constraints to this are highly likely;
- Establish a series of short glider poles (~3-5m) in line with the direction of flow underneath the rail corridor. Poles can be joined by a thick nylon rope to promote glider and other fauna movement without the need to traverse terrestrial areas. Having the poles and rope in line with the flow will minimise debris impacting the crossing. Ropes should be installed in sections to avoid pressure from water on one long rope and minimise loss to flood/debris impacts;
- Establish a suite of nest boxes in taller trees and glider launch poles to provide refuge and denning opportunities in proximity to the crossing; and
- Install remote fauna camera traps on crossing structures and poles to monitor fauna movement.

8 Statutory Compliance

The Overall Masterplan and Stage S has aimed to focus more intensive development within north-eastern and northern components of the CUV. This focus has maximised development within areas of existing cleared open space while retaining more in-tact native bushland areas in the central and southern components of the CUV.

Although there has been a focus on areas of existing clearing, the Overall Masterplan will require the removal of small components of bushland to establish civic open space in the central south of the CUV and development opportunities in the central north of the CUV proximate to Dorville Road and Beams Road.

The proposed Overall Masterplan and Stage S MUC and RoL have been assessed against applicable statutory requirements below.

8.1 Matters of Commonwealth Interest

An assessment of the likelihood of occurrence for TECs, flora and fauna species identified by the desktop assessment was undertaken to establish MNES that may occur within the locality or CUV. It was determined that the proposed action (development of the Overall Masterplan including Stage S) is unlikely to give rise to a significant impact to MNES (refer **Section 7**). For the most part, many fauna species identified within this desktop assessment are:

(i) unlikely to occur in areas proximate to the CUV (e.g. marine species);
(ii) not associated with habitats supported on CUV;
(iii) have no suitable breeding habitat within the CUV;
(iv) unlikely to impact on any important populations; or
(v) the proposed Overall Masterplan retains large components of the existing habitats within bushland and open space zones.

Further, the opportunity to improve degraded habitats and buffer sensitive environments in areas that will consolidate ecological linkages/habitat networks can assist in providing medium and longer-term benefits for many species of conservation significance.

8.2 Matters of State Interest

8.2.1 Nature Conservation Act 1992

8.2.1.1 Flora

The CUV is not within a Protected Plants High-Risk Trigger area (**Attachment 7**). Despite this, detailed botanical surveys undertaken by BAAM between 2008 and 2017 to search for flora species listed as ENVT under the NC Act. Historical surveys had detected the presence of one macadamia nut tree along Cabbage Tree Creek; however, recent surveys failed to detect this species despite targeted searches. This individual was located within the riparian areas of Cabbage Tree Creek and would not be impacted by the propose development.

8.2.1.2 Fauna

Surveys have detected the presence of tusked frog within Cabbage Tree Creek. As noted within **Section 7.3.3**, the proposed Overall Masterplan will not have a significant impact on this species and secondary impacts can be avoided and mitigated through contemporary stormwater management and water sensitive urban design. The necessary ecological restoration works required for development within the CUV will ultimately improve habitat amenity for this species.

There is the potential that powerful owl may utilise the CUV as a minor component of its much larger home range. The CUV supports suitable foraging recourses and it remains connective with larger more suitable habitats to the west via the Cabbage Tree Creek corridor. The proposed Overall Masterplan including Stage S are unlikely to impact the powerful owl as large areas of the existing foraging resource will be retained and improved through ecological restoration.

It is likely that numerous migratory species noted as Special Least Concern fauna would over-fly or move through the CUV; however, it is unlikely that the proposed Overall Masterplan or Stage S will impact these species. Most identified species are associated with wetland and marine habitats; however, all are considered to be highly mobile. Those species that are considered to more likely to overfly or move through the CUV readily habituated to urban areas. The retention of larger components of bushland including waterway habitats will retain higher quality movement habitats for such species.

Special least concern fauna identified within desktop searches not identified as migratory include the short-beaked echidna and platypus. It is unlikely that the proposed Overall Masterplan will impact either species as: i) no riparian impacts are proposed; ii) ecological restoration works will improve the amenity of riparian habitats for platypus; and iii) only very limited areas of habitat for echidna will be impacted; however, it is unlikely this species would occur within the CUV given its highly urban nature.

Due to the presence of hollow bearing trees within the proposed Overall Masterplan (including Stage S) and the requirement for their removal, an assessment of the potential for impacts to colonial breeding fauna should be assessed. Pre-clearing surveys and identification of potential impacts on colonial breeders should be undertaken prior to works occurring and as part of the FFMP. Should it be identified that clearing is likely to impact colonial breeding sites, a Species Management Plan (SMP) should be prepared to manage clearing and operational works and submitted to the Department of Environment and Heritage Protection for approval. Similarly, should colonial breeding species be identified after clearing works commence, a SMP should be subsequently prepared and submitted for approval prior to works continuing.

8.3 Fitzgibbon Development Scheme

The FDSs specific vision for the CUV is to create a transit orientated community around Carseldine Station. Asides form establishing a variety of residential and mixed uses within the CUV, there must be a strong focus on walking, cycling and public transport. The Bushland, Sport and Recreation areas of the CUV should support a range of environmental values while also catering for a range of community pursuits such as outdoor recreation (bushwalking, bird watching, cycling, picnicking) and sporting facilities.

The PDA wide criteria define Bushland/Open Space areas should fulfil a multi-functional role including the retention of significant environmental values, community recreation, and stormwater management.

The proposed Overall Masterplan achieves the ultimate vision and PDA wide criteria of the FDS by retaining a large component of the exiting bushland within the CUV; locating stormwater devices and management measures where impacts are minimal given the existing constraints and engineering requirements. The retained Bushland areas preserve large components of the areas significant environmental values, landscape values, and visual quality, while providing opportunity for community outdoor recreation.

All development within the CUV will require the preparation of a series of FFMPs that will outline any potential impacts and the necessary mitigation measures required to comply with the FBMP. The aim of each specific FFMP will be to quantify impacts and identify what ecological restoration strategies and measures are appropriate to achieve compliance with the FBMP and the vision of the FDS. FFMPs must ensure that fauna movement and habitat replacement is a focus of works both within the CUV and externally.

Within the Bushland and Open Space areas, the Overall Masterplan identifies the establishment of sporting and civic open space facilities within Stage S. The Overall Masterplan also identifies the opportunity to formalise or establish pedestrian and cycle links through bushland areas within the CUV to assist in facilitating outdoor recreation opportunities in line with the FDS vision. As a part of the development application for Stage S, 0.2584ha of significant vegetation will be impacted and 9 habitat trees will require removal. To comply with the FDS and FBMP, revegetation works will be required to prepare a FFMP which will outline how ecological restoration works re-establish or revegetate 0.52ha of non-remnant and remnant areas of bushland as well as the provision of a minimum of 9 nest boxes.

All clearing work within the CUV must be completed under the strict supervision and guidance of a suitably qualified and licenced fauna spotter catcher. It is recommended a fauna pre-clearing survey be undertaken and specific fauna management plan be prepared for any proposed clearing works. This management plan must outline: the habitats being impacted; the way and means in which clearing works will be managed; species likely to be encountered; fauna recovery methods; clearing directions and relocation methods/locations. Clearing works are to be supervised by the project arborist and where possible, hollow bearing limbs are to be removed by climbing arborists and relocated as hollow logs in bushland areas.

8.4 Environmental Values and Sustainable Resource Use

The proposed Overall Masterplan has given due consideration relevant Commonwealth and State Government legislation and regulation. The proposed Overall Masterplan is considered to be a logical transport orientated development with existing infrastructure being expanded, reducing the need to create further, new impacts in un-developed greenfield areas within the locality and broader region. An assessment of the proposed Overall Masterplan has identified that it is unlikely the proposed actions will not give rise to any significant impacts to MNES or MSES. The proposed Overall Masterplan

is proximate to Carseldine Rail Station and existing commercial complexes allowing residents to stimulate local economy and utilise existing public transport.

8.4.1 Specific CUV Strategies

The overall design of the CUV has considered the environmental values and strategies outlined with PDA Guideline No. 14 *Environmental Values and Sustainable Resource Use.* To demonstrate the development's specific strategies **Table 3** below has been prepared.

Table 3: Environmental Values and Strategies

Values	Strategies
Ecological processes and natural systems	
1. Significant terrestrial biodiversity values	Prior to any field assessment surveys, considerable desktop investigations were undertaken to determine the potential biodiversity values located within or associated with the CUV. Desktop investigations were conducted at local, state and federal level and appropriately informed the on-ground ecological assessments. The on-ground ecological field surveys undertaken for the CUV project subsequently ground-truthed and confirmed the various biodiversity values within the CUV and have further informed the overall design to achieve a layout that is sensitive to the existing bushland areas while achieving EDQs goals of developing a logical transport orientated development. **Section 4** of this Report outlines the methodologies utilised. **Section 7** of this report outlines various strategies to management environmental values. <u>Minimising Impacts</u> Stage S of the CUV Project avoids areas of Endangered Regional Ecosystems. Within the broader Overall Masterplan, only a very minor impact to the Endangered RE is proposed in Stage 3. These areas will formalise boundaries to accommodate logical development areas and rehabilitation at a 2:1 ratio of this community will occur to directing compensate for the loss of ecological values and will enhance areas of non-remnant vegetation. Refer to **Section 7.1**. Specific FFMPs will be prepared as part of the project in order to reduce and control the development impacts and enforce strategies to manage impacts and rehabilitation works.

2. Ecological connectivity	During the course of the detailed ecological field assessment, significant habitat features and fauna movement corridors within or associated with the project area were identified. This identification of significant ecological features within the project area has provided guidance to the overall design of the CUV. Overall, the habitat features identified within the project areas were largely associated with Cabbage Tree Creek and the urban ecological corridor that it forms. The CUV design will retain and enhance of the Cabbage Tree Creek corridor and will implement measures and strategies to mitigate impacts and improve retained habitats. In conjunction with rehabilitation efforts along Cabbage Tree Creek, works associated with Stage S specifically will mitigate the loss of habitat trees through the compensation of 9nest boxes and rehabilitation of 0.52ha of bushland. Refer to **Section 7.4** for detailed mitigation of impacts through ecological restoration. Specific strategies for surrounding fauna movement measures in relation to infrastructure crossing Cabbage Tree Creek have been provided in **Section 7.4.4.**
	Wetlands and Waterways
1. Waterways	A significant ecological feature of the CUV is Cabbage Tree Creek and the tributary of Cabbage Tree Creek and the values that these broader riparian areas retain for ecological processes, including connectivity, movement opportunities, habitat and resources for fauna and hydraulic ecosystem services. The retention of higher sclerophyll bushland in the central and north-west of the CUV also provides a variety of habitats which will promote greater diversity and a more complex matrix of habitats. As discussed in **Section 7.4**, a number of specific strategies will be implemented as part of the development to avoid impacts to Cabbage Tree Creek, and further enhance the significant ecological feature.

8.5 Development Interfaces

The proposed development represents a logical transport orientated development within the locality as it will provide an extension to the existing facilities and sporting grounds without the need to secure new areas for development of this nature. Development interfaces will remain consistent with those

already existing. Landscape design must consider the inclusion of squirrel glider resources within landscaping. This is particularly important within civil open space areas of the CUV and the interface between proposed development and bushland areas. The verge of the CUV to Dorville Road should also be subject to specific treatments to assist in retaining a vegetated linkage between bushland areas in the south and north of the CUV.

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Report Figures

28 South Environmental

Figure 1
Carseldine Urban Village
Site Locality

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
09/08/2017	MG	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
GPS Survey - 28 South Environmental
DCDB, Aerial, Waterways, Roads, Rail © State of Queensland 2015
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

N

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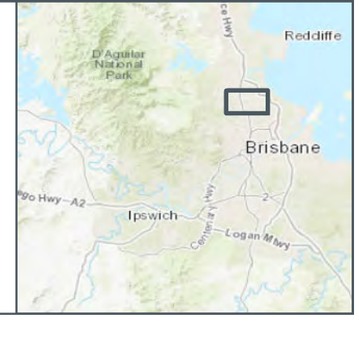
Meters

1:25,000 (A3) GCS GDA 1994

LEGEND

- Railway
- Road
- Waterway
- Site

LOCATION DIAGRAM



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28 South Environmental

Figure 2
Carseldine Urban Village Site

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
09/08/2017	MG	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
GPS Survey - 28 South Environmental
DCDB, Aerial, Waterways, Roads, Rail © State of Queensland 2015
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

N

0 75 150
Meters

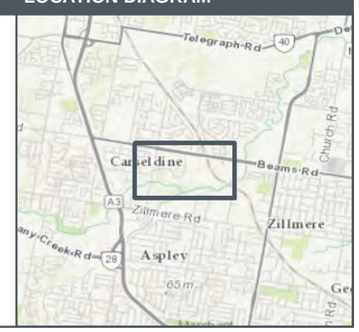
1:4,000 (A3) GCS GDA 1994

28 SOUTH Environmental

LEGEND

- Waterway
- Site
- Parcel Boundary

LOCATION DIAGRAM



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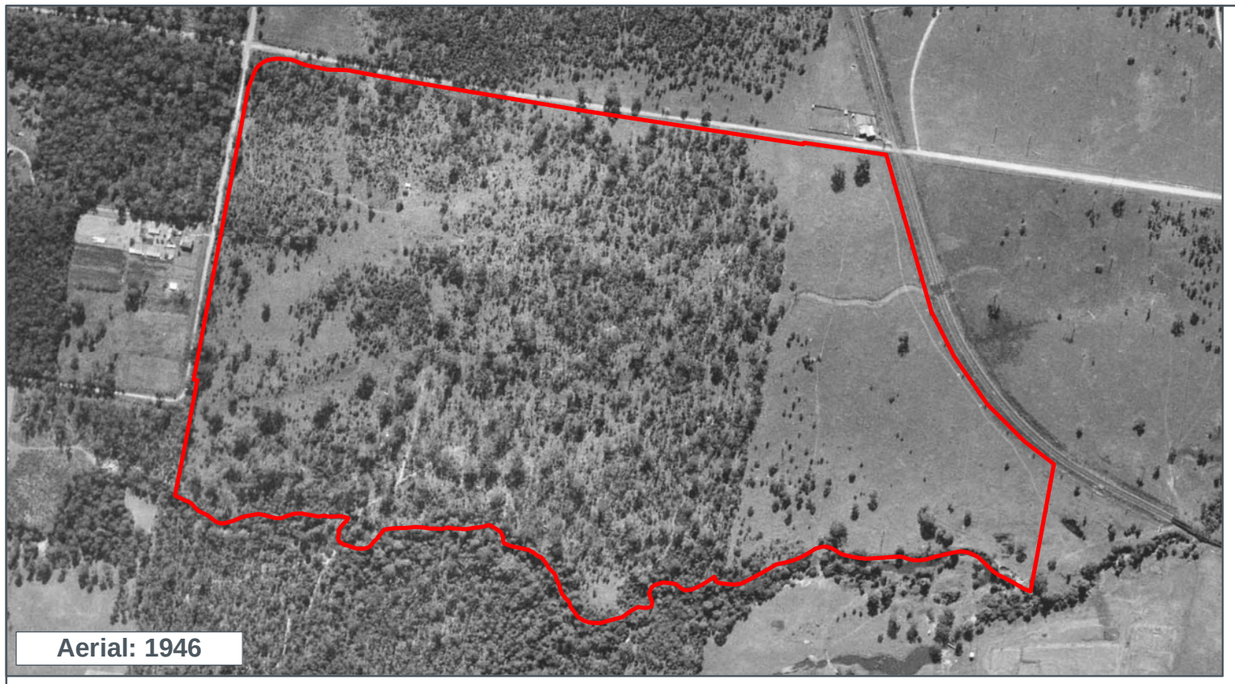

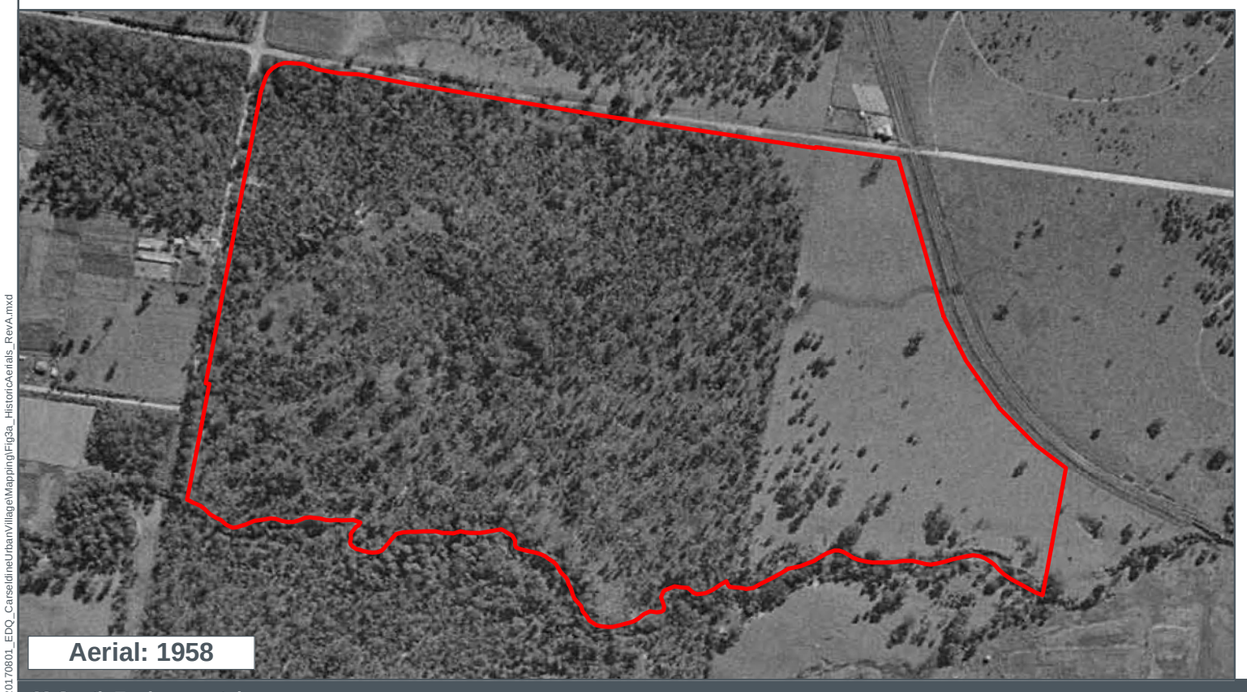

28 South Environmental

LEGEND

Site

LOCATION DIAGRAM

Figure 3a
Carseldine Urban Village
Histroical Aerials

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
09/08/2017	MG	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
GPS Survey - 28 South Environmental
DCDB, Aerial, Waterways, Roads, Rail © State of Queensland 2015
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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28 SOUTH Environmental

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28 South Environmental

LEGEND

Site

LOCATION DIAGRAM

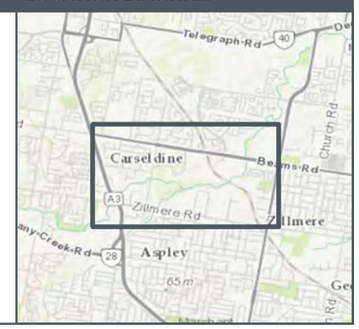

Figure 3b
Carseldine Urban Village
Histroical Aerials

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
17/08/2017	MG	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
GPS Survey - 28 South Environmental
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Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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28 SOUTH Environmental

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28 South Environmental

Figure 4
Carseldine Urban Village
Vegetation Communities

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
09/08/2017	MG	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
Vegetation Communities - © Biodiversity Assessment and Management (BAAM) 2017
DCDB, Aerial, Waterways, Roads, Rail © State of Queensland 2015
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

N

0 75 150
Meters

1:4,000 (A3) GCS GDA 1994

28 SOUTH Environmental

LEGEND

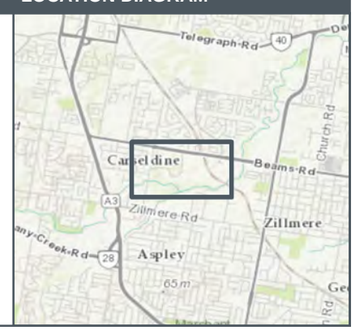
- Site
- Parcel Boundary

Vegetation Communities (BAAM Survey)

- 1 Open Forest (RE 12.5.2)
- 2 Open Forest (RE 12.5.3)
- 3 Open Forest - Modified Understory (RE 12.5.3)
- 4 Open Forest (RE 12.3.11)
- 5 Open Forest - Modified Understory (RE 12.3.11)
- 6 Open Forest (Non-remnant)
- 7 Open Forest - Modified Understory (RE 12.3.11)
- 8 Riverine Open Forest (RE 12.3.7)
- 9 Open Woodland (non-remnant)
- 10 Closed Forest (Non-remnant)

Note: Vegetation communities derived from BAAM Report "Flora and Fauna Assessment Report, Figure 5-1 Ecological Values and Features Flora".

LOCATION DIAGRAM



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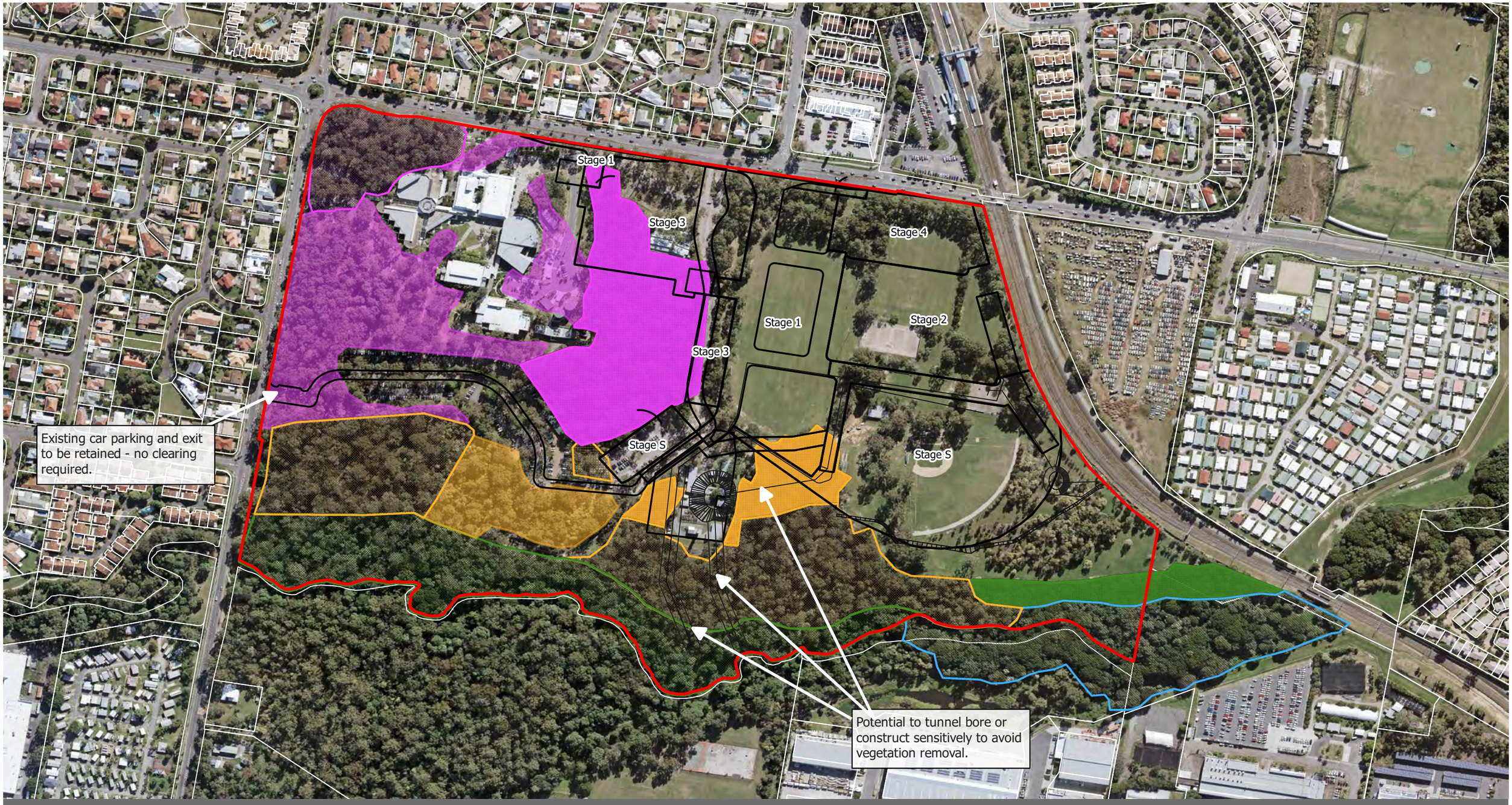

28 South Environmental

Legend

Figure 5
Carseldine Urban Village
Impact to Vegetation Communities

Project Reference: 2017-057

Note: Vegetation Communities derived from BAAM Report "Flora and Fauna Assessment Report, Figure 1-5 Ecological Values and Features Flora'.

Data Sources:
Vegetation Communities - (C) Biodiversity Assessment and Management (BAAM) 2017
DCDB, Aerial, Waterways, Roads, Rails (c) State of Queensland 2015

Vegetation Communities (BAAM Survey)

- 1 Open Forest (RE 12.5.2)
- 2 Open Forest (RE 12.5.3)
- 3 Open Forest - Modified Understory (RE 12.5.3)
- 4 Open Forest (RE 12.3.11)
- 5 Open Forest - Modified Understory (RE 12.3.11)
- 6 Open Forest (Non-remnant)
- 7 Open Forest - Modified Understory (RE 12.3.11)
- 8 Riverine Open Forest (RE 12.3.7)
- 9 Open Woodland (Non-remnant)
- 10 Closed Forest (Non-remnant)
- Development Plan
- Stage Boundary
- Site
- Parcel Boundary

Issue Date	Revision	Author	QA Checked	Approved	Revision Note
20 April 2018	Rev B	RF	MT	MT	Amended Staging

28 SOUTH Environmental

Scale 1:3,000

100 0 100 200 300 400 m

N

28 South Environmental

Legend

Figure 6
Carseldine Urban Village
Habitat Features & Impacts

Project Reference: 2017-057

Data Sources:
Vegetation Communities - (C) Biodiversity Assessment and Management (BAAM) 2017
DCDB, Aerial, Waterways, Roads, Rails (c) State of Queensland 2015

- To be retained
- To be removed
- Tree to be removed subject to future stage application
- Potentially retained subject to construction methods and arborist assessment
- Tree Protection Zone
- Nest Box to be relocated
- Possible rehabilitation outside of remnant vegetation
- Retained Bushland
- Stage Boundary
- Site
- Parcel Boundary

Issue Date	Revision	Author	QA Checked	Approved	Revision Note
17 April 2018	Rev B	RF	MT	MT	Amended Staging

28 SOUTH Environmental

Scale 1:3,000

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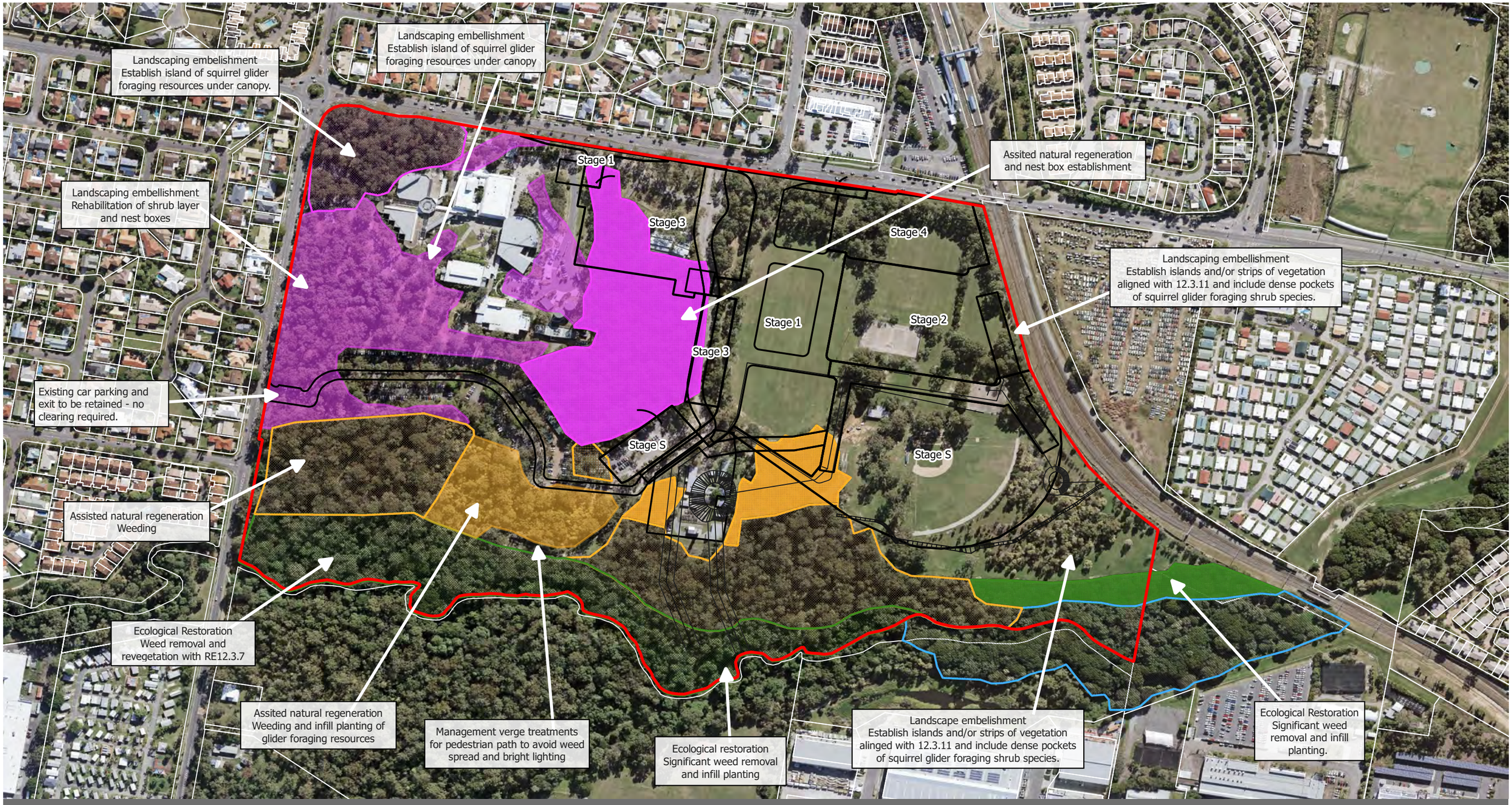


28 South Environmental

Legend

Figure 7
Carseldine Urban Village
Opportunities for Restoration Works

Project Reference: 2017-057

Note: Vegetation Communities derived from BAAM Report "Flora and Fauna Assessment Report, Figure 1-5 Ecological Values and Features Flora'.

Data Sources:
Vegetation Communities - (C) Biodiversity Assessment and Management (BAAM) 2017
DCDB, Aerial, Waterways, Roads, Rails (c) State of Queensland 2015

Vegetation Communities (BAAM Survey)

- 1 Open Forest (RE 12.5.2)
- 2 Open Forest (RE 12.5.3)
- 3 Open Forest - Modified Understory (RE 12.5.3)
- 4 Open Forest (RE 12.3.11)
- 5 Open Forest - Modified Understory (RE 12.3.11)
- 6 Open Forest (Non-remnant)
- 7 Open Forest - Modified Understory (RE 12.3.11)
- 8 Riverine Open Forest (RE 12.3.7)
- 9 Open Woodland (Non-remnant)
- 10 Closed Forest (Non-remnant)
- Development Plan
- Stage Boundary
- Site
- Parcel Boundary

Issue Date	Revision	Author	QA Checked	Approved	Revision Note
20 April 2018	Rev B	RF	MT	MT	Amended Staging

28 SOUTH Environmental

Scale 1:3,000

100 0 100 200 300 400 m

N

Beams Road

Dorville Road

Stage 1

Stage 3

Stage 5

Stage 1

Stage 2

Stage 3

Stage S

Stage S

Install nest boxes and glider poles. Undertake revegetation with glider foraging resources

Install rope bridge over internal road if practical.

Install rope bridge over Dorville Road

Squirrel glider rehabilitation works undertaken by Gateway Lifestyle on Cabbage Tree Creek. 15 nest boxes including glider poles and revegetation works.

Significant glider rehabilitation / revegetation works. install both tall and low glider movement poles. glider poles under rail line to include rope bridges

Rehabilitate Wetlands with 12.3.7 and focus on glider species

Path: \\192.168.15.10\Network\KEMMQLD\Jobs\2018\B180055 - 28 South GIS Support\GIS\Carseldine\TreeRetention\GIS\02_Maps\G004_FaunaMovements_20180316_04.mxd

28 South Environmental

Figure 8
Carseldine Urban Village
Fauna Movement Measures

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	REV.	REVISION NOTE
16/03/2018	AM	MT	MT	A	Issued For Information

WORK REQUEST NUMBER: 652230

DATA SOURCES:
Vegetation Communities - © Biodiversity Assessment and Management (BAAM) 2017
DCDB, Aerial, Waterways, Roads, Rail © State of Queensland 2015
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

N

0 75 150

Metres

1:4,000 (A3) GDA 1994 MGA Zone 56

28 SOUTH Environmental

LEGEND

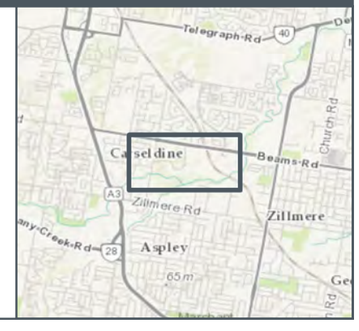
- Habitat tree
- Proposed fauna crossing location

Nest box
- To be retained
- To be relocated

- Habitat movement corridor
- Stage boundary
- Site
- Parcel boundary
- Retained bushland

Note: Vegetation communities derived from BAAM Report "Flora and Fauna Assessment Report, Figure 5-1 Ecological Values and Features Flora".

LOCATION DIAGRAM



Attachment 1

2.1 Location

Located approximately 12 kilometres from the Brisbane CBD, the Fitzgibbon UDA covers 295-hectares of land in the northern suburbs of Fitzgibbon, Carseldine, Bald Hills, Taigum and Deagon. The Fitzgibbon UDA is bounded primarily by the Aspley School district to the south, Telegraph Road to the north, and the Gateway Motorway to the east. The UDA also includes the Environmental Protection Agency Hydraulics Laboratory north of Depot Road.

The Fitzgibbon UDA includes large portions of State owned land and contains one of very few sites in South East Queensland where a railway station will be co-located with a proposed busway station. The collocation of proposed busway and railway, new bus routes, and park and ride facilities in the Fitzgibbon UDA provides outstanding opportunities for transit oriented development with real choice and convenience in the mode of transport to be taken.

The Fitzgibbon UDA is a rare greenfield site in the Brisbane suburbs. The Fitzgibbon UDA:

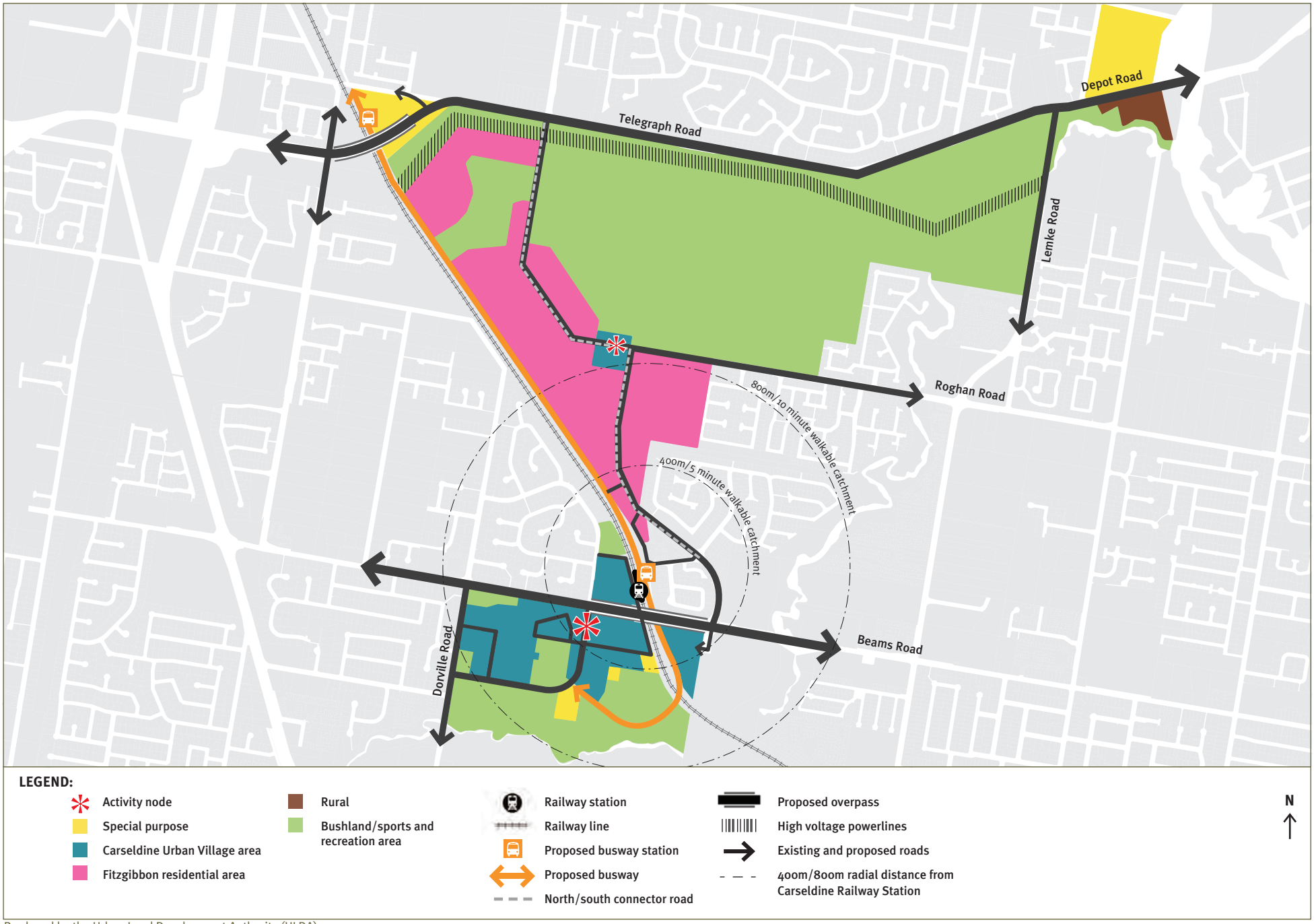
- is in close proximity to existing and planned major public transport networks servicing and connecting the northern Brisbane suburbs
- includes substantial existing service infrastructure
- incorporates significant bushland and open space
- is bordered by existing suburban communities.

Map 1: Fitzgibbon Urban Development Area

Produced by the Urban Land Development Authority (ULDA) 2009
Map is intended for illustration purposes only and unless stated is not to scale.

Attachment 2

Map 2: Fitzgibbon Urban Development Area structure plan



Produced by the Urban Land Development Authority (ULDA) 2010
Map is intended for illustration purposes only and unless stated is not to scale.

Attachment 3

Fitzgibbon Urban Development Area Development Scheme – Precincts

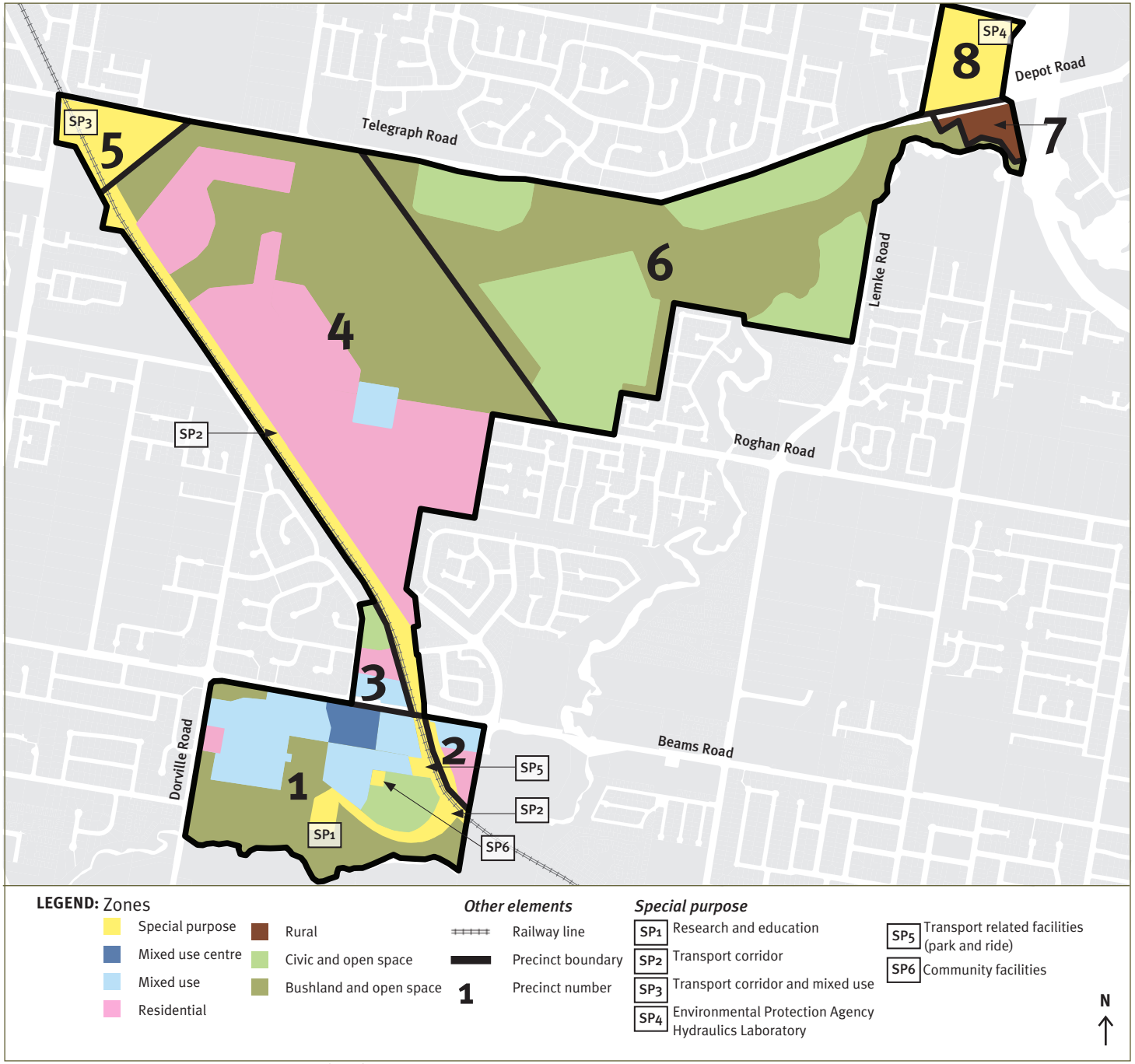
Introduction

The Fitzgibbon UDA is divided into eight precincts and five sub-precincts. Land within the UDA is also allocated a zone.

The location and boundaries of the precincts are shown in Map 3: Fitzbiggon Urban Development Area zoning and precinct plan. The zones are explained in detail in section 3.3 of the land use plan.

The Fitzgibbon UDA zoning and precinct plan is to be read in conjunction with the Fitzgibbon UDA transport plan (refer Map 4), Fitzgibbon UDA building height plan (refer Map 5), and Fitzgibbon UDA density plan (refer Map 6), which apply where relevant to precincts identified in Map 3: Fitzgibbon UDA zoning and precinct plan.

Map 3: Fitzgibbon Urban Development Area zoning and precinct plan



Produced by the Urban Land Development Authority (ULDA) 2010
Map is intended for illustration purposes only and unless stated is not to scale.

Attachment 4

Attachment 5

Australian Government
Department of the Environment and Energy

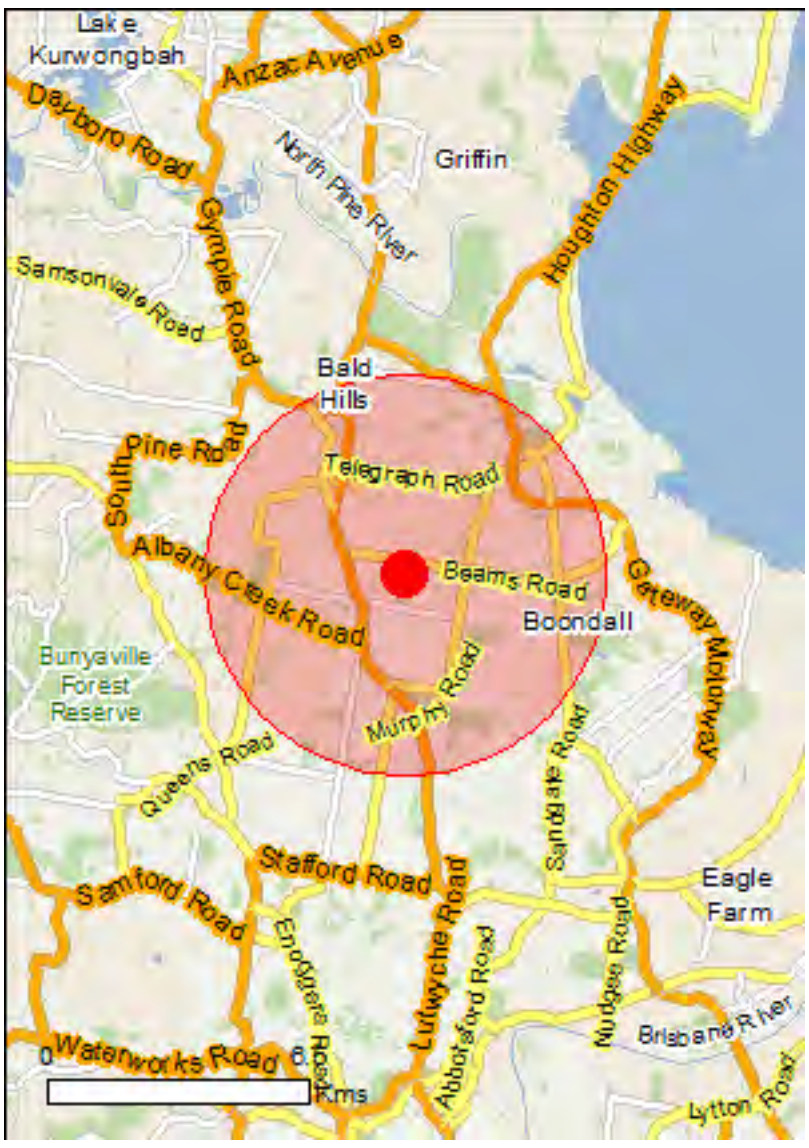
EPBC Act Protected Matters Report

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.

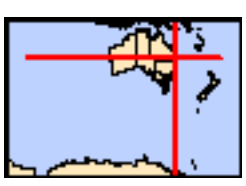
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/08/17 11:03:05



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	56
Listed Migratory Species:	39

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	47
Whales and Other Cetaceans:	2
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	47
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Moreton bay	Within 10km of Ramsar

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
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may 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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Mammals		

Name	Status	Type of Presence
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii Native Jute [14659]	Endangered	Species or species habitat likely to occur within area
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia ternifolia Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat likely to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Thesium australe](#)		
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
[Caretta caretta](#)		
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chelonia mydas](#)		
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Delma torquata](#)		
Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
[Dermochelys coriacea](#)		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Eretmochelys imbricata](#)		
Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Furina dunmalli](#)		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
[Lepidochelys olivacea](#)		
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Natator depressus](#)		
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Saiphos reticulatus](#)		
Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area
Sharks		
[Pristis zijsron](#)		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Anous stolidus](#)		
Common Noddy [825]		Species or species habitat may occur within area
[Apus pacificus](#)		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardenna carneipes](#)		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
[Calonectris leucomelas](#)		
Streaked Shearwater [1077]		Species or species habitat known to occur within area
[Diomedea exulans](#)		
Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area

Name	Threatened	Type of Presence
[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
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
[Thalassarche cauta](#) Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Lamna nasus](#) Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
[Lepidochelys olivacea](#) Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Manta alfredi](#) Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
[Manta birostris](#) Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Orcaella brevirostris](#) Irrawaddy Dolphin [45]		Species or species habitat may occur within area
[Pristis zijsron](#) Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat may occur within area
[Sousa chinensis](#) Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
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]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat 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 known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		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
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 known to 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

Commonwealth Land [Resource Information]

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

Name
Defence - FITZGIBBON TRAINING AREA

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 known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species

Name	Threatened	Type of Presence
		habitat may 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]		Species or species habitat known to occur within area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat 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 known to occur within area
[Pachyptila turtur](#) Fairy Prion [1066]		Species or species habitat likely to occur within area
[Pandion haliaetus](#) Osprey [952]		Breeding known to occur within area
[Puffinus carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thalassarche cauta		
Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita		
Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable*	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		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Lepidochelys olivacea		
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Foraging, feeding or related behaviour known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Orcaella brevirostris		
Irrawaddy Dolphin [45]		Species or species habitat may occur within area
Sousa chinensis		
Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

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

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

Name	Status	Type of Presence
		within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		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 may occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina		Species or species habitat likely to occur

Name	Status	Type of Presence
Fanwort, Common Cabomba [5171]		within area
Chrysanthemoides monilifera		
Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. rotundata		
Bitou Bush [16332]		Species or species habitat likely to 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
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		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
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
Opuntia spp.		
Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp.		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Protasparagus densiflorus		
Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate		
Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla		
Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species

Name	Status	Type of Presence
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		habitat likely to occur within area Species or species habitat likely to occur within area

Nationally Important Wetlands [Resource Information]

Name	State
Pine River and Hayes Inlet	QLD

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-27.35019 153.02585

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.

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Attachment 6

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -27.3501
Longitude: 153.0258
Distance: 5
Email: Mitch@28south.com.au
Date submitted: Monday 14 Aug 2017 11:03:28
Date extracted: Monday 14 Aug 2017 11:10:03

The number of records retrieved = 1021

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			58
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		14
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		2
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		30
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		21
animals	amphibians	Hylidae	*Litoria brevipalmata*	green thighed frog		C		1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		42
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		20
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		13
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		20
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		47
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		3
animals	amphibians	Myobatrachidae	*Pseudophryne raveni*	copper backed broodfrog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		26
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		2
animals	amphibians	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog		C		2
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		3
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		1
animals	amphibians	Myobatrachidae	*Crinia signifera*	clicking froglet		C		3
animals	amphibians	Myobatrachidae	*Uperoleia fusca*	dusky gungan		C		2
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		2
animals	birds	Acanthizidae	*Gerygone mouki*	brown gerygone		C		1
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		4
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		14
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		3
animals	birds	Acanthizidae	*Gerygone levigaster*	mangrove gerygone		C		22
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		29
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		28
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		53
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		11
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		3
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		12
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		10
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		3
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		3
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		44
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		33
animals	birds	Accipitridae	*Pandion cristatus*	eastern osprey		SL		18
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		10
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		2
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		36
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		42
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		73
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		41

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		1
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		3
animals	birds	Anatidae	*Nettapus pulchellus*	green pygmy-goose		C		1
animals	birds	Anatidae	*Stictonetta naevosa*	freckled duck		C		2
animals	birds	Anatidae	*Tadorna tadornoides*	Australian shelduck		C		1
animals	birds	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose		C		7
animals	birds	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck		C		3
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		40
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		5
animals	birds	Anatidae	*Anas platyrhynchos*	northern mallard	Y			10
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		183
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		89
animals	birds	Anatidae	*Oxyura australis*	blue-billed duck		C		2
animals	birds	Anatidae	*Aythya australis*	hardhead		C		52
animals	birds	Anatidae	*Dendrocygna sp.*					2
animals	birds	Anatidae	*Anas rhynchotis*	Australasian shoveler		C		2
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		42
animals	birds	Anatidae	*Biziura lobata*	musk duck		C		1
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		47
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		44
animals	birds	Anatidae	*Anas sp.*					2
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		59
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		67
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		21
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		SL		4
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		105
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		268
animals	birds	Ardeidae	*Egretta sacra*	eastern reef egret		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		18
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		68
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		86
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		12
animals	birds	Ardeidae	*Ixobrychus dubius*	Australian little bittern		C		2
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		15
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		1
animals	birds	Ardeidae	*Botaurus poiciloptilus*	Australasian bittern		C	E	2
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		52
animals	birds	Artamidae	*Cracticus sp.*					1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		179
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		1
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		42
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		108
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		4
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		37
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		252
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		39
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		6
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		69
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		61
animals	birds	Cacatuidae	*Cacatua tenuirostris*	long-billed corella	Y	C		9
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		157
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		3
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		212
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		14
animals	birds	Campephagidae	*Lalage tricolor*	white-winged triller		C		8/1
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		6
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		3
animals	birds	Charadriidae	*Pluvialis fulva*	Pacific golden plover		SL		6
animals	birds	Charadriidae	*Pluvialis squatarola*	grey plover		SL		1
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		12
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		136
animals	birds	Charadriidae	*Charadrius ruficapillus*	red-capped plover		C		3
animals	birds	Charadriidae	*Vanellus miles miles*	masked lapwing (northern subspecies)		C		1
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		41
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		4
animals	birds	Charadriidae	*Charadrius mongolus*	lesser sand plover		E	E	3
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		C		20
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		127
animals	birds	Climacteridae	*Cormobates leucophaea*	white-throated treecreeper		C		3
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		19
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		6
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		5
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		12
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			208
animals	birds	Columbidae	*Columba livia*	rock dove	Y			57
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		2
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		38
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		152
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		1
animals	birds	Columbidae	*Ptilinopus regina*	rose-crowned fruit-dove		C		2
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		5
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		23
animals	birds	Columbidae	*Ptilinopus superbus*	superb fruit-dove		C		3
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		78
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		276
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		14
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		40
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		15

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		12
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		8
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		3
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		36
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		14
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		65
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		119
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		1
animals	birds	Estrildidae	*Lonchura punctulata*	nutmeg mannikin	Y			38
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		22
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		44
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		43
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		1
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		6
animals	birds	Falconidae	*Falco subniger*	black falcon		C		1
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		10
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		34
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		20
animals	birds	Fringillidae	*Carduelis carduelis*	European goldfinch	Y			2
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		13
animals	birds	Haematopodidae	*Haematopus longirostris*	Australian pied oystercatcher		C		6
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		191
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		88
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		74
animals	birds	Halcyonidae	*Todiramphus pyrrhopygius*	red-backed kingfisher		C		2
animals	birds	Halcyonidae	*Todiramphus sordidus*	Torresian kingfisher		C		12
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		214
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		26
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		20
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		39
animals	birds	Laridae	*Sterna hirundo*	common tern		SL		4
animals	birds	Laridae	*Thalasseus bergii*	crested tern		SL		17
animals	birds	Laridae	*Chlidonias hybrida*	whiskered tern		C		4
animals	birds	Laridae	*Chroicocephalus novaehollandiae*	silver gull		C		60/1
animals	birds	Laridae	*Sternula albifrons*	little tern		SL		5
animals	birds	Laridae	*Gelochelidon nilotica*	gull-billed tern		SL		13
animals	birds	Laridae	*Chlidonias leucopterus*	white-winged black tern		SL		9
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		SL		7
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		80
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		156
animals	birds	Maluridae	*Malurus sp.*					1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		24
animals	birds	Megaluridae	*Cincloramphus cruralis*	brown songlark		C		1
animals	birds	Megaluridae	*Megalurus timoriensis*	tawny grassbird		C		64
animals	birds	Megaluridae	*Megalurus gramineus*	little grassbird		C		20
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		20
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		73
animals	birds	Meliphagidae	*Phylidonyris novaehollandiae*	New Holland honeyeater		C		1
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		5
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		30
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		97
animals	birds	Meliphagidae	*Gavicalis fasciogularis*	mangrove honeyeater		C		9
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		1
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		40
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		98
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		2
animals	birds	Meliphagidae	*Myzomela obscura*	dusky honeyeater		C		1
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		60
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		68
animals	birds	Meliphagidae	*Phylidonyris niger*	white-cheeked honeyeater		C		7
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		138
animals	birds	Meliphagidae	*Manorina melanophrys*	bell miner		C		7
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		C		2
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		10
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		109
animals	birds	Meliphagidae	*Lichenostomus melanops*	yellow-tufted honeyeater		C		1
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		251
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		110
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		1
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		4
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		55
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		13
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		221
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		11
animals	birds	Monarchidae	*Carterornis leucotis*	white-eared monarch		C		5
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		20
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		61
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		15
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		105
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		86
animals	birds	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush		C		5
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		131
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		49
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		104
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		192
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		18
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			83
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		69
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		2
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		69
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		10

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		6
animals	birds	Phalacrocoracidae	*Phalacrocorax sp.*					2
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		12
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		47
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		73
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		91
animals	birds	Phasianidae	*Excalfactoria chinensis*	king quail		C		1
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		30
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		2
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		2
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		47
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		62
animals	birds	Podicipedidae	*Poliocephalus poliocephalus*	hoary-headed grebe		C		5
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		3
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		16
animals	birds	Procellariidae	*Pachyptila desolata*	Antarctic prion		C		1/1
animals	birds	Procellariidae	*Ardenna tenuirostris*	short-tailed shearwater		SL		2
animals	birds	Psittacidae	*Barnardius zonarius*	Australian ringneck		C		1
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		9
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		6
animals	birds	Psittacidae	*Platycercus eximius*	eastern rosella		C		9
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		9
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		146
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		5
animals	birds	Psittacidae	*Melopsittacus undulatus*	budgerigar		C		1
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		160
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		3
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		248
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		27
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus violaceus*	satin bowerbird		C		1
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		132
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		58
animals	birds	Rallidae	*Lewinia pectoralis*	Lewin's rail		C		1
animals	birds	Rallidae	*Porzana tabuensis*	spotless crake		C		3
animals	birds	Rallidae	*Porzana fluminea*	Australian spotted crake		C		2
animals	birds	Rallidae	*Porzana pusilla*	Baillon's crake		C		5
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		2
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		23
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		122
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		59
animals	birds	Recurvirostridae	*Recurvirostra novaehollandiae*	red-necked avocet		C		2
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		133
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		194
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		20
animals	birds	Scolopacidae	*Arenaria interpres*	ruddy turnstone		SL		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Scolopacidae	*Calidris acuminata*	sharp-tailed sandpiper		SL		5
animals	birds	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper		SL		1
animals	birds	Scolopacidae	*Calidris ferruginea*	curlew sandpiper		E	CE	6
animals	birds	Scolopacidae	*Calidris ruficollis*	red-necked stint		SL		6
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		SL		11
animals	birds	Scolopacidae	*Calidris tenuirostris*	great knot		E	CE	3
animals	birds	Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit		V	V	13
animals	birds	Scolopacidae	*Numenius madagascariensis*	eastern curlew		E	CE	10
animals	birds	Scolopacidae	*Limosa limosa*	black-tailed godwit		SL		5
animals	birds	Scolopacidae	*Tringa brevipes*	grey-tailed tattler		SL		5
animals	birds	Scolopacidae	*Tringa glareola*	wood sandpiper		SL		1
animals	birds	Scolopacidae	*Actitis hypoleucos*	common sandpiper		SL		5
animals	birds	Scolopacidae	*Numenius phaeopus*	whimbrel		SL		12
animals	birds	Scolopacidae	*Tringa nebularia*	common greenshank		SL		4
animals	birds	Scolopacidae	*Calidris canutus*	red knot		E	E	2
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		1
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		20
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			80
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			40
animals	birds	Sulidae	*Morus serrator*	Australasian gannet		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		118
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		66
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		192
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		SL		11
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		4
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		150
animals	birds	Tytonidae	*Tyto delicatula*	eastern barn owl		C		6
animals	insects	Aeshnidae	*Anax papuensis*	Australian Emperor				1
animals	insects	Hesperiidae	*Suniana sunias*					1
animals	insects	Libellulidae	*Tramea loewii*	common glider				1
animals	insects	Libellulidae	*Rhyothemis graphiptera*	graphic flutterer				1
animals	insects	Nymphalidae	*Cupha prosope prosope*	bordered rustic (Australian subspecies)				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				11
animals	insects	Nymphalidae	*Euploea corinna*	common crow				8
animals	insects	Nymphalidae	*Danaus plexippus*	monarch				8
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				1
animals	insects	Nymphalidae	*Junonia villida villida*	meadow argus				1
animals	insects	Nymphalidae	*Hypolimnas bolina nerina*	varied eggfly				4
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				1
animals	insects	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor				2
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				4
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				7
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				5
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	insects	Pieridae	*Delias nigrina*	black jezebel				1
animals	insects	Pieridae	*Eurema smilax*	small grass-yellow				1
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				3
animals	insects	Pieridae	*Pieris rapae*	cabbage white				5
animals	insects	Pieridae	*Delias sp.*					1
animals	insects	Pieridae	*Belenois java teutonia*	caper white				1
animals	insects	Pieridae	*Delias argenthona argenthona*	scarlet jezebel				3
animals	lobe-finned fishes	Ceratodontidae	*Neoceratodus forsteri*	Australian lungfish			V	1
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			9
animals	mammals	Canidae	*Canis lupus familiaris*	dog	Y			1
animals	mammals	Dasyuridae	*Phascogale tapoatafa tapoatafa*	brush-tailed phascogale		C		1/1
animals	mammals	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)		V	E	2/1
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		2
animals	mammals	Felidae	*Felis catus*	cat	Y			4
animals	mammals	Kogiidae	*Kogia breviceps*	pygmy sperm whale		C		1
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			5
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		2
animals	mammals	Macropodidae	*Macropus sp.*					1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		2
animals	mammals	Miniopteridae	*Miniopterus schreibersii oceanensis*	eastern bent-wing bat		C		2
animals	mammals	Miniopteridae	*Miniopterus australis*	little bent-wing bat		C		2
animals	mammals	Molossidae	*Mormopterus ridei*	eastern free-tailed bat		C		1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		12
animals	mammals	Molossidae	*Mormopterus lumsdenae*	northern free-tailed bat		C		2
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		2
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			14
animals	mammals	Muridae	*Rattus fuscipes*	bush rat		C		3
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			14
animals	mammals	Ornithorhynchidae	*Ornithorhynchus anatinus*	platypus		SL		6
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		6
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		9/1
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		2
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		29/4
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	289/1
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		30/1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	58
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		59
animals	mammals	Pteropodidae	*Pteropus sp.*					8
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		8
animals	mammals	Suidae	*Sus scrofa*	pig	Y			2
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		4
animals	mammals	Vespertilionidae	*Myotis macropus*	large-footed myotis		C		1
animals	mammals	Vespertilionidae	*Chalinolobus morio*	chocolate wattled bat		C		1
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Vespertilionidae	*Nyctophilus geoffroyi*	lesser long-eared bat		C		1
animals	ray-finned fishes	Anguillidae	*Anguilla australis*	southern shortfin eel				16
animals	ray-finned fishes	Anguillidae	*Anguilla reinhardtii*	longfin eel				23
animals	ray-finned fishes	Cichlidae	*Oreochromis mossambica*	Mozambique mouthbrooder	Y			1
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				3
animals	ray-finned fishes	Eleotridae	*Hypseleotris compressa*	empire gudgeon				19
animals	ray-finned fishes	Eleotridae	*Gobiomorphus australis*	striped gudgeon				10
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				15
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				20
animals	ray-finned fishes	Mugilidae	*Mugil cephalus*	sea mullet				1
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				11
animals	ray-finned fishes	Plotosidae	*Porochilus rendahli*	Rendahl's catfish				2
animals	ray-finned fishes	Poeciliidae	*Poecilia reticulata*	guppy	Y			1
animals	ray-finned fishes	Poeciliidae	*Poecilia latipinna*	sailfin molly	Y			1
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			29
animals	ray-finned fishes	Poeciliidae	*Xiphophorus hellerii*	swordtail	Y			24
animals	ray-finned fishes	Poeciliidae	*Xiphophorus maculatus*	platy	Y			18
animals	reptiles	Agamidae	*Chlamydosaurus kingii*	frilled lizard		C		3/2
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		13/1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		10
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		29/1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		3/1
animals	reptiles	Chelidae	*Wollumbinia latisternum*	saw-shelled turtle		C		2
animals	reptiles	Chelidae	*Emydura macquarii macquarii*	Murray turtle		C		5
animals	reptiles	Chelidae	*Emydura macquarii krefftii*	Krefft's river turtle		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		25/1
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		5/1
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		17/1
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		1
animals	reptiles	Diplodactylidae	*Nebulifera robusta*	robust velvet gecko		C		1/1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		2/1
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		2
animals	reptiles	Elapidae	*Tropidechis carinatus*	rough-scaled snake		C		4
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		4
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		2/2
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		7/1
animals	reptiles	Elapidae	*Hemiaspis signata*	black-bellied swamp snake		C		4
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		3/1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		11
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			4
animals	reptiles	Pygopodidae	*Delma plebeia*	common delma		C		7/1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		6/3
animals	reptiles	Scincidae	*Bellatorias frerei*	major skink		C		1/1
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		2
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		21
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	*Lampropholis amicula*	friendly sunskink		C		1
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		9/3
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		42/7
animals	reptiles	Scincidae	*Morethia taeniopleura*	fire-tailed skink		C		4
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		8
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		35/5
animals	reptiles	Scincidae	*Eulamprus sp.*					8
animals	reptiles	Scincidae	*Carlia sp.*					1
animals	reptiles	Scincidae	*Egernia striolata*	tree skink		C		3
animals	reptiles	Scincidae	*Ctenotus arcanus*	arcane ctenotus		C		1
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		5
animals	reptiles	Scincidae	*Lampropholis sp.*			C		1
animals	reptiles	Typhlopidae	*Anilios sp.*					1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		3/1
fungi	club fungi	Basidiomycota	*Lepista nuda*			C		1/1
fungi	club fungi	Basidiomycota	*Chlorophyllum*			C		2/2
fungi	club fungi	Basidiomycota	*Collybia endota*			C		1/1
fungi	club fungi	Basidiomycota	*Lysurus mokusin*			C		1/1
fungi	club fungi	Basidiomycota	*Russula kalimna*			C		1/1
fungi	club fungi	Basidiomycota	*Amanita punctata*			C		1/1
fungi	club fungi	Basidiomycota	*Lepiota fuliginosa*			C		1/1
fungi	club fungi	Basidiomycota	*Phallus rubicundus*			C		1/1
fungi	club fungi	Basidiomycota	*Geastrum floriforme*			C		2/2
fungi	club fungi	Basidiomycota	*Gymnopilus junonius*			C		1/1
fungi	club fungi	Basidiomycota	*Inonotus albertinii*			C		1/1
fungi	club fungi	Basidiomycota	*Lepista sublilacina*			C		1/1
fungi	club fungi	Basidiomycota	*Bolbitius vitellinus*			C		1/1
fungi	club fungi	Basidiomycota	*Phylloporus sulcatus*			C		1/1
fungi	club fungi	Basidiomycota	*Inocybe austrofibrillosa*			C		1/1
fungi	club fungi	Basidiomycota	*Cantharellus ochraceoravus*			C		1/1
fungi	club fungi	Basidiomycota	*Ramaria*			C		1/1
fungi	club fungi	Basidiomycota	*Russula*			C		1/1
fungi	club fungi	Basidiomycota	*Conocybe*			C		1/1
fungi	club fungi	Basidiomycota	*Hexagonia*			C		1/1
fungi	club fungi	Basidiomycota	*Armillaria*			C		1/1
fungi	club fungi	Basidiomycota	*Veluticeps*			C		1/1
fungi	sac fungi	Arthoniaceae	*Arthonia*			C		2/2
fungi	sac fungi	Candelariaceae	*Candelaria concolor*			C		9/9
fungi	sac fungi	Graphidaceae	*Glyphis cicatricosa*			C		1/1
fungi	sac fungi	Graphidaceae	*Halegrapha mucronata*			C		5/5
fungi	sac fungi	Graphidaceae	*Graphis desquamescens*			C		1/1
fungi	sac fungi	Graphidaceae	*Dictyographa psyllocarpa*			C		1/1
fungi	sac fungi	Graphidaceae	*Dictyographa*			C		1/1
fungi	sac fungi	Lecanoraceae	*Lecanora helva*			C		10/10
fungi	sac fungi	Lecanoraceae	*Lecanora achroa*			C		1/1
fungi	sac fungi	Lecanoraceae	*Lecanora leprosa*			C		1/1

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fungi	sac fungi	Lecanoraceae	*Lecanora tropica*			C		1/1
fungi	sac fungi	Lecanoraceae	*Lecanora argentata*			C		3/3
fungi	sac fungi	Lecanoraceae	*Lecanora phaeocardia*			C		1/1
fungi	sac fungi	Lecanoraceae	*Ramboldia haematites*			C		1/1
fungi	sac fungi	Lecanoraceae	*Lecanora caesiorubella*			C		2/2
fungi	sac fungi	Lecideaceae	*Malcolmiella*			C		1/1
fungi	sac fungi	Lichen	*Lichen*			C		2/2
fungi	sac fungi	Micareaceae	*Micarea prasina*			C		2/2
fungi	sac fungi	Monoblastiaceae	*Anisomeridium tamarindi*			C		1/1
fungi	sac fungi	Mycocaliciaceae	*Stenocybe*			C		2/2
fungi	sac fungi	Parmeliaceae	*Parmotrema austrocetratum*			C		1/1
fungi	sac fungi	Parmeliaceae	*Bulbothrix goebelii*			C		1/1
fungi	sac fungi	Parmeliaceae	*Bulbothrix tabacina*			C		1/1
fungi	sac fungi	Parmeliaceae	*Canoparmelia aptata*			C		4/4
fungi	sac fungi	Parmeliaceae	*Canoparmelia texana*			C		5/5
fungi	sac fungi	Parmeliaceae	*Parmotrema tinctorum*			C		22/22
fungi	sac fungi	Parmeliaceae	*Bulbothrix apophysata*			C		3/3
fungi	sac fungi	Parmeliaceae	*Austroparmelina conlabrosa*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmotrema reticulatum*			C		1/1
fungi	sac fungi	Pertusariaceae	*Pertusaria irregularis*			C		2/2
fungi	sac fungi	Pertusariaceae	*Ochrolechia subpallescens*			C		5/5
fungi	sac fungi	Pertusariaceae	*Pertusaria leioplacella*			C		7/7
fungi	sac fungi	Pertusariaceae	*Pertusaria*			C		2/2
fungi	sac fungi	Pertusariaceae	*Pertusaria undulata*			C		1/1
fungi	sac fungi	Pertusariaceae	*Pertusaria thiospoda*			C		4/4
fungi	sac fungi	Pertusariaceae	*Pertusaria pertusella*			C		1/1
fungi	sac fungi	Physciaceae	*Pyxine*			C		1/1
fungi	sac fungi	Physciaceae	*Dirinaria confluens*			C		11/11
fungi	sac fungi	Physciaceae	*Buellia*			C		1/1
fungi	sac fungi	Physciaceae	*Buellia dissa*			C		7/7
fungi	sac fungi	Physciaceae	*Physcia minor*			C		6/6
fungi	sac fungi	Physciaceae	*Pyxine cocoes*			C		1/1
fungi	sac fungi	Physciaceae	*Buellia dialyta*			C		2/2
fungi	sac fungi	Physciaceae	*Pyxine subcinerea*			C		2/2
fungi	sac fungi	Physciaceae	*Amandinea punctata*			C		3/3
fungi	sac fungi	Physciaceae	*Buellia curatellae*			C		2/2
fungi	sac fungi	Physciaceae	*Monerolechia badia*			C		1/1
fungi	sac fungi	Physciaceae	*Amandinea insperata*			C		1/1
fungi	sac fungi	Physciaceae	*Dirinaria aegialita*			C		6/6
fungi	sac fungi	Physciaceae	*Hyperphyscia adglutinata*			C		7/7
fungi	sac fungi	Physciaceae	*Phaeophyscia hispidula*			C		1/1
fungi	sac fungi	Physciaceae	*Amandinea efflorescens*			C		1/1
fungi	sac fungi	Physciaceae	*Heterodermia speciosa*			C		8/8
fungi	sac fungi	Physciaceae	*Physcia tribacoides*			C		1/1
fungi	sac fungi	Physciaceae	*Hyperphyscia pandani*			C		1/1
fungi	sac fungi	Physciaceae	*Buellia subcallispora*			C		1/1

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fungi	sac fungi	Physciaceae	*Dirinaria applanata*			C		34/34
fungi	sac fungi	Ramalinaceae	*Ramalina inflata subsp. perpusilla*			C		1/1
fungi	slime molds	Myxomycota	*Fuligo septica*			C		1/1
plants	ferns	Adiantaceae	*Cheilanthes sieberi*			C		1
plants	ferns	Adiantaceae	*Cheilanthes sieberi subsp. sieberi*			C		2/2
plants	ferns	Aspleniaceae	*Asplenium australasicum*			C		1
plants	ferns	Blechnaceae	*Doodia caudata*			C		1/1
plants	ferns	Lindsaeaceae	*Lindsaea microphylla*	lacy wedge fern		C		2/2
plants	ferns	Ophioglossaceae	*Ophioglossum lusitanicum*	adder's tongue		C		1/1
plants	ferns	Polypodiaceae	*Platycerium superbum*	staghorn fern		C		1
plants	ferns	Salviniaceae	*Salvinia molesta*	salvinia	Y			1/1
plants	ferns	Schizaeaceae	*Schizaea bifida*	forked comb fern		C		4/4
plants	higher dicots	Acanthaceae	*Pseuderanthemum variabile*	pastel flower		C		2/1
plants	higher dicots	Acanthaceae	*Hygrophila costata*		Y			1/1
plants	higher dicots	Acanthaceae	*Thunbergia fragrans*		Y			1/1
plants	higher dicots	Acanthaceae	*Dicliptera chinensis*	Chinese foldwing	Y			2/2
plants	higher dicots	Acanthaceae	*Dyschoriste depressa*		Y			3/3
plants	higher dicots	Acanthaceae	*Rostellularia obtusa*			C		1/1
plants	higher dicots	Acanthaceae	*Avicennia marina subsp. australasica*			C		1/1
plants	higher dicots	Acanthaceae	*Thunbergia alata*	black-eyed Susan	Y			1/1
plants	higher dicots	Acanthaceae	*Hygrophila angustifolia*			C		1/1
plants	higher dicots	Aizoaceae	*Sesuvium portulacastrum*	sea purslane		C		1/1
plants	higher dicots	Amaranthaceae	*Amaranthus blitum*		Y			1/1
plants	higher dicots	Amaranthaceae	*Amaranthus spinosus*	needle burr	Y			1/1
plants	higher dicots	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			2
plants	higher dicots	Amaranthaceae	*Alternanthera denticulata*	lesser joyweed		C		3/2
plants	higher dicots	Amaranthaceae	*Alternanthera philoxeroides*	alligator weed	Y			2/2
plants	higher dicots	Anacardiaceae	*Schinus terebinthifolius*		Y			3/2
plants	higher dicots	Anacardiaceae	*Mangifera indica*	mango	Y			1
plants	higher dicots	Apiaceae	*Centella asiatica*			C		2/1
plants	higher dicots	Apocynaceae	*Parsonsia brisbanensis*	broad-leaved monkey vine		C		3/2
plants	higher dicots	Apocynaceae	*Tylophora paniculata*	thin-leaved tylophora		C		1/1
plants	higher dicots	Apocynaceae	*Parsonsia straminea*	monkey rope		C		6/4
plants	higher dicots	Araliaceae	*Hydrocotyle verticillata*	shield pennywort		C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle peduncularis*			C		1/1
plants	higher dicots	Araliaceae	*Schefflera actinophylla*	umbrella tree		C		2
plants	higher dicots	Asteraceae	*Lagenophora gracilis*			C		1/1
plants	higher dicots	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			2
plants	higher dicots	Asteraceae	*Baccharis halimifolia*	groundsel bush	Y			1
plants	higher dicots	Asteraceae	*Cyanthillium cinereum*			C		2/2
plants	higher dicots	Asteraceae	*Ozothamnus diosmifolius*	white dogwood		C		1
plants	higher dicots	Asteraceae	*Sphagneticola trilobata*		Y			2/1
plants	higher dicots	Asteraceae	*Symphyotrichum subulatum*		Y			1
plants	higher dicots	Asteraceae	*Sphaeromorphaea australis*			C		1
plants	higher dicots	Asteraceae	*Crassocephalum crepidioides*	thickhead	Y			1
plants	higher dicots	Asteraceae	*Emilia sonchifolia var. javanica*		Y			1/1

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plants	higher dicots	Asteraceae	*Thymophylla tenuiloba var. tenuiloba*		Y			1/1
plants	higher dicots	Asteraceae	*Acmella grandiflora var. brachyglossa*			C		1/1
plants	higher dicots	Asteraceae	*Ageratum conyzoides subsp. conyzoides*		Y			1/1
plants	higher dicots	Asteraceae	*Erechtites valerianifolius forma valerianifolius*		Y			1/1
plants	higher dicots	Asteraceae	*Emilia sonchifolia*		Y			1
plants	higher dicots	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1/1
plants	higher dicots	Asteraceae	*Tridax procumbens*	tridax daisy	Y			1
plants	higher dicots	Asteraceae	*Sonchus oleraceus*	common sowthistle	Y			2/1
plants	higher dicots	Asteraceae	*Eclipta prostrata*	white eclipta	Y			5/3
plants	higher dicots	Asteraceae	*Olearia nernstii*	Ipswich daisy		C		1/1
plants	higher dicots	Asteraceae	*Soliva sessilis*		Y			1/1
plants	higher dicots	Asteraceae	*Enydra woollsii*			C		1/1
plants	higher dicots	Asteraceae	*Gazania rigens*		Y			1
plants	higher dicots	Asteraceae	*Hypochaeris radicata*	catsear	Y			3/1
plants	higher dicots	Asteraceae	*Erigeron sumatrensis*		Y			1/1
plants	higher dicots	Asteraceae	*Erigeron bonariensis*		Y			1/1
plants	higher dicots	Asteraceae	*Vittadinia muelleri*			C		1/1
plants	higher dicots	Asteraceae	*Soliva anthemifolia*	dwarf jo jo weed	Y			2/2
plants	higher dicots	Asteraceae	*Euchiton japonicus*			C		1/1
plants	higher dicots	Asteraceae	*Gamochaeta purpurea*		Y			1/1
plants	higher dicots	Asteraceae	*Glossocardia bidens*	native cobbler's pegs		C		1
plants	higher dicots	Asteraceae	*Eclipta platyglossa*			C		2/1
plants	higher dicots	Asteraceae	*Bidens pilosa*		Y			2
plants	higher dicots	Bignoniaceae	*Spathodea campanulata*	West African tulip tree	Y			1
plants	higher dicots	Bignoniaceae	*Jacaranda mimosifolia*	jacaranda	Y			1
plants	higher dicots	Bignoniaceae	*Pandorea pandorana*	wonga vine		C		1
plants	higher dicots	Bignoniaceae	*Dolichandra unguis-cati*	cat's claw creeper	Y			1
plants	higher dicots	Brassicaceae	*Rorippa laciniata*			C		1/1
plants	higher dicots	Byttneriaceae	*Seringia denticulata*			C		5/5
plants	higher dicots	Caesalpiniaceae	*Senna pendula*		Y			1
plants	higher dicots	Caesalpiniaceae	*Bauhinia galpinii*		Y			1
plants	higher dicots	Caesalpiniaceae	*Barklya syringifolia*	golden shower tree		C		1/1
plants	higher dicots	Caesalpiniaceae	*Delonix regia*	poinciana	Y			1
plants	higher dicots	Campanulaceae	*Lobelia stenophylla*			C		2/2
plants	higher dicots	Campanulaceae	*Lobelia purpurascens*	white root		C		1
plants	higher dicots	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		C		2/2
plants	higher dicots	Caricaceae	*Carica papaya*	pawpaw	Y			1
plants	higher dicots	Caryophyllaceae	*Drymaria cordata*		Y			1
plants	higher dicots	Caryophyllaceae	*Spergularia marina*			C		3/3
plants	higher dicots	Casuarinaceae	*Casuarina glauca*	swamp she-oak		C		1/1
plants	higher dicots	Casuarinaceae	*Allocasuarina littoralis*			C		2/1
plants	higher dicots	Chenopodiaceae	*Einadia hastata*			C		1/1
plants	higher dicots	Chenopodiaceae	*Sarcocornia quinqueflora subsp. quinqueflora*			C		1/1
plants	higher dicots	Clusiaceae	*Hypericum gramineum*			C		1
plants	higher dicots	Convolvulaceae	*Ipomoea alba*	moon flower	Y			1/1
plants	higher dicots	Convolvulaceae	*Ipomoea plebeia*	bellvine		C		1/1

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plants	higher dicots	Convolvulaceae	*Dichondra repens*	kidney weed		C		2/1
plants	higher dicots	Convolvulaceae	*Ipomoea purpurea*	common morning glory	Y			1/1
plants	higher dicots	Convolvulaceae	*Polymeria calycina*	pink bindweed		C		1
plants	higher dicots	Crassulaceae	*Bryophyllum delagoense*		Y			1
plants	higher dicots	Dilleniaceae	*Hibbertia*			C		1/1
plants	higher dicots	Dilleniaceae	*Hibbertia stricta var. stricta*			C		2/2
plants	higher dicots	Dilleniaceae	*Hibbertia stricta*			C		1/1
plants	higher dicots	Elatinaceae	*Elatine gratioloides*	waterwort		C		1/1
plants	higher dicots	Ericaceae	*Monotoca scoparia*	prickly broom heath		C		1/1
plants	higher dicots	Ericaceae	*Leucopogon juniperinus*	prickly heath		C		1/1
plants	higher dicots	Ericaceae	*Agiortia pedicellata*			C		3/3
plants	higher dicots	Ericaceae	*Leucopogon sp. (Coolmunda D.Halford Q1635)*			E	E	1
plants	higher dicots	Ericaceae	*Acrotriche aggregata*	red cluster heath		C		1/1
plants	higher dicots	Euphorbiaceae	*Triadica sebifera*		Y			4/4
plants	higher dicots	Euphorbiaceae	*Ricinus communis*	castor oil bush	Y			1
plants	higher dicots	Euphorbiaceae	*Euphorbia hirta*		Y			3/3
plants	higher dicots	Fabaceae	*Glycine clandestina*			C		1
plants	higher dicots	Fabaceae	*Erythrina x sykesii*		Y			1/1
plants	higher dicots	Fabaceae	*Podolobium scandens*			C		2/2
plants	higher dicots	Fabaceae	*Daviesia umbellulata*			C		5/5
plants	higher dicots	Fabaceae	*Phyllota phylicoides*	yellow peabush		C		3/3
plants	higher dicots	Fabaceae	*Pultenaea petiolaris*			C		2/2
plants	higher dicots	Fabaceae	*Chorizema parviflorum*	eastern flame pea		C		2/2
plants	higher dicots	Fabaceae	*Crotalaria grahamiana*		Y			2/2
plants	higher dicots	Fabaceae	*Dillwynia phylicoides*			C		8/8
plants	higher dicots	Fabaceae	*Gompholobium pinnatum*	poor mans gold		C		2/2
plants	higher dicots	Fabaceae	*Hardenbergia violacea*			C		2/1
plants	higher dicots	Fabaceae	*Tephrosia grandiflora*		Y			1/1
plants	higher dicots	Fabaceae	*Erythrina crista-galli*		Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia glomeruliflora*	pink tephrosia	Y			1/1
plants	higher dicots	Fabaceae	*Macroptilium atropurpureum*	siratro	Y			2
plants	higher dicots	Fabaceae	*Crotalaria pallida var. obovata*		Y			2/2
plants	higher dicots	Fabaceae	*Lespedeza juncea subsp. sericea*	perennial lespedeza		C		1/1
plants	higher dicots	Fabaceae	*Neonotonia wightii var. wightii*		Y			1/1
plants	higher dicots	Fabaceae	*Austrosteenisia blackii var. blackii*			C		3/3
plants	higher dicots	Fabaceae	*Macrotyloma uniflorum var. stenocarpum*		Y			1/1
plants	higher dicots	Fabaceae	*Crotalaria lanceolata subsp. lanceolata*		Y			1/1
plants	higher dicots	Fabaceae	*Macroptilium lathyroides var. semierectum*		Y			1/1
plants	higher dicots	Fabaceae	*Sesbania*			C		1/1
plants	higher dicots	Fabaceae	*Tipuana tipu*	tipuana	Y			1
plants	higher dicots	Fabaceae	*Desmodium gunnii*			C		1/1
plants	higher dicots	Fabaceae	*Glycine tabacina*	glycine pea		C		2/1
plants	higher dicots	Fabaceae	*Hovea acutifolia*			C		2/2
plants	higher dicots	Fabaceae	*Lablab purpureus*	lablab	Y			1/1
plants	higher dicots	Fabaceae	*Canavalia papuana*	wild jack bean		C		1/1
plants	higher dicots	Fabaceae	*Pultenaea spinosa*			C		2/2

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plants	higher dicots	Fabaceae	*Pultenaea villosa*	hairy bush pea		C		1/1
plants	higher dicots	Fabaceae	*Crotalaria montana*			C		1/1
plants	higher dicots	Fabaceae	*Daviesia villifera*	prickly daviesia		C		2/2
plants	higher dicots	Fabaceae	*Hovea heterophylla*			C		1/1
plants	higher dicots	Fabaceae	*Jacksonia scoparia*			C		3/3
plants	higher dicots	Fabaceae	*Trifolium pratense*		Y			1/1
plants	higher dicots	Fabaceae	*Aeschynomene indica*	budda pea		C		1/1
plants	higher dicots	Fabaceae	*Desmodium uncinatum*		Y			1
plants	higher dicots	Flacourtiaceae	*Dovyalis caffra*	kei apple	Y			1/1
plants	higher dicots	Goodeniaceae	*Velleia spathulata*	wild pansies		C		1
plants	higher dicots	Goodeniaceae	*Goodenia bellidifolia subsp. argentea*			C		1/1
plants	higher dicots	Goodeniaceae	*Goodenia rotundifolia*			C		3/2
plants	higher dicots	Goodeniaceae	*Goodenia paniculata*			C		2/2
plants	higher dicots	Haloragaceae	*Myriophyllum aquaticum*	Brazilian water milfoil	Y			1/1
plants	higher dicots	Haloragaceae	*Haloragis heterophylla*	rough raspweed		C		2/2
plants	higher dicots	Lamiaceae	*Teucrium argutum*			C		2/2
plants	higher dicots	Lamiaceae	*Stachys arvensis*	stagger weed	Y			1/1
plants	higher dicots	Lentibulariaceae	*Utricularia aurea*	golden bladderwort		C		1/1
plants	higher dicots	Loganiaceae	*Mitrasacme paludosa*			C		1/1
plants	higher dicots	Lythraceae	*Rotala tripartita*			C		2/2
plants	higher dicots	Malvaceae	*Urena lobata*	urena weed	Y			1/1
plants	higher dicots	Malvaceae	*Malvastrum coromandelianum subsp. coromandelianum*		Y			1/1
plants	higher dicots	Malvaceae	*Modiola caroliniana*	red-flowered mallow	Y			1/1
plants	higher dicots	Malvaceae	*Sida rhombifolia*		Y			1
plants	higher dicots	Malvaceae	*Malva sylvestris*		Y			1/1
plants	higher dicots	Melastomataceae	*Melastoma malabathricum subsp. malabathricum*			C		1
plants	higher dicots	Menyanthaceae	*Nymphoides geminata*			C		1/1
plants	higher dicots	Mimosaceae	*Mimosa pudica*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia penninervis var. longiracemosa*			C		3/3
plants	higher dicots	Mimosaceae	*Acacia leiocalyx*			C		2
plants	higher dicots	Mimosaceae	*Acacia fimbriata*	Brisbane golden wattle		C		2/1
plants	higher dicots	Mimosaceae	*Acacia disparrima subsp. disparrima*			C		3/1
plants	higher dicots	Mimosaceae	*Leucaena leucocephala*		Y			1
plants	higher dicots	Mimosaceae	*Acacia podalyriifolia*	Queensland silver wattle		C		1
plants	higher dicots	Mimosaceae	*Acacia penninervis*			C		1
plants	higher dicots	Mimosaceae	*Acacia melanoxylon*	blackwood		C		1/1
plants	higher dicots	Mimosaceae	*Acacia ulicifolia*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia concurrens*			C		2/2
plants	higher dicots	Mimosaceae	*Acacia cincinnata*			C		1/1
plants	higher dicots	Moraceae	*Ficus obliqua*			C		1
plants	higher dicots	Moraceae	*Ficus benghalensis*	banyan	Y			1/1
plants	higher dicots	Myrsinaceae	*Aegiceras corniculatum*	river mangrove		C		1/1
plants	higher dicots	Myrsinaceae	*Ardisia crenata*		Y			1
plants	higher dicots	Myrtaceae	*Eucalyptus tereticornis subsp. tereticornis*			C		1/1
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		1/1
plants	higher dicots	Myrtaceae	*Leptospermum polygalifolium*	tantoon		C		1/1

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plants	higher dicots	Myrtaceae	*Xanthostemon chrysanthus*	black penda		C		1
plants	higher dicots	Myrtaceae	*Melaleuca quinquenervia*	swamp paperbark		C		5/3
plants	higher dicots	Myrtaceae	*Leptospermum trinervium*	woolly tea-tree		C		3/3
plants	higher dicots	Myrtaceae	*Leptospermum petersonii*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus tereticornis*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus siderophloia*			C		3/1
plants	higher dicots	Myrtaceae	*Melaleuca linariifolia*	snow-in summer		C		1
plants	higher dicots	Myrtaceae	*Lophostemon suaveolens*	swamp box		C		4/1
plants	higher dicots	Myrtaceae	*Tristaniopsis laurina*			C		1
plants	higher dicots	Myrtaceae	*Lophostemon confertus*	brush box		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus resinifera*	red mahogany		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus psammitica*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus microcorys*			C		3/1
plants	higher dicots	Myrtaceae	*Eucalyptus helidonica*			C		3/3
plants	higher dicots	Myrtaceae	*Eucalyptus acmenoides*			C		1
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia*			C		1
plants	higher dicots	Myrtaceae	*Backhousia myrtifolia*	carrol		C		1
plants	higher dicots	Myrtaceae	*Acmena smithii*	lillypilly satinash		C		1
plants	higher dicots	Myrtaceae	*Corymbia henryi*	large-leaved spotted gum		C		1
plants	higher dicots	Myrtaceae	*Eugenia uniflora*	Brazilian cherry tree	Y			1
plants	higher dicots	Myrtaceae	*Melaleuca nodosa*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus carnea*			C		5/5
plants	higher dicots	Myrtaceae	*Sannantha collina*			C		1/1
plants	higher dicots	Myrtaceae	*Syzygium australe*	scrub cherry		C		1/1
plants	higher dicots	Myrtaceae	*Corymbia gummifera*	red bloodwood		C		3/3
plants	higher dicots	Myrtaceae	*Eucalyptus grandis*	flooded gum		C		1
plants	higher dicots	Myrtaceae	*Melaleuca salicina*			C		2/2
plants	higher dicots	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		1
plants	higher dicots	Myrtaceae	*Angophora woodsiana*	smudgee		C		5/5
plants	higher dicots	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		3/2
plants	higher dicots	Myrtaceae	*Corymbia torelliana*	cadaghi		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus curtisii*	Plunkett mallee		NT		1
plants	higher dicots	Myrtaceae	*Melaleuca bracteata*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca viminalis*			C		1
plants	higher dicots	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		2/2
plants	higher dicots	Myrtaceae	*Eucalyptus propinqua*	small-fruited grey gum		C		2
plants	higher dicots	Myrtaceae	*Eucalyptus tindaliae*	Queensland white stringybark		C		2/2
plants	higher dicots	Myrtaceae	*Corymbia citriodora subsp. variegata*			C		1
plants	higher dicots	Ochnaceae	*Ochna serrulata*	ochna	Y			1
plants	higher dicots	Onagraceae	*Ludwigia peploides subsp. montevidensis*			C		1
plants	higher dicots	Onagraceae	*Ludwigia octovalvis*	willow primrose		C		1
plants	higher dicots	Oxalidaceae	*Oxalis corniculata*		Y			1
plants	higher dicots	Oxalidaceae	*Oxalis*			C		1/1
plants	higher dicots	Passifloraceae	*Passiflora suberosa subsp. litoralis*		Y			1/1
plants	higher dicots	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1
plants	higher dicots	Passifloraceae	*Passiflora edulis*		Y			1

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plants	higher dicots	Passifloraceae	*Passiflora suberosa*	corky passion flower	Y			1
plants	higher dicots	Phyllanthaceae	*Phyllanthus virgatus*			C		2/2
plants	higher dicots	Phyllanthaceae	*Phyllanthus tenellus*		Y			1
plants	higher dicots	Phyllanthaceae	*Breynia oblongifolia*			C		1
plants	higher dicots	Phyllanthaceae	*Sauropus hirtellus*			C		1/1
plants	higher dicots	Phyllanthaceae	*Glochidion ferdinandi*			C		1
plants	higher dicots	Phyllanthaceae	*Glochidion ferdinandi var. ferdinandi*			C		1/1
plants	higher dicots	Phyllanthaceae	*Poranthera microphylla*	small poranthera		C		2/2
plants	higher dicots	Phyllanthaceae	*Glochidion sumatranum*	umbrella cheese tree		C		1/1
plants	higher dicots	Phytolaccaceae	*Phytolacca octandra*	inkweed	Y			1/1
plants	higher dicots	Pittosporaceae	*Hymenosporum flavum*	native frangipani		C		1
plants	higher dicots	Pittosporaceae	*Auranticarpa rhombifolia*			C		1/1
plants	higher dicots	Pittosporaceae	*Pittosporum revolutum*	yellow pittosporum		C		1
plants	higher dicots	Plantaginaceae	*Plantago debilis*	shade plantain		C		1/1
plants	higher dicots	Plantaginaceae	*Plantago myosuros subsp. myosuros*		Y			1/1
plants	higher dicots	Polygalaceae	*Comesperma defoliatum*	leafless milkwort		C		1/1
plants	higher dicots	Polygalaceae	*Polygala paniculata*		Y			1/1
plants	higher dicots	Polygalaceae	*Comesperma hispidulum*			C		2/2
plants	higher dicots	Polygalaceae	*Comesperma sphaerocarpum*			C		2/2
plants	higher dicots	Polygonaceae	*Persicaria orientalis*	princes feathers		C		2/2
plants	higher dicots	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Persicaria attenuata*			C		2/2
plants	higher dicots	Polygonaceae	*Persicaria barbata*			C		1/1
plants	higher dicots	Polygonaceae	*Rumex brownii*	swamp dock		C		1
plants	higher dicots	Portulacaceae	*Portulaca oleracea*	pigweed	Y			1
plants	higher dicots	Portulacaceae	*Portulaca pilosa*		Y			1
plants	higher dicots	Proteaceae	*Petrophile canescens*			C		4/4
plants	higher dicots	Proteaceae	*Stenocarpus sinuatus*	wheel of fire		C		1
plants	higher dicots	Proteaceae	*Macadamia tetraphylla*			V	V	1
plants	higher dicots	Proteaceae	*Macadamia integrifolia*	macadamia nut		V	V	1
plants	higher dicots	Proteaceae	*Banksia spinulosa var. collina*			C		3/3
plants	higher dicots	Proteaceae	*Persoonia tenuifolia*			C		1/1
plants	higher dicots	Proteaceae	*Banksia oblongifolia*	dwarf banksia		C		2/2
plants	higher dicots	Proteaceae	*Grevillea baileyana*			C		1
plants	higher dicots	Proteaceae	*Persoonia sericea*	silky geebung		C		2/2
plants	higher dicots	Proteaceae	*Persoonia sericea x P.tenuifolia*			C		1/1
plants	higher dicots	Proteaceae	*Grevillea banksii*			C		1/1
plants	higher dicots	Proteaceae	*Hakea florulenta*	three-nerved willow hakea		C		1/1
plants	higher dicots	Proteaceae	*Grevillea robusta*			C		1
plants	higher dicots	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		3
plants	higher dicots	Rhizophoraceae	*Ceriops australis*			C		1/1
plants	higher dicots	Rosaceae	*Prunus rivularis*		Y			1/1
plants	higher dicots	Rosaceae	*Rhaphiolepis indica*	Indian hawthorn	Y			1
plants	higher dicots	Rubiaceae	*Opercularia diphylla*			C		1/1
plants	higher dicots	Rubiaceae	*Spermacoce brachystema*			C		1/1
plants	higher dicots	Rubiaceae	*Gynochthodes jasminoides*			C		1/1

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plants	higher dicots	Rubiaceae	*Cyclophyllum coprosmoides var. spathulatum*			C		1/1
plants	higher dicots	Rubiaceae	*Oldenlandia subulata*			C		3/3
plants	higher dicots	Rubiaceae	*Richardia stellaris*		Y			1/1
plants	higher dicots	Rubiaceae	*Pomax umbellata*			C		1/1
plants	higher dicots	Rubiaceae	*Coffea arabica*	Arabian coffee	Y			1
plants	higher dicots	Rubiaceae	*Richardia brasiliensis*	white eye	Y			1
plants	higher dicots	Rutaceae	*Bergera koenigii*		Y			1/1
plants	higher dicots	Rutaceae	*Murraya paniculata*			C		1
plants	higher dicots	Santalaceae	*Exocarpos cupressiformis*	native cherry		C		2/1
plants	higher dicots	Santalaceae	*Thesium australe*	toadflax		V	V	1/1
plants	higher dicots	Sapindaceae	*Guioa semiglauca*	guioa		C		1/1
plants	higher dicots	Sapindaceae	*Harpullia pendula*			C		2
plants	higher dicots	Sapindaceae	*Jagera pseudorhus*			C		1
plants	higher dicots	Scrophulariaceae	*Eremophila debilis*	winter apple		C		2/1
plants	higher dicots	Solanaceae	*Solanum capsicoides*	devil's apple	Y			1/1
plants	higher dicots	Solanaceae	*Cestrum parqui*	green cestrum	Y			1
plants	higher dicots	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			2
plants	higher dicots	Solanaceae	*Duboisia myoporoides*			C		1/1
plants	higher dicots	Solanaceae	*Solanum nigrum*		Y			1
plants	higher dicots	Solanaceae	*Nicandra physalodes*	apple of Peru	Y			1/1
plants	higher dicots	Solanaceae	*Solanum nodiflorum*		Y			1
plants	higher dicots	Solanaceae	*Datura stramonium*	common thornapple	Y			1/1
plants	higher dicots	Solanaceae	*Physalis angulata*		Y			1/1
plants	higher dicots	Sparrmanniaceae	*Triumfetta rhomboidea*	chinese burr	Y			1/1
plants	higher dicots	Stylidiaceae	*Stylidium tenerum*			C		1/1
plants	higher dicots	Stylidiaceae	*Stylidium graminifolium*	grassy-leaved trigger-flower		C		1/1
plants	higher dicots	Thymelaeaceae	*Wikstroemia indica*	tie bush		C		1
plants	higher dicots	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1
plants	higher dicots	Ulmaceae	*Trema tomentosa*			C		1
plants	higher dicots	Urticaceae	*Urtica urens*	small nettle	Y			1/1
plants	higher dicots	Verbenaceae	*Stachytarpheta jamaicensis*	Jamaica snakeweed	Y			1
plants	higher dicots	Verbenaceae	*Stachytarpheta australis*		Y			1/1
plants	higher dicots	Verbenaceae	*Verbena bonariensis*	purpletop	Y			1
plants	higher dicots	Verbenaceae	*Lantana camara*	lantana	Y			2/1
plants	higher dicots	Verbenaceae	*Verbena incompta*		Y			2/2
plants	higher dicots	Violaceae	*Hybanthus monopetalus*			C		2/2
plants	higher dicots	Violaceae	*Viola betonicifolia subsp. betonicifolia*			C		1/1
plants	higher dicots	Viscaceae	*Viscum articulatum*	flat mistletoe		C		1/1
plants	higher dicots	Viscaceae	*Notothixos subaureus*	golden mistletoe		C		1/1
plants	higher dicots	Vitaceae	*Clematicissus opaca*			C		2/2
plants	higher dicots	Vitaceae	*Cissus hypoglauca*			C		1
plants	lower dicots	Ceratophyllaceae	*Ceratophyllum demersum*	hornwort		C		1/1
plants	lower dicots	Lauraceae	*Cassytha filiformis*	dodder laurel		C		2/1
plants	lower dicots	Lauraceae	*Cinnamomum camphora*	camphor laurel	Y			2/1
plants	lower dicots	Lauraceae	*Cryptocarya microneura*	murrogun		C		1/1
plants	lower dicots	Linderniaceae	*Artanema fimbriatum*			C		1/1

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plants	lower dicots	Menispermaceae	*Stephania japonica*			C		1
plants	lower dicots	Ranunculaceae	*Ranunculus sessiliflorus var. sessiliflorus*			C		1/1
plants	monocots	Agavaceae	*Agave americana*		Y			1
plants	monocots	Alismataceae	*Sagittaria platyphylla*	sagittaria	Y			4/4
plants	monocots	Arecaceae	*Livistona australis*	cabbage tree palm		C		1/1
plants	monocots	Asparagaceae	*Asparagus aethiopicus*	ground asparagus	Y			1
plants	monocots	Asparagaceae	*Asparagus aethiopicus cv. Sprengeri*	basket asparagus fern	Y			1
plants	monocots	Colchicaceae	*Wurmbea dioica subsp. dioica*			C		1/1
plants	monocots	Commelinaceae	*Callisia fragrans*		Y			1
plants	monocots	Commelinaceae	*Commelina benghalensis*		Y			1/1
plants	monocots	Commelinaceae	*Murdannia graminea*	murdannia		C		2/1
plants	monocots	Commelinaceae	*Commelina diffusa*	wandering jew		C		3/1
plants	monocots	Cyperaceae	*Eleocharis philippinensis*			C		2/2
plants	monocots	Cyperaceae	*Rhynchospora heterochaeta*			C		4/4
plants	monocots	Cyperaceae	*Fimbristylis cinnamometorum*			C		4/4
plants	monocots	Cyperaceae	*Fimbristylis polytrichoides*			C		2/2
plants	monocots	Cyperaceae	*Schoenus apogon var. apogon*			C		2/2
plants	monocots	Cyperaceae	*Cyperus haspan subsp. haspan*			C		3/3
plants	monocots	Cyperaceae	*Lepidosperma laterale var. laterale*			C		1/1
plants	monocots	Cyperaceae	*Cyperus polystachyos var. polystachyos*			C		1/1
plants	monocots	Cyperaceae	*Scleria sp. (Maggieville R.C.Carolin 8758)*			C		1
plants	monocots	Cyperaceae	*Cyperus iria*			C		1/1
plants	monocots	Cyperaceae	*Carex appressa*			C		1/1
plants	monocots	Cyperaceae	*Carex maculata*			C		1/1
plants	monocots	Cyperaceae	*Cyperus haspan*			C		1/1
plants	monocots	Cyperaceae	*Scleria rugosa*			C		1/1
plants	monocots	Cyperaceae	*Cyperus distans*			C		1/1
plants	monocots	Cyperaceae	*Cyperus lucidus*			C		2/2
plants	monocots	Cyperaceae	*Eleocharis equisetina*			C		1/1
plants	monocots	Cyperaceae	*Cyperus gracilis*			C		1/1
plants	monocots	Cyperaceae	*Cyperus prolifer*	dwarf papyrus	Y			1/1
plants	monocots	Cyperaceae	*Cyperus rotundus*	nutgrass	Y			3/3
plants	monocots	Cyperaceae	*Fuirena ciliaris*			C		1/1
plants	monocots	Cyperaceae	*Baumea articulata*	jointed twigrush		C		1/1
plants	monocots	Cyperaceae	*Cyperus aquatilis*			C		1/1
plants	monocots	Cyperaceae	*Cyperus bowmannii*			C		1/1
plants	monocots	Cyperaceae	*Cyperus difformis*	rice sedge		C		1/1
plants	monocots	Cyperaceae	*Cyperus exaltatus*	tall flatsedge		C		1
plants	monocots	Cyperaceae	*Cyperus flaccidus*			C		2/2
plants	monocots	Cyperaceae	*Cyperus trinervis*			C		1/1
plants	monocots	Cyperaceae	*Eleocharis minuta*		Y			1/1
plants	monocots	Cyperaceae	*Fuirena umbellata*			C		1/1
plants	monocots	Cyperaceae	*Isolepis inundata*	swamp club rush		C		2/2
plants	monocots	Cyperaceae	*Ptilothrix deusta*			C		1/1
plants	monocots	Cyperaceae	*Abildgaardia ovata*			C		1/1
plants	monocots	Cyperaceae	*Cyperus aggregatus*		Y			1/1

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plants	monocots	Cyperaceae	*Cyperus eragrostis*		Y			1/1
plants	monocots	Cyperaceae	*Cyperus x turbatus*		Y			1/1
plants	monocots	Cyperaceae	*Cyperus brevifolius*	Mullumbimby couch	Y			2/2
plants	monocots	Cyperaceae	*Fimbristylis nutans*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis velata*			C		1/1
plants	monocots	Cyperaceae	*Cyperus sesquiflorus*		Y			1/1
plants	monocots	Cyperaceae	*Lepironia articulata*			C		1/1
plants	monocots	Cyperaceae	*Scleria tricuspidata*			C		1/1
plants	monocots	Cyperaceae	*Bolboschoenus fluviatilis*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis depauperata*			C		1
plants	monocots	Cyperaceae	*Fimbristylis tristachya*			C		2/2
plants	monocots	Cyperaceae	*Fimbristylis acicularis*			C		1/1
plants	monocots	Cyperaceae	*Fimbristylis dichotoma*	common fringe-rush		C		9/9
plants	monocots	Cyperaceae	*Cyperus pilosus*			C		1/1
plants	monocots	Dracaenaceae	*Sansevieria trifasciata*	mother-in-law's tongue	Y			1
plants	monocots	Hemerocallidaceae	*Dianella rara*			C		2/1
plants	monocots	Hemerocallidaceae	*Dianella brevipedunculata*			C		1
plants	monocots	Hemerocallidaceae	*Geitonoplesium cymosum*	scrambling lily		C		1
plants	monocots	Hemerocallidaceae	*Dianella longifolia*			C		1
plants	monocots	Hemerocallidaceae	*Dianella longifolia var. stenophylla*			C		1/1
plants	monocots	Hydrocharitaceae	*Ottelia ovalifolia subsp. ovalifolia*			C		2/2
plants	monocots	Hydrocharitaceae	*Hydrilla verticillata*	hydrilla		C		2/2
plants	monocots	Hypoxidaceae	*Hypoxis pratensis var. pratensis*			C		1/1
plants	monocots	Hypoxidaceae	*Curculigo ensifolia*			C		1
plants	monocots	Iridaceae	*Sisyrinchium sp. (Peregian P.R.Sharpe 4970)*	scourweed	Y			1/1
plants	monocots	Johnsoniaceae	*Caesia parviflora var. parviflora*			C		1/1
plants	monocots	Juncaceae	*Juncus usitatus*			C		2/2
plants	monocots	Juncaceae	*Juncus cognatus*		Y			1/1
plants	monocots	Juncaceae	*Juncus prismatocarpus*	branching rush		C		1/1
plants	monocots	Juncaceae	*Juncus continuus*			C		2/2
plants	monocots	Juncaceae	*Juncus articulatus*	jointed rush	Y			1/1
plants	monocots	Juncaginaceae	*Cycnogeton multifructus*			C		1/1
plants	monocots	Laxmanniaceae	*Cordyline rubra*	red-fruited palm lily		C		1
plants	monocots	Laxmanniaceae	*Lomandra obliqua*			C		10/10
plants	monocots	Laxmanniaceae	*Lomandra longifolia*			C		1
plants	monocots	Laxmanniaceae	*Thysanotus tuberosus subsp. tuberosus*			C		1/1
plants	monocots	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		2/1
plants	monocots	Laxmanniaceae	*Lomandra filiformis subsp. filiformis*			C		2/2
plants	monocots	Laxmanniaceae	*Lomandra multiflora*			C		1
plants	monocots	Orchidaceae	*Microtis parviflora*	slender onion orchid		C		2/2
plants	monocots	Orchidaceae	*Cheirostylis notialis*			C		1/1
plants	monocots	Orchidaceae	*Thelymitra pauciflora*	slender sun orchid		C		1/1
plants	monocots	Orchidaceae	*Arthrochilus irritabilis*	leafy elbow orchid		C		1/1
plants	monocots	Orchidaceae	*Epidendrum x obrienianum*		Y			1
plants	monocots	Orchidaceae	*Caladenia carnea var. carnea*			C		1/1
plants	monocots	Orchidaceae	*Caleana major*	flying duck orchid		C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Orchidaceae	*Glossodia major*	wax-lip orchid		C		2/2
plants	monocots	Orchidaceae	*Glossodia minor*	small wax lip orchid		C		1/1
plants	monocots	Philydraceae	*Philydrum lanuginosum*	frogsmouth		C		1/1
plants	monocots	Poaceae	*Ottochloa gracillima*	pademelon grass		C		1
plants	monocots	Poaceae	*Phalaris canariensis*	canary grass	Y			1/1
plants	monocots	Poaceae	*Andropogon virginicus*	whiskey grass	Y			2/2
plants	monocots	Poaceae	*Eremochloa bimaculata*	poverty grass		C		2/2
plants	monocots	Poaceae	*Sporobolus virginicus*	sand couch		C		2/2
plants	monocots	Poaceae	*Alloteropsis semialata*	cockatoo grass		C		1
plants	monocots	Poaceae	*Arundinella nepalensis*	reedgrass		C		1
plants	monocots	Poaceae	*Bothriochloa decipiens*			C		2
plants	monocots	Poaceae	*Eragrostis spartinoides*			C		1/1
plants	monocots	Poaceae	*Hyparrhenia filipendula*	tambookie grass		C		1/1
plants	monocots	Poaceae	*Capillipedium spicigerum*	spicytop		C		2/1
plants	monocots	Poaceae	*Echinochloa telmatophila*	swamp barnyard grass		C		1/1
plants	monocots	Poaceae	*Sporobolus coromandelianus*		Y			1/1
plants	monocots	Poaceae	*Aristida calycina var. calycina*			C		2/2
plants	monocots	Poaceae	*Digitaria*			C		1/1
plants	monocots	Poaceae	*Avena sativa*	common oats	Y			2/2
plants	monocots	Poaceae	*Holcus lanatus*	yorkshire fog	Y			1
plants	monocots	Poaceae	*Setaria pumila*		Y			1
plants	monocots	Poaceae	*Aristida ramosa*	purple wiregrass		C		1/1
plants	monocots	Poaceae	*Hordeum vulgare*		Y			1/1
plants	monocots	Poaceae	*Panicum effusum*			C		1
plants	monocots	Poaceae	*Urochloa mutica*		Y			1
plants	monocots	Poaceae	*Chloris truncata*			C		1/1
plants	monocots	Poaceae	*Cynodon dactylon*		Y			1
plants	monocots	Poaceae	*Digitaria fumida*			C		2/2
plants	monocots	Poaceae	*Leersia hexandra*	swamp rice grass		C		2/2
plants	monocots	Poaceae	*Panicum obseptum*	white water panic		C		1/1
plants	monocots	Poaceae	*Sporobolus laxus*			C		1/1
plants	monocots	Poaceae	*Themeda triandra*	kangaroo grass		C		1
plants	monocots	Poaceae	*Bromus hordeaceus*		Y			1/1
plants	monocots	Poaceae	*Dichanthium tenue*	small bluegrass		C		1/1
plants	monocots	Poaceae	*Entolasia stricta*	wiry panic		C		1/1
plants	monocots	Poaceae	*Eragrostis pilosa*	soft lovegrass	Y			1/1
plants	monocots	Poaceae	*Panicum paludosum*	swamp panic		C		2/2
plants	monocots	Poaceae	*Paspalum urvillei*	vasey grass	Y			2/1
plants	monocots	Poaceae	*Sorghum halepense*	Johnson grass	Y			1
plants	monocots	Poaceae	*Triticum aestivum*	wheat	Y			3/3
plants	monocots	Poaceae	*Aristida warburgii*			C		5/5
plants	monocots	Poaceae	*Chloris ventricosa*	tall chloris		C		1
plants	monocots	Poaceae	*Digitaria bicornis*			C		1/1
plants	monocots	Poaceae	*Digitaria diminuta*			C		1/1
plants	monocots	Poaceae	*Echinochloa colona*	awnless barnyard grass	Y			3/1
plants	monocots	Poaceae	*Entolasia whiteana*			C		4/4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Eragrostis brownii*	Brown's lovegrass		C		2/1
plants	monocots	Poaceae	*Eragrostis sororia*			C		1/1
plants	monocots	Poaceae	*Oplismenus aemulus*	creeping shade grass		C		1
plants	monocots	Poaceae	*Paspalum dilatatum*	paspalum	Y			2/1
plants	monocots	Poaceae	*Paspalum vaginatum*	saltwater couch		C		1/1
plants	monocots	Poaceae	*Setaria parviflora*	slender pigeon grass	Y			1/1
plants	monocots	Poaceae	*Setaria sphacelata*		Y			3/2
plants	monocots	Poaceae	*Dichelachne montana*			C		1/1
plants	monocots	Poaceae	*Eragrostis mexicana*	Mexican lovegrass	Y			1/1
plants	monocots	Poaceae	*Eriochloa meyeriana*		Y			1/1
plants	monocots	Poaceae	*Imperata cylindrica*	blady grass		C		1
plants	monocots	Poaceae	*Ischaemum triticeum*			C		1/1
plants	monocots	Poaceae	*Megathyrsus maximus*		Y			1
plants	monocots	Poaceae	*Panicum larcomianum*			C		1
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		6/5
plants	monocots	Poaceae	*Paspalum conjugatum*	sourgrass	Y			1
plants	monocots	Poaceae	*Bothriochloa pertusa*		Y			1/1
plants	monocots	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		1
plants	monocots	Poaceae	*Digitaria violascens*	bastard summergrass	Y			1/1
plants	monocots	Poaceae	*Eragrostis bahiensis*		Y			1/1
plants	monocots	Poaceae	*Microlaena stipoides*			C		1
plants	monocots	Poaceae	*Dinebra decipiens var. decipiens*			C		1/1
plants	monocots	Poaceae	*Ischaemum australe var. australe*			C		1/1
plants	monocots	Poaceae	*Megathyrsus maximus var. maximus*		Y			1/1
plants	monocots	Poaceae	*Aristida benthamii var. benthamii*			C		1/1
plants	monocots	Poaceae	*Hemarthria uncinata var. uncinata*			C		3/3
plants	monocots	Poaceae	*Bothriochloa decipiens var. decipiens*			C		1/1
plants	monocots	Poaceae	*Aristida queenslandica var. queenslandica*			C		1
plants	monocots	Poaceae	*Aristida*			C		1
plants	monocots	Potamogetonaceae	*Potamogeton octandrus*			C		4/4
plants	monocots	Typhaceae	*Typha orientalis*	broad-leaved cumbungi		C		1
plants	monocots	Xanthorrhoeaceae	*Xanthorrhoea johnsonii*			C		2/2
plants	mosses	Dicranaceae	*Sclerodontium clavinerve*			C		1/1
plants	mosses	Pottiaceae	*Weissia controversa*			C		1/1
plants	uncertain	Indet.	*Indet.*			C		3
plants		Adoxaceae	*Sambucus nigra*		Y			1/1
protists	blue-green algae	Cyanophyceae	*Entophysalis deusta*			C		1/1
protists	blue-green algae	Cyanophyceae	*Moorea producens*			C		1/1
protists	blue-green algae	Cyanophyceae	*Homoeothrix juliana*			C		1/1
protists	brown algae	Phaeophyceae	*Sargassum*			C		1/1
protists	brown algae	Phaeophyceae	*Cystoseira trinodis*			C		1/1
protists	green algae	Chlorophyceae	*Trentepohlia abietina*			C		1/1
protists	green algae	Chlorophyceae	*Rhizoclonium riparium*			C		1/1
protists	green algae	Chlorophyceae	*Trentepohlia peruana*			C		1/1
protists	green algae	Chlorophyceae	*Trentepohlia odorata*			C		1/1
protists	green algae	Chlorophyceae	*Apatococcus lobatus*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
protists	green algae	Chlorophyceae	*Enteromorpha*			C		1/1
protists	green algae	Chlorophyceae	*Pseudendoclonium submarinum*			C		2/2
protists	red algae	Rhodophyceae	*Hypnea*			C		1/1
protists	red algae	Rhodophyceae	*Catenella nipae*			C		1/1
protists	red algae	Rhodophyceae	*Bostrychia simpliciuscula*			C		1/1
protists	red algae	Rhodophyceae	*Caloglossa leprieurii*			C		1/1
protists	red algae	Rhodophyceae	*Bostrychia moritziana*			C		1/1
protists	red algae	Rhodophyceae	*Gracilaria edulis*			C		2/2
protists	red algae	Rhodophyceae	*Bostrychia radicans*			C		1/1
protists	red algae	Rhodophyceae	*Bostrychia kelanensis*			C		1/1
protists	red algae	Rhodophyceae	*Catenella*			C		1/1
protists	red algae	Rhodophyceae	*Hypnea musciformis*			C		2/2
protists	uncertain	Algae	*Algae*			C		10/10

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.

Attachment 7

Department of Natural Resources and Mines

Vegetation management report

For Lot: 322 Plan: SP172124

Current as at 14/08/2017

Queensland Government

Overview

IMPORTANT INFORMATION- As a result of the new *Planning Act 2016*, which commenced on 3 July 2017, there are a number of changes to the Vegetation Management Framework. These changes include;

- Exemptions from the Vegetation Management Framework, commonly known as exemptions and detailed in the Sustainable Planning Regulations 2012, are now known as "exempt clearing works", and are detailed in the Planning Regulations Schedule 21; and
- Self-assessable vegetation clearing codes are now known as "accepted development vegetation clearing codes". However, as there are 15 self-assessable vegetation clearing codes available for use that will not be re-named as a result of the recent changes, the term self-assessable vegetation clearing code will be used throughout this report.

Vegetation clearing is predominantly regulated under the *Vegetation Management Act 1999* (VMA) and the *Planning Act 2016* (PA). A development permit is required to clear where the clearing is not exempt clearing work through the Planning Regulation 2017, or where it cannot be carried out under a self-assessable vegetation clearing code or an area management plan under the VMA.

Many routine vegetation management activities can be carried out as exempt clearing work listed in the Planning Regulation 2017, or through an self-assessable vegetation clearing code or an area management plan (AMP). Other activities may require you to apply for a development permit under the *Planning Act 2016*. The requirements for a development permit depend on the type of vegetation, the land tenure (e.g. freehold or leasehold land), the location, and the extent and purpose of the proposed clearing.

Please be aware that other requirements for clearing and managing vegetation may apply, even if the activity is not regulated by the Vegetation Management framework. Prior to commencing the clearing of vegetation, it is important to confirm that no other requirements apply under other legislation, including:

- Local laws in your local government area;
- Other State legislation, such as Protected Plants under the *Nature Conservation Act 1992* (NCA);
- The Commonwealth Government's *Environmental Protection and Biodiversity Act 1999* (EPBC).

Please see section 6 for contact details of other agencies you should confirm requirements with before commencing vegetation clearing.

Please note that the requirements for clearing Category C or Category R areas are located in the self-assessable vegetation clearing codes (SAVCC) for managing Category C and Category R vegetation respectively.

The information in this report will assist you to determine the options for managing vegetation on your property. Based on the lot on plan details you have supplied, this report provides the following detailed information:

- *Vegetation management framework* - an explanation of the options that may be available to manage vegetation on your property.
- *Property details* - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s), catchment(s), coastal or non coastal status, and any applicable area management plans associated with your property.
- *Vegetation management details for the specified Lot on Plan* - specific information about your property including vegetation categories, regional ecosystems, watercourses, wetlands, essential habitat, land suitability and protected plants.
- *Contact information.*
- *Maps* - a series of colour maps to assist in identifying regulated vegetation on your property including:
  - regulated vegetation management map;
  - vegetation management supporting map;
  - land suitability map;
  - coastal/non coastal map;
  - protected plants map.
- *Other legislation contact information.*

Table of Contents

1. Vegetation management framework

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework. This framework regulates the management and clearing of assessable vegetation in Queensland.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenure types as defined under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA.

Managing or clearing vegetation may require permits under these laws.

The information provided in Sections 2 and 3 of this report, as well as the maps provided in Section 5, will assist you to determine whether your proposed clearing is:

- exempt clearing works;
- requires notification and compliance with a self-assessable vegetation clearing code or area management plan;
- requires a development permit; and/or
- in a high risk area and is therefore subject to the protected plants legislative framework (see section 3.7 of this report).

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under the VM Regulation 2012; and
- a mangrove.

Although vegetation management laws may allow clearing, there may be other state, local or Commonwealth laws that apply, such as the Queensland Government's *Nature Conservation Act 1992* (see Protected Plants) and the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act regulates matters of national environmental significance, such as threatened species and ecological communities. You may need to obtain approval under the EPBC Act if your proposed clearing could have a significant impact on matters of national environmental significance. Further details are available at www.environment.gov.au.

1.1 Exempt Clearing Work

The vegetation management framework allows clearing for certain purposes without approval, known as an exempt clearing work. Exempt clearing work provisions under the *Planning Act 2016* were formerly called exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 5.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work, or exempt from the VMA. For all other land tenures, contact DNRM before commencing clearing to ensure that the proposed activity is exempt clearing work. Please see Section 4 for DNRM's contact details.

A range of routine property management activities are considered exempt clearing work. A list of these is available at https://www.qld.gov.au/environment/land/vegetation/exemptions/.

Although vegetation management laws may allow clearing as exempt clearing work, there may be other state, local or Commonwealth laws that apply. For example, a clearing permit under the *Nature Conservation Act 1992* may be required for clearing protected plants. These requirements apply irrespective of the classification of the vegetation under the vegetation management framework. In addition, clearing that is exempt clearing work may not apply in an area subject to a development permit, a covenant, an environmental offset, an Exchange Area, a Restoration Notice, or an area mapped as Category A. Landholders considering clearing in any of these areas should contact DNRM prior to clearing to clarify if any conditions apply in the area that affect the use of the provisions for exempt clearing work.

1.2 Self-assessable vegetation clearing codes

Some clearing activities can be undertaken using a self-assessable vegetation clearing code and notification process. The codes can be downloaded at
https://www.qld.gov.au/environment/land/vegetation/codes/

If you intend to clear vegetation under a self-assessable vegetation clearing code, you must notify DNRM before commencing. The information in this report will assist you to complete the online notification form.

Please note that a self-assessable vegetation clearing code cannot be used in an area mapped as Category A.(see section 5.1)

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

1.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

If an area management plan applies to your property, it will be listed in Section 2.2 of this report.

To clear under an existing AMP, you must notify the DNRM before clearing starts and follow the conditions listed in the AMP. You can download the area management plan notification form and obtain a copy of the relevant AMP at
https://www.qld.gov.au/environment/land/vegetation/area-plans/

1.4 Development permits

If your proposed clearing is not exempt clearing work, or is not permitted under a self-assessable vegetation clearing code, or an AMP, you may be able to apply for a development permit. Information on how to apply for a development permit is available at
https://www.qld.gov.au/environment/land/vegetation/applying/

2. Property details

2.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 322 Plan: SP172124 (Calculated area in Hectares - 44.7ha), including links to relevant Smart Maps, are listed in Table 1. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

Table 1: Lot, plan and tenure information for the property

Lot	Plan	Tenure	Link to property on SmartMap
322	SP172124	Freehold	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=322\SP172124

The tenure of the land may affect whether the clearing is considered exempt clearing work.

Some self-assessable vegetation clearing codes apply only to freehold and leasehold land granted for grazing and agricultural purposes.

2.2 Property location

Table 2 provides a summary of the locations for property Lot: 322 Plan: SP172124, in relation to natural and administrative boundaries.

Table 2: Property location

Local Government(s)
Brisbane City

Bioregion(s)	Subregion(s)
Southeast Queensland	Sunshine Coast - Gold Coast Lowlands

Catchment(s)
Pine

For the purposes of the Self-assessable vegetation clearing codes and the State Development Assessment Provisions (SDAP), this property is regarded as *
Coastal

*See also Map 5.4

Area Management Plan(s): Nil

3. Vegetation management details for Lot: 322 Plan: SP172124

3.1 Vegetation categories

Vegetation categories are shown on the regulated vegetation management map in section 5.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property

Vegetation category
Category B
Category X

Table 4

Category	Colour on Map	Description	Requirements
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	There may be special conditions that apply in a Category A area. Before clearing, contact DNRM to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under a self-assessable vegetation clearing code or an Area Management Plan, or may require a Development Permit.
C	light blue	High-value regrowth areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under the self-assessable vegetation clearing code for Managing Category C Regrowth vegetation.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the priority reef catchment areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under the self-assessable vegetation clearing code for Managing Category R Regrowth vegetation.
X	white	Clearing is considered accepted development on freehold land, indigenous land and leasehold land for agriculture and grazing purposes. Contact DNRM to clarify whether a development permit is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A Development Permit may be required for some State land tenures.

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 5.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at
https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description
12.3.11	Of concern	B	4.69	Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast
12.3.7	Least concern	B	5.86	Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland
12.5.2	Endangered	B	1.47	Corymbia intermedia, Eucalyptus tereticornis open forest on remnant Tertiary surfaces, usually near coast. Usually deep red soils
12.5.3	Endangered	B	8.28	Eucalyptus racemosa woodland on remnant Tertiary surfaces
non-rem	None	X	24.45	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work
- self assessable vegetation clearing codes
- performance outcomes in State Development Assessment Provisions (SDAP).

Some clearing purposes are limited to a particular group of regional ecosystems (e.g. encroachment) and some self-assessable vegetation clearing codes allow clearing only in certain regional ecosystems.

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 5.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA), and includes endangered or vulnerable wildlife.

Essential habitat identifies areas in which species of wildlife that are Endangered or Vulnerable under the *Nature Conservation Act 1992* for which suitable habitat occurs on the lot, or where they have been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 5.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map as assessable vegetation -

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. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

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

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

3.5.1 Category A and/or Category B

Table 6: Essential habitat in Category A and/or Category B

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
29186	Phascolarctos cinereus (southeast Queensland bioregion)	Koala	V	Open eucalypt forest and woodland that has: a) multiple strata layers containing Eucalyptus, Corymbia, Angophora, Lophostemon or Melaleuca trees that-at 1.3 metres above the ground-have a diameter both greater and less than 30 centimetres; and b) at least 1 of the following species: Eucalyptus tereticornis, E. fibrosa, E. propinqua; E. umbra, E. grandis, E. microcorys, E. tindaliae, E. resinifera, E. populnea, E. robusta, E. nigra, E. racemosa, E. crebra, E. exserta, E. seeana, Lophostemon confertus, L. suaveolens, Melaleuca quinquenervia.	Sea level to 1000m.	no soil information	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
29186	12.3.3, 12.3.4, 12.3.6, 12.3.7, 12.3.10, 12.3.11, 12.5.2, 12.5.3, 12.8.14, 12.9-10.4, 12.9-10.7, 12.9-10.17, 12.11.5, 12.11.18, 12.12.12

3.5.2 Category C

Table 7: Essential habitat in Category C

No records

3.6 Land suitability

Land suitability mapping and information is required if you are applying to clear vegetation for high-value or irrigated high-value agriculture. Land suitability assessment addresses the capacity of land to sustain specific land uses such as cropping, irrigated agriculture and forestry.

A land suitability map for this property is provided in section 5.3. The map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available.

The land suitability project that applies to this property is shown in Table 8 and Table 9.

Table 8: Land suitability project details for this property

Project name	Project code	Start date	Scale
Soil Landscapes of Brisbane and South East Environs (ZAA)	ZAA	1987-01-01 00:00:00	100000

Table 9: Available land suitability project reports for this property

Project name	Availability of report
Soil Landscapes of Brisbane and South East Environs (ZAA)	CSIRO report. Available at www.publications.qld.gov.au

3.7 Protected plants (administered by the Department of Environment and Heritage Protection (DEHP))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA), with clearing of protected plants in the wild regulated by the Nature Conservation (Wildlife Management) Regulation 2006. These requirements apply irrespective of the classification of the vegetation under the *Vegetation Management Act 1999*.

Prior to clearing, if the plants proposed to be cleared are in the wild (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') and the exemptions under the Nature Conservation (Wildlife Management) Regulation 2006 are not applicable to the proposed clearing, you must check the flora survey trigger map to determine if any part of the area to be cleared is within a high risk area. The trigger map for this property is provided in section 5.5. The exemptions relate to:

- imminent risk of death or serious injury (refer s261A)
- imminent risk of serious damage to a building or other structure on land, or to personal property (refer s261B)
- *Fire and Emergency Service Act 1990* (refer 261C)
- previously cleared areas (refer s261ZB)
- maintenance activities (refer s261ZC)
- firebreak or fire management line (refer s261ZD)
- self-assessable vegetation clearing code (refer s261ZE)
- conservation purposes (refer s261ZG)
- authorised in particular circumstances (refer s385).

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) from the *Vegetation Management Act 1999* (i.e. listed in the Planning Regulations 2017) while some are different.

If the proposed area to be cleared is shown as blue (i.e. high risk) on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken in accordance with the flora survey guidelines. The main objective of a flora survey is to locate any endangered, vulnerable or near threatened plants (EVNT plants) that may be present in the clearing impact area.

If a flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Heritage Protection, with a copy of the flora survey report, at least one week prior to clearing. The clearing must be conducted within two years after the flora survey report was submitted.

If a flora survey identifies that EVNT plants are present in, or within 100m of, the ara to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the application form clearing permit.

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

Further information on protected plants is available at
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/

For assistance on the protected plants flora survey trigger map for this property, please contact the Department of Environment and Heritage Protection at palm@ehp.qld.gov.au.

3.8 Emissions Reduction Fund (ERF)

The ERF is an Australian Government scheme which offers incentives for businesses and communities across the economy to reduce emissions.

Under the ERF, farmers can earn money from activities such as planting (and keeping) trees, managing regrowth vegetation and adopting more sustainable agricultural practices.

The purpose of a project is to remove greenhouse gases from the atmosphere. Each project will provide new economic opportunities for farmers, forest growers and land managers.

Further information on ERF is available at https://www.qld.gov.au/environment/land/state/use/carbon-rights/.

4. Contact information for DNRM

For further information on vegetation management:
Phone 135VEG (135 834)
Email vegetation@dnrm.qld.gov.au
Visit www.dnrm.qld.gov.au/our-department/contact-us/vegetation-contacts to submit an online enquiry.

For contact details for other State and Commonwealth agencies, please see the "Other relevant legislation contacts list" in Section 6.

5. Maps

The maps included in this report may also be requested individually at:

https://www.dnrm.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form
and
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

Land suitability map

The land suitability map assists with identifying the land suitability category under the high value and irrigated high value agriculture vegetation clearing purpose.

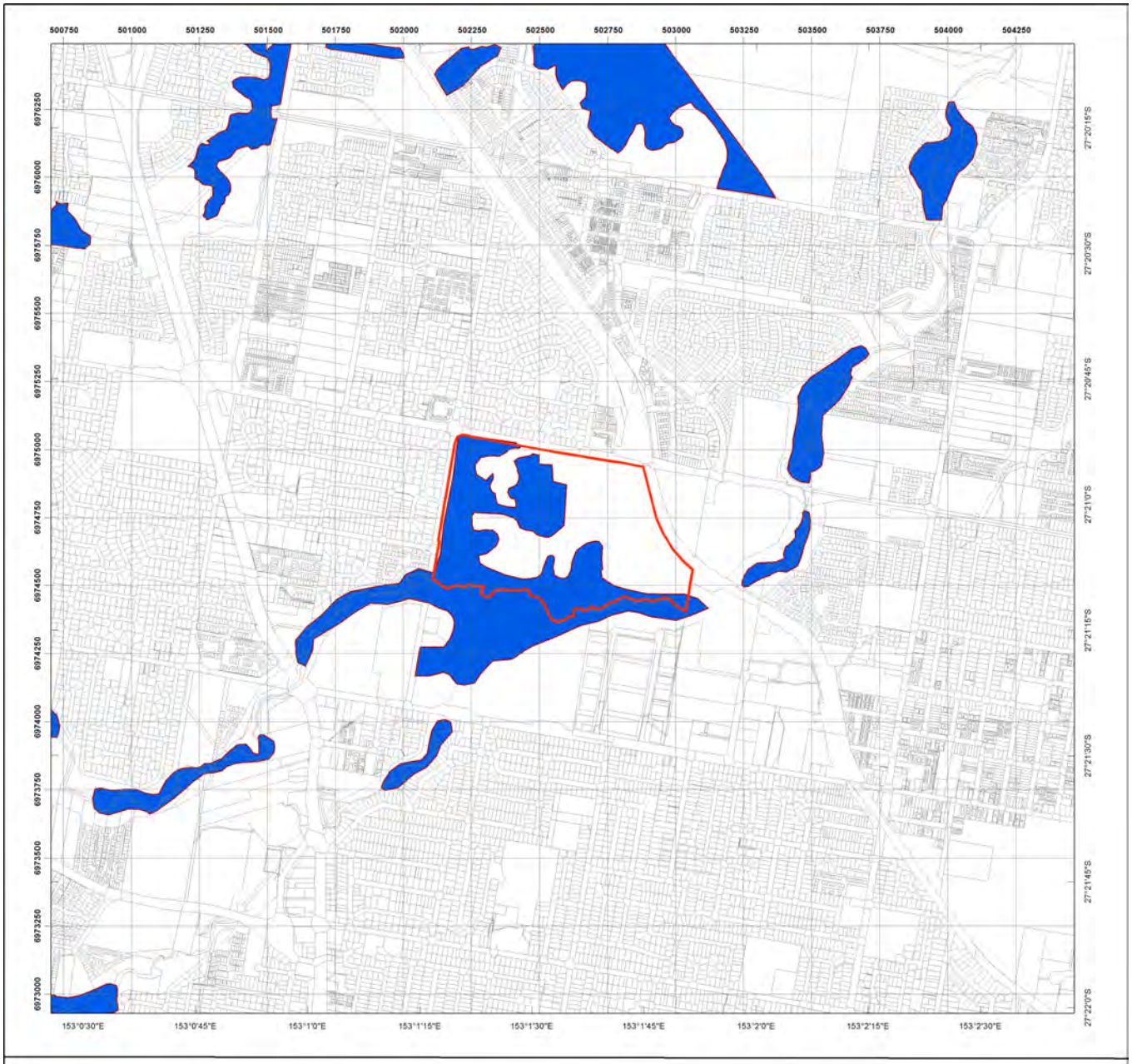
Coastal/non coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the self-assessable vegetation clearing codes and the State Development Assessment Provisions (SDAP).

Protected plants map

The protected plants map shows areas where particular provisions of the *Nature Conservation Act 1992* apply to the clearing of protected plants.

5.1 Regulated vegetation management map



Regulated Vegetation Management Map

Legend

- 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
- Cadastral line
  Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM

N

0 200 400 600 800 1,000 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Mines 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 incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

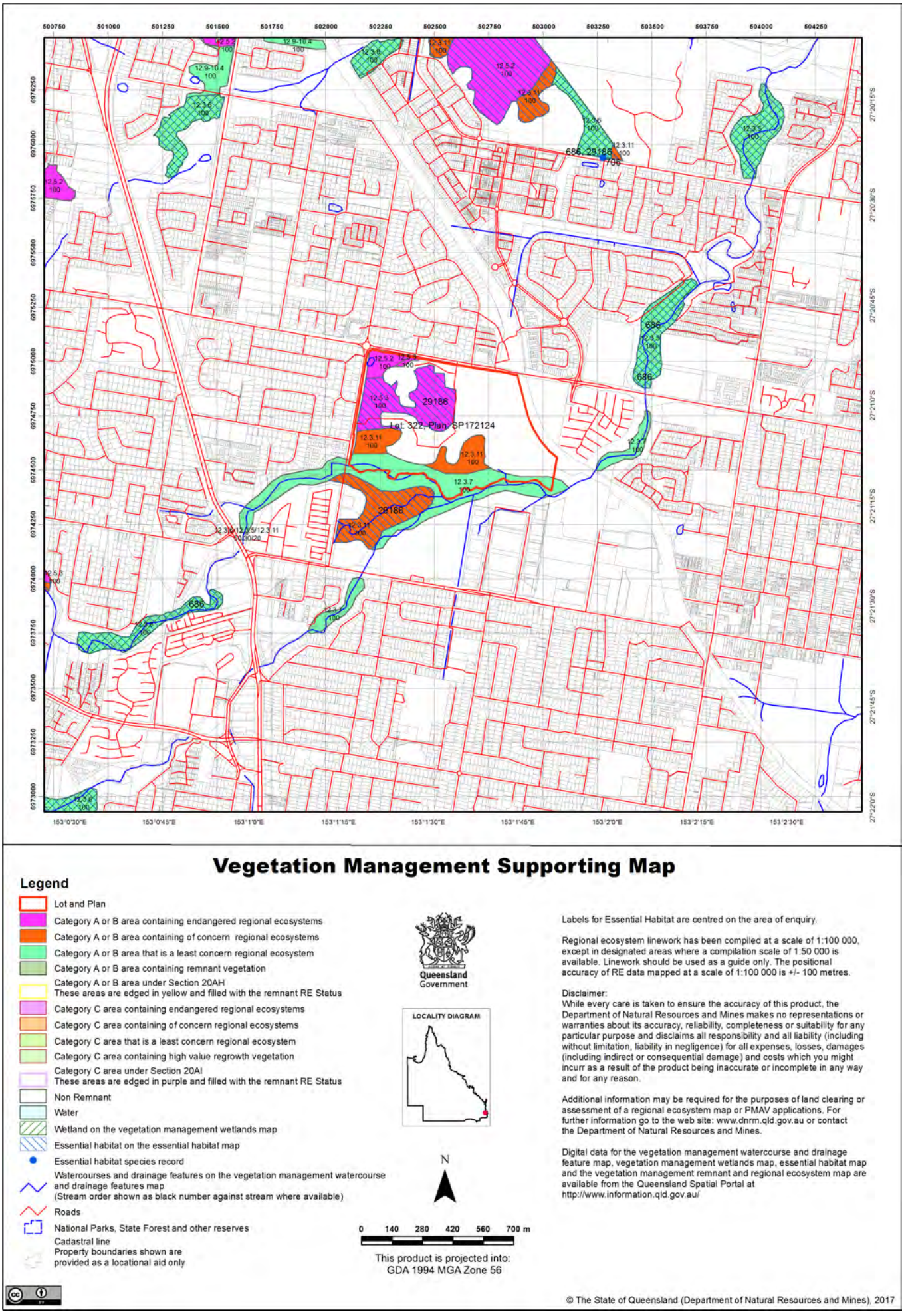
Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrm.qld.gov.au or contact the Department of Natural Resources and Mines.

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

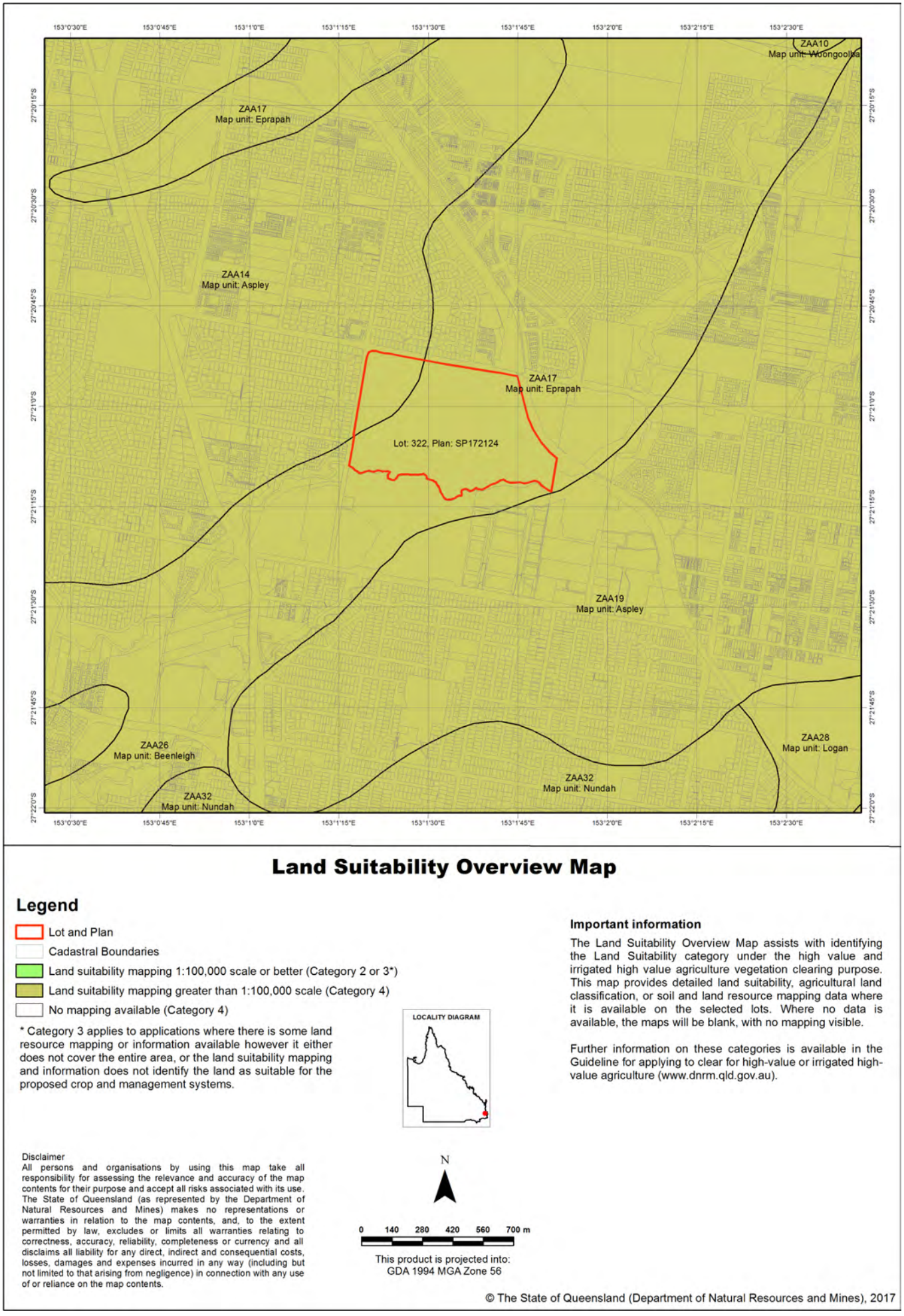
This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

5.2 Vegetation management supporting map



5.3 Land suitability map



Land Suitability Overview Map

Legend

- Lot and Plan
- Cadastral Boundaries
- Land suitability mapping 1:100,000 scale or better (Category 2 or 3*)
- Land suitability mapping greater than 1:100,000 scale (Category 4)
- No mapping available (Category 4)

* Category 3 applies to applications where there is some land resource mapping or information available however it either does not cover the entire area, or the land suitability mapping and information does not identify the land as suitable for the proposed crop and management systems.

Important information

The Land Suitability Overview Map assists with identifying the Land Suitability category under the high value and irrigated high value agriculture vegetation clearing purpose. This map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available on the selected lots. Where no data is available, the maps will be blank, with no mapping visible.

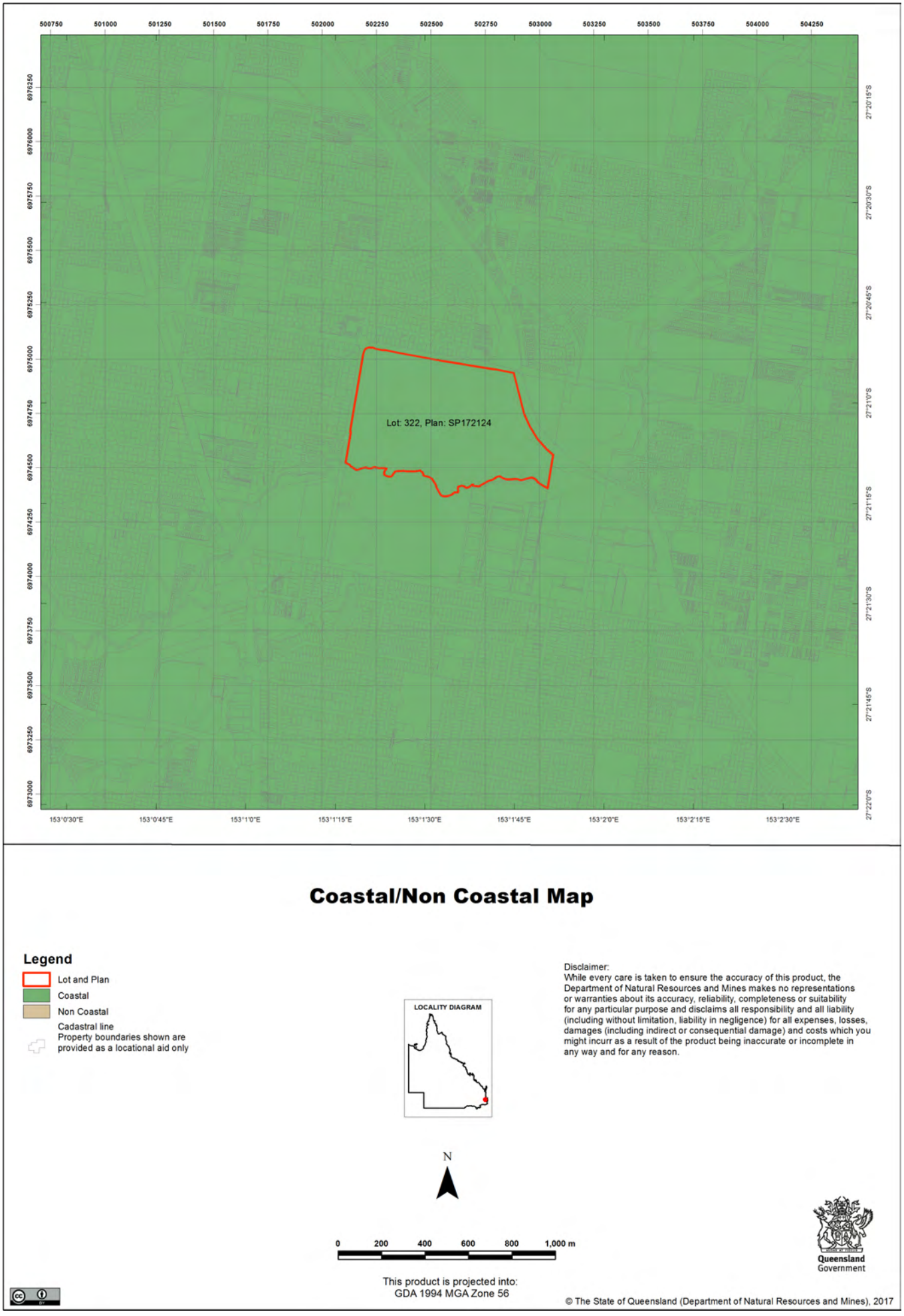
Further information on these categories is available in the Guideline for applying to clear for high-value or irrigated high-value agriculture (www.dnrm.qld.gov.au).

N

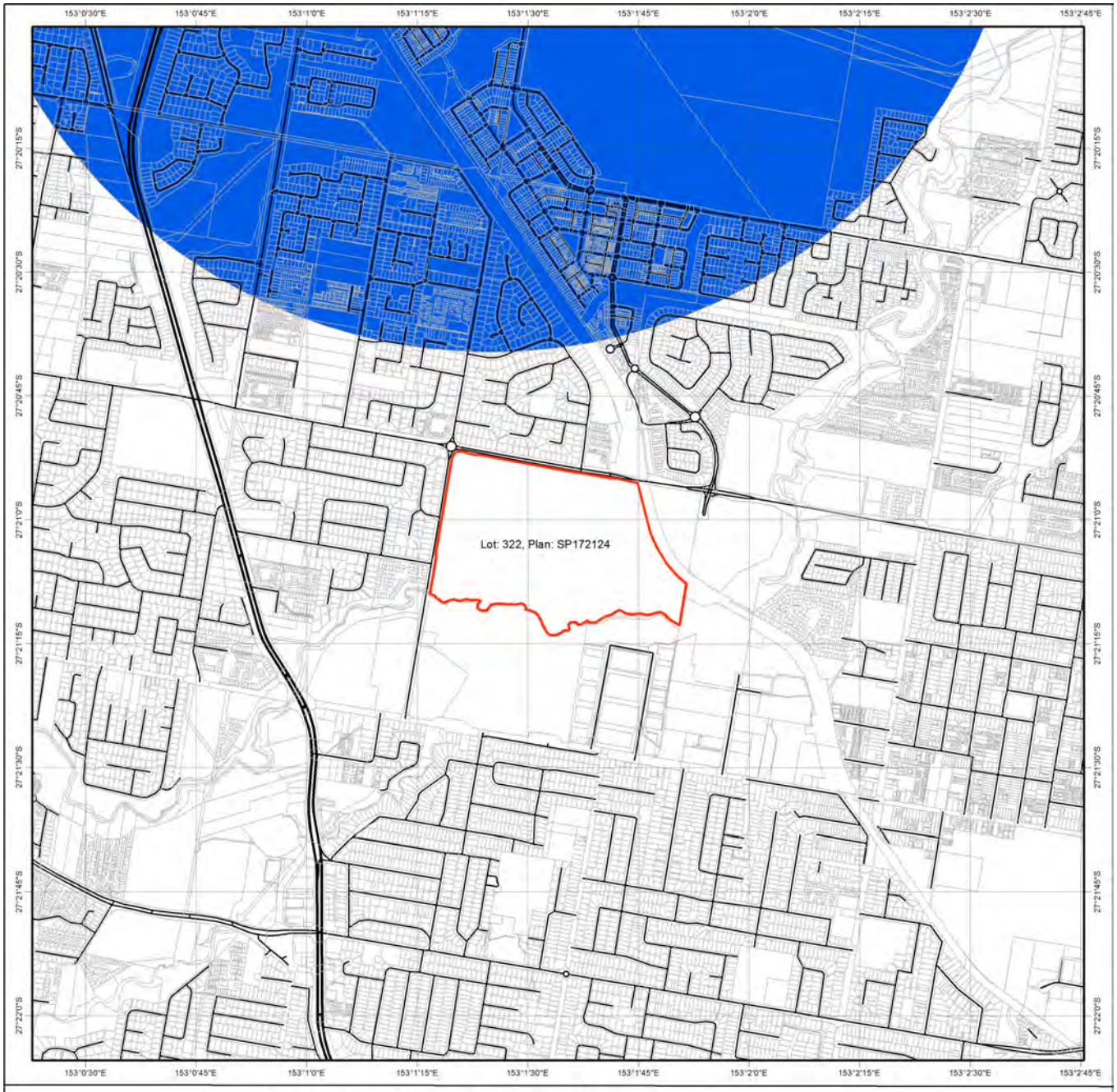
0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

5.4 Coastal/non coastal map



5.5 Protected plants map administered by DEHP



Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

LOCALITY DIAGRAM

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at palm@ehp.qld.gov.au

N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

6. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
Interference with overland flow Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Natural Resources and Mines (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dnrm.qld.gov.au
Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Aboriginal and Torres Strait Islander and Multicultural Affairs (Queensland Government)	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
Mining and environmentally relevant activities Infrastructure development (coastal) Heritage issues Protected plants and protected areas [1]	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992* *Nature Conservation Act 1992*	Department of Environment and Heritage Protection (Queensland Government)	Ph: 13 QGOV (13 74 68) www.ehp.qld.gov.au
Interference with fish passage in a watercourse, mangroves Forestry activities	*Fisheries Act 1994* *Forestry Act 1959* [2]	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
Development and planning processes	*Planning Act 2016*	Department of Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dilgp.qld.gov.au
State Development	*State Development and Public Works Organisation Act 1971*	Department of State Development (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsd.qld.gov.au
Local government requirements	*Local Government Act 2009*	Local government	Contact your relevant local government office

1. In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992*, which endeavours to ensure that protected plants (whether whole plants or protected plants parts) are not illegally removed from the wild, or illegally traded. Prior to clearing, you should check the flora survey trigger map to determine if the clearing is within a high-risk area by visiting www.ehp.qld.gov.au. For further information or assistance on the protected plants flora survey trigger map for your property, please contact the Department of Environment and Heritage Protection on 13QGOV (13 74 68) or email palm@ehp.qld.gov.au.

2. Contact the Department of Agriculture and Fisheries before clearing:

- Any sandalwood on state-owned land (including leasehold land)
- On freehold land in a 'forest consent area'
- More than five hectares on state-owned land (including leasehold land) containing commercial timber species listed in parts 2 or 3 of Schedule 6 of the Vegetation Management Regulation 2012 and located within any of the following local government management areas-Banana, Bundaberg Regional, Fraser Coast Regional, Gladstone Regional, Isaac Regional, North Burnett Regional, Somerset Regional, South Burnett Regional, Southern Downs Regional, Tablelands Regional, Toowoomba Regional, Western Downs Regional.

Attachment 8

5.1.3 Vegetation Communities

Table 5.1 provides descriptions of the vegetation communities that characterise the site, as recorded at representative locations shown in **Figure 5.1.**

Ground-truthed RE mapping for the subject site is also provided in **Figure 5.1**. Minor inconsistencies between regulated vegetation mapping for the site (**Appendix 2**) and that produced as a result of ground-truthing were evident. These inconsistencies include:

- One small area currently mapped as non-remnant (community 7) is considered to support the structural and floristic components that would make it analogous to remnant RE12.3.11, as confirmed by the Herbarium pre-clear mapping for the site.
- The eastern portion of the Cabbage Tree Creek riparian zone, which is dominated by Camphor Laurel and Chinese Elm, is not considered to support remnant vegetation.
- Other inconsistencies relate mainly to the boundaries of the State mapped polygons, which in some areas include cleared land.

No vegetation communities with species indicative of EPBC-listed TECs are identified on State vegetation mapping, and the field survey confirmed no TECs occur within the subject site.

Table 5.1 Description of vegetation communities recorded on site

Site	Habitat description	Representative photo
Q1	**Remnant vegetation:** mapped as RE12.3.7 (ground-truthed as correct). **Brief description:** Riverine open forest. **Canopy (T1):** Mid-dense /Dense. Height range 20-27m; median height 25m. Dominant species: *Corymbia intermedia*, *Lophostemon confertus*, *Eucalyptus microcorys*, *Jagera pseudorhus* var. *pseudorhus, Cinnamomum camphora*.* Associated species: *Eucalyptus propinqua*. **Sub-canopy (T2):** Sparse. Height range 7-10m; median height 8m. Dominant species: *Alphitonia excelsa*, *Melaleuca quinquenervia*, *Parsonsia straminea, Glochidion sumatranum, Celtis sinensis*, Backhousia myrtifolia, Cryptocarya obovata.* **Shrub (S1):** Sparse. Height range 1-2m; median height 2m. Dominant species: *Ochna serrulata**, *Lantana camara** **Groundcover:** Dense. Height range 0.1-1m; median height 1m. Dominant species: *Megathyrsus maximus* var. *maximus*, Sphagneticola trilobata*, Ottochloa gracillima, Gahnia sieberiana, Lomandra longifolia.* **Additional weeds (understorey) include:** *Nephrolepis cordifolia**, *Syagrus romanzoffiana**, *Senna pendula*, *Passiflora* spp.*.	
Q2	**Remnant vegetation:** mapped as RE12.3.7 (ground-truthed as non-remnant). **Brief description:** Riverine closed forest dominated by *Cinnamomum camphora**. **Canopy (T1):** Dense. Height range 16-22m; median height 20m. Dominant species: *Cinnamomum camphora*.* Associated species: *Eucalyptus tereticornis*. **Sub-canopy (T2):** Very sparse. Height range 9-12m; median height 10m. Dominant species: *Melaleuca quinquenervia*, *Syzygium spp. .* **Shrub (S1):** Very sparse. Height range 1-2m; median height 1m. Dominant species: *Ochna serrulata**, *Lantana camara*, Murraya paniculata*.*	

Site	Habitat description	Representative photo
	Groundcover: Dense. Height range 0.1-0.3m; median height 0.2m. Dominant species: *Megathyrsus maximus* var*. maximus*, Sphagneticola trilobata*, Ottochloa gracillima, Asparagus africanus*.* **Additional weeds (understorey) include:** *Nephrolepis cordifolia**, *Syagrus romanzoffiana**, *Senna pendula*, *Passiflora* spp.*.	
Q3	**Remnant vegetation:** mapped as RE12.3.11 (ground-truthed as correct). **Brief description:** Open Forest with a moderately dense shrub layer and grassy ground layer. **Canopy (T1):** Mid-dense. Height range 20-27m; median height 25m. Dominant species: *Eucalyptus tereticornis, Corymbia intermedia, Eucalyptus siderophloia.* Associated species: *Eucalyptus racemosa*. **Sub-canopy (T2):** Mid-dense. Height range 6-10m; median height 7m. Dominant species: *Allocasuarina littoralis, Eucalyptus siderophloia, Alphitonia excelsa, Acacia disparrima, Acacia fimbriata, Acacia concurrens, Leptospermum polygalifolium, Parsonsia straminea.* **Shrub (S1):** Mid-dense. Height range 1-2m; median height 2m. Dominant species: *Lantana camara**, *Senna pendula**, *Ochna serrulata**, *Acacia disparrima.* **Groundcover:** Mid-dense. Height range 0.1-0.5m; median height 0.5m. Dominant species: *Megathyrsus maximus* var*. maximus*, Asparagus aethiopicus*, Imperata cylindrica, Lomandra longifolia, Parsonsia straminea.* **Additional weeds (understorey) include:** *Corymbia torelliana*, Celtis sinensis, Cinnamomum camphora**, *Passiflora edulis**, *Bidens pilosa**, **Asparagus africanus*, *Melinis repens*.*	
Q4	**Remnant vegetation:** mapped and ground-truthed as non-remnant. **Brief description:** Open forest with scattered canopy trees, acacia understory and grassy ground layer. **Canopy (T1):** Very sparse. Height range 12-16m; median height 16m. Dominant species: *Corymbia intermedia.* Associated species: *Eucalyptus racemosa*. **Sub-canopy (T2):** Dense. Height range 9-12m; median height 11m. Dominant species: *Alphitonia excelsa, Acacia disparrima.* Associated species: *Corymbia intermedia, Lophostemon suaveolens.* **Shrub (S1):** Very sparse. Height range 1-2m; median height 2m. Dominant species: *Lantana camara**, *Senna pendula**, *Ochna serrulata**, *Acacia disparrima.* **Groundcover:** Mid-dense. Height range 0.1-0.4m; median height 0.2m. Dominant species: *Urochloa decumbens** **Note:** 12.3.11 with suitable rehabilitation – potential offset site for loss of mapped 12.3.11 areas.	

Site	Habitat description	Representative photo
Q5	**Remnant vegetation:** mapped as RE12.3.7 (ground-truthed as correct). **Brief description:** Riverine open forest. **Canopy (T1):** Mid-dense /Dense. Height range 20-27m; median height 25m. Dominant species: *Eucalyptus microcorys, Eucalyptus racemosa, Eucalyptus propinqua, Lophostemon confertus, Eucalyptus siderophloia.* **Sub-canopy (T2):** Sparse. Height range 7-10m; median height 8m. Dominant species: *Alphitonia excelsa*, *Melaleuca quinquenervia*, *Parsonsia straminea, Glochidion sumatranum, Celtis sinensis*, Backhousia myrtifolia, Cryptocarya obovata.* **Shrub (S1):** Sparse. Height range 1-2m; median height 2m. Dominant species: *Ochna serrulata**, *Lantana camara** **Groundcover:** Dense. Height range 0.1-1m; median height 1m. Dominant species: *Megathyrsus maximus* var*. maximus*, Sphagneticola trilobata*, Ottochloa gracillima, Gahnia sieberiana, Lomandra longifolia.* **Additional weeds (understorey) include:** *Nephrolepis cordifolia**, *Syagrus romanzoffiana**, *Senna pendula*, *Passiflora* spp.*.	
Q6	**Remnant vegetation:** mapped as RE12.3.11 (ground-truthed as correct). **Brief description:** Open Forest with a moderately dense shrub layer and grassy ground layer. **Canopy (T1):** Mid-dense. Height range 20-30m; median height 25m. Dominant species: *Eucalyptus tereticornis, Eucalyptus racemosa*. **Sub-canopy (T2):** Mid-dense. Height range 9-11m; median height 10m. Dominant species: *Alphitonia excelsa, Acacia disparrima, Melaleuca salicina, Parsonsia straminea.* **Shrub (S1):** Very sparse. Height range 1-2m; median height 1m. Dominant species: *Acacia fimbriata, Trema tomentosa.* **Groundcover:** Mid-dense. Height range 0.1-0.5m; median height 0.5m. Dominant species: *Megathyrsus maximus* var*. maximus*.* **Additional weeds (understorey) include:** *Passiflora edulis**, *Bidens pilosa**, **Asparagus africanus*, *Melinis repens*.*	
Q7	**Remnant vegetation:** RE12.5.3 (ground-truthed as correct). **Brief description:** Open forest with a highly modified grassy understory (shrub layer absent), **Canopy (T1):** Mid-dense. Height range 16-25m; median height 22m. Dominant species: *Corymbia intermedia.* Associated species: *Eucalyptus carnea, Eucalyptus tindaliae Eucalyptus tereticornis, Eucalyptus racemosa, Corymbia citriodora* subsp. *Variegata, Eucalyptus microcorys, Eucalyptus siderophloia, Eucalyptus propinqua.* **Groundcover:** (highly modified): *Axonopus compressus** (mown exotic grass) **Weeds:** woody and tall herbaceous weeds generally absent as a result of mowing.	

Site	Habitat description	Representative photo
Q8	**Remnant vegetation:** RE12.5.3 (ground-truthed as correct). **Brief description:** Open forest with grassy understory and moderately dense shrub layer. **Canopy (T1):** Mid-dense. Height range 24-30m; median height 27m. Dominant species: *Eucalyptus racemosa.* Associated species: *Corymbia intermedia, Eucalyptus siderophloia.* **Sub-canopy (T2):** Mid-dense. Height range 8-11m; median height 8m. Dominant species: *Alphitonia excelsa*, *Acacia disparrima* subsp. *disparrima*, Associated species: *Corymbia intermedia, Lophostemon confertus.* **Shrub (S1):** Sparse. Height range 1-2m; median height 1m. Dominant species: *Acacia disparrima*. . Associated species: *Celtis sinensis*, Ochna serrulata*, Stephania japonica, Parsonsia straminea*,. **Groundcover:** Mid-dense. Height range 0.1-0.5m; median height 0.3m. Dominant species: *Entolasia stricta, Imperata cylindrica.* Associated species: *Asparagus aethiopicus*, Stephania japonica, Lomandra multiflora.* **Additional weeds (understorey):** *Cinnamomum camphora**, *Lantana montevidensis**, *Passiflora suberosa**, *Syagrus romanzoffiana**, *Schefflera actinophylla*, Corymbia torelliana*, Neonotonia wightii*.*	
Q9	**Remnant vegetation:** RE12.5.2 (ground-truthed as correct). **Brief description:** Open forest with highly modified grassy understory (shrub layer absent). **Canopy (T1):** Mid-dense. Height range 19-25m; median height 22m. Dominant species: *Eucalyptus microcorys, Corymbia intermedia, Eucalyptus propinqua, Eucalyptus tereticornis***.** *Melaleuca quinquenervia* in swale. **Groundcover:** mown Dominant species: *Axonopus compressus* (exotic grass) **Weeds:** woody and tall herbaceous weeds generally absent as a result of mowing.	
Q10	**Remnant vegetation:** mapped and ground-truthed as non-remnant **Brief description:** Open forest with highly modified grassy understory (shrub layer absent). **Canopy (T1):** Mid-dense. Height range 19-25m; median height 23m. Dominant species: *Corymbia intermedia, Eucalyptus tereticornis***.** *Eucalyptus siderophloia, Corymbia citriodora, Eucalyptus racemosa.* **Groundcover:** mown **Weeds:** woody and tall herbaceous weeds generally absent as a result of mowing.