REPORT

Ecology Assessment Report

Q-4500-15-RP-1314

Australia Pacific LNG Project

This report provides an overview of the environmental and ecological values for the Site contained within Lot 21 on Plan RG167 on PL266 Condabri South, associated with Disturbance Approval #1662.

Revision	Date	Description	Originator	Checked	QA/Eng	Approved
0	10/12/2014	Issued for Use	C Zappone	C Dyason	C Dyason	S Dale

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1. Introduction

This report provides a description of the ecological values found within lot plan 21RG167 herein referred to as 'the Site'. The results are based on an initial desktop assessment followed by a field survey to confirm the vegetation communities, flora and fauna species, habitat values and areas of disturbance.

This report has been compiled by Claud Zappone, Field Environmental Advisor for Origin Energy. The field surveys were conducted by a team of ecologists led by Peter Hall, Field Environmental Advisor for Origin Energy, under direction from Principal Ecologist Anjeanette Schimpf for Origin Energy.

Peter Hall is approved to undertake ecological surveys by Commonwealth Department of Environment (DoE) (formerly the Department of Sustainability, Environment, Water, Population and Communities) in writing on 13 September 2012.

1.1. Scope of Works

An ecological assessment survey was required to be carried out on lot plan 21RG167 located within PL266. The survey was carried out over the entire property, excluding the area within a radius of approximately 150-250m from the homestead which is situated in the south eastern corner of the property. Refer to Appendix A: Site Location and Survey Points.

1.2. Definitions & Abbreviations

1.2.1. Definitions

Table 1: Definitions

Term	Definition
Project	Australia Pacific LNG Project
Ramsar	Convention on Wetlands of International Importance (the Ramsar Convention) was signed in Ramsar, Iran on 2 February 1971. The Ramsar Convention aims to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. The Convention encourages member countries to nominate sites containing representative, rare or unique wetlands, or that are important for conserving biological diversity, to the List of Wetlands of International Importance (Ramsar sites).
Remnant vegetation	Woody vegetation within the Ecologically Dominant Layer comprising >70% of the height and >50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy.
Trimble	Trimble integrates positioning technologies such as GPS, laser and optical with application software, wireless communications and services to provide innovative positioning solutions for applications such as surveying, construction and engineering.

1.2.2. Abbreviations

Table 2: Abbreviations

Abbreviation	Description
BoM	Bureau of Meteorology
CSG	Coal Seam Gas
DNRM	Department of Natural Resources and Mines (Qld)
DoE	Department of the Environment (C'th) (formerly DSEWPaC)
EHP	Department of Environment and Heritage Protection (Qld) (formerly DERM and EPA)
EPBC/ EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (C'th)
ESA	Environmentally Sensitive Area
EVNT	Endangered, Vulnerable or Near Threatened fauna as listed under the *NC Act*.
GIS	Geographic Information System
GPS	Global Positioning System
GTRE	Ground Truthed Regional Ecosystem
LC	Flora and fauna which has a conservation status of 'Least Concern' under the *Nature Conservation Act 1992*
LNG	Liquefied Natural Gas
LP/ LP Act	*Land Protection (Pest and Stock Route Management) Act 2002 (Qld).*
m	metres
MNES	Matters of National Environmental Significance
NC Act	*Nature Conservation Act 1992 (Qld)*
NCaP	Vegetation which has a Biodiversity status of 'No Concern at Present'
RE	Regional Ecosystem
SLC	Taxon considered 'Special Least Concern' conservation status under the *Nature Conservation Act 1992*
TEC	Threatened Ecological Communities
WoNS	Weed of National Significance

1.2.3. Revision History

Table 3: Revision History

Revision	Date	Description

1.2.4. Document References

Table 4: Associated Document References

Document Number	Title
	Australian Weeds Committee (2012). http://www.weeds.org.au/ Last accessed 22/11/2014.
	BoM (2014) *Bureau of Meteorology - Climate statistics for Australian Locations*. Australian Government, Canberra. http://www.bom.gov.au/climate/averages/tables/cw_042023.shtml Last accessed 22/11/2014.
	DNRM (2014) *Regional Ecosystem and Remnant Map—version 8.1 for the purpose of the Vegetation Management Act 1999*. The Department of Natural Resources and Mines, Brisbane. https://www.qld.gov.au/environment/land/vegetation/map-request/ Last accessed 22/11/2014.
	DoE (2009) *Species Profile and Threats Database (EPBC Act List of Threatened Ecological Communities)*. Department of the Environment, Water, Heritage and the Arts, Canberra. http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl Last accessed 22/11/2014.
	DoE (2013a) *Protected Matters Search Tool*. Department of the Environment. Canberra. http://www.environment.gov.au/epbc/pmst/index.html Last accessed 22/11/2014.
	DoE (2014) *Environmental Protection and Biodiversity Conservation Act 1999*, Department of Sustainability, Environment, Water, Population and Communities. http://www.environment.gov.au/epbc/about/index.html Last accessed 22/11/2014.
	EHP (2013) *Map of Referable Wetlands*. Department of Environment and Resource Management, Brisbane. http://www.ehp.qld.gov.au/ecosystems/wetlands/referable-wetlands-maps.html Last accessed 22/11/2014.
	EHP (2014a). *Regional Ecosystem Land Zone definitions*, Department of Environment and Heritage Protection, Brisbane. http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/land-zones/Last accessed 22/11/2014.
	EHP (2014b) *Wildlife Online*. Department of Environment and Heritage Protection, Brisbane. http://www.ehp.qld.gov.au/wildlife/wildlife-online/ Last accessed 22/11/2014.
	Neldner, V.J., Wilson, B. A., Thompson, E.J. and Dillewaard, H.A. (2012). *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 3.1.*Updated September 2005. Queensland Herbarium, Environmental Protection Agency, Brisbane.128 pp.
	Queensland Parliamentary Counsel (2002) Land Protection (Pest and Stock Route Management) Act, Queensland Government, Brisbane. http://www.legislation.qld.gov.au/legisltn/current/l/landprpsrma02.pdf
	Queensland Parliamentary Counsel, (2006) Nature Conservation (Wildlife) Regulation, Queensland Government, Brisbane. http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConWiR06.pdf
	Sattler, P.S., and Williams, R.D (eds.) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems*. Environmental Protection Authority, Brisbane.
Q-LNG01-15-MP-0109	Australian Pacific LNG (2011) Environmental Constraints Planning and Field Development Protocol.

2. Site Context

Table 5: Site Context

Bioregion	The Site is located in the Inglewood Sandstones Province (11.32) within the Brigalow Belt south bioregion. The Inglewood Sandstones Province consists of undulating to low hilly country on deeply weathered and laterised Jurassic-Cretaceous sandstone, with associated alluvial plains. Major vegetation types include: *Eucalyptus crebra* (narrow-leaved ironbark) on hillsides, E. crebra, *Callitris glaucophylla* (cypress pine) and *Allocasuarina luehmannii* (bulloak) on solodic soils in gently undulating parts; and *E. populnea* (poplar box) on lower slopes and flats. There are also minor areas of *Acacia harpophylla-Casuarina cristata* (brigalow-belah). (Sattler and Williams 1999).
Current land use	The site is located within a pastoral block containing three small dams and large sectioned paddocks. The eastern and western sides of the property have been cleared for grazing activities. The centre of the property contains remnant vegetation with evidence of small scale selective logging. A homestead was observed within the south-eastern corner of the Site.
Soils and geology	Queensland Geological Mapping (Chinchilla map sheet SG56-09) depicts the majority of the site within the Jurassic to lower Cretaceous Kumbarilla Beds geological unit. Sediments typically comprise clayey liable to quartzose sandstone, siltstone, mudstone and polymictic conglomerate. The majority of the site has been mapped as Pleistocene aged sandstone and some sandy soil over the Kumbarilla Beds formation. This geology type is typically associated with land zone 7 (EHP 2014a). Department of Natural Resources and Mines (DNRM) Regional Ecosystem (RE) mapping indicates geology immediately adjacent to the site associated with land zones 4, 5 and 7.
Climate	The nearest weather station to the Site is at Miles Post Office (Bureau of Meteorology (BoM) station ID 042023) located approximately 45km north of the Site has a mean annual rainfall of 651 mm, with most rain falling between December and February, with August being the driest month. The average annual maximum temperature at Miles is 27.1^{o}C (BoM, 2014).

3. Methodology

The methodology employed in compilation of this Ecological Assessment Report consisted of:

- A desktop and literature review of ecological databases and literature sources as direct references for the survey undertaken
- A field survey of the Site

An explanation of these activities is outlined in this section.

3.1. Desktop and Literature Review

Sources utilised in the desktop and literature review are listed in Table 6 below.

Table 6: Desktop and Literature Review Sources

Database	Co-ordinates or search area	Date of search	Appendix
Environment Protection and Biodiversity Conservation Act 1999 (*EPBC Act*) Protected Matters Search	Lat -27.0567 Long 150.3238	14th November 2014	Appendix B: Results of EPBC Protected Matters

Database	Co-ordinates or search area	Date of search	Appendix
Tool			Search Tool
Nature Conservation Act 1992 (*NC Act)* Protected Species Lists Wildlife Online Database	Lat -27.0567 Long 150.3238	14th November 2014	Appendix C: Wildlife Online Database Search Results
Department of Natural Resources and Mines (DNRM) Regional Ecosystem and Remnant Map—version 8.1	Lot 21 Plan RG167	14th November 2014	Appendix D: DNRM Mapped Regional Ecosystems
EHP Map of Environmentally Sensitive Areas – Chapter 5A activities (*EP Act*)	PL266	14th November 2014	Appendix E: EHP Mapping of ESAs and Other Environmental Values on Site
EHP Map of Referable Wetlands and Wetland Protection Areas	Lot 21 Plan RG167	14th November 2014	N/A
Queensland Geological Mapping, Dalby Map SHEET SG56-13 and 1:250,000 Geological series (1972).	--	14th November 2014	N/A
GISWR_23531_IFDA_Rev0 Disturbance Approval Map Suite for DA1662	--	N/A	N/A

Data searches were conducted using a 10 km buffer around the coordinate latitude -27.0567, longitude 150.3238 which corresponds to the approximate centre point of the property.

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3.2. Field Survey

Ecological surveys were conducted in accordance with:

- The *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (*Neldner et al. 2012*)
- In line with the methodology described in the *Environmental Constraints Planning and Field Development Protocol* (*Q-LNG01-15-MP-0109, Australia Pacific LNG 2011*).

Field surveys were undertaken between the 14th November 2014 and the 18th November 2014.

3.2.1. Vegetation Community Survey

Baseline botanical surveys were undertaken to describe dominant flora and vegetation community structure throughout the survey site. Botanical surveys were consistent with the quaternary level of data collection as described in *Neldner et al. (2012)*.

The vegetation community surveys were undertaken within each unique ecosystem encountered within the Site. Vegetation community data was entered into the data fields provided by the Trimble data capture system. A total of nine formal vegetation community surveys were undertaken within the Site. Ground-truthing of the DNRM RE designation (DNRM 2014) at and surrounding the Site was undertaken via quaternary level and random meanders transect assessments, as defined by *Neldner et al. (2012)*.

The locations of the vegetation community survey sites are presented in Appendix A: Site Location and Survey Points.

Relative abundance data was collected for each stratum within the community as per the methodology described in the *Environmental Constraints Planning and Field Development Protocols (Q-LNG01-15-MP-0109 Australia Pacific LNG (2012))*, as presented by the vegetation structure point data sheet of the Trimble unit. Representative photo(s) were taken of the subject vegetation community via the Trimble unit or camera where relevant. Photo aspect data was recorded in this instance.

Vegetation community polygons were confirmed, mapped and identified in accordance with Queensland regional ecosystem (biodiversity status) (DNRM 2014) and EPBC threatened ecological community (TEC) criteria (DoE 2009).

3.2.2. Habitat Surveys

Habitat surveys were not undertaken due to property access and time constraints. Potential habitat and associated features were recorded opportunistically while traversing the Site.

3.2.3. Threatened Flora and Fauna Survey

Threat-listed species are those listed under the *EPBC Act 1999* and the *Nature Conservation (Wildlife) Regulation 2006*.

Targeted threat-listed flora searches were undertaken for species highlighted by the database and literature review. Searches were undertaken based on incidental field observations of high quality habitat, the identification of distinct ecological features through the preliminary desktop and literature review, or within the vicinity of a vegetation community survey/habitat feature plots where field ecologists deemed the given area to be of sufficient potential value to a threatened species to warrant such a search.

Fauna species were recorded opportunistically throughout the survey area.

Any observations of threatened species (whether within search areas or opportunistically) were recorded using the Trimble data capture system. Where practicable, photo(s) were taken of the subject threatened species. Any flora specimens deemed as potential threatened species and not conclusively identified by the ecologists were forwarded to the Queensland Herbarium for verification.

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3.2.4. Exotic Flora and Fauna Survey

Surveys for declared pest flora and fauna species, as defined by the *Land Protection (Pest and Stock Route Management) Act 2002 (LP Act)*, were undertaken opportunistically while traversing the site. All observations of pest species, including abundance data, were recorded using the Trimble data capture system.

3.2.5. Disturbance Survey

Evidence of disturbance at survey sites was recorded for type, severity and estimated time of most recent occurrence. The recording of disturbance was also conducted at opportunistic levels where appropriate.

3.2.6. Survey Limitations

A number of factors are considered likely to influence survey results for particular species or species groups. These factors are:

- Timing (seasons) and duration of the survey period
- Weather conditions in the preceding seasons
- Restricted spatial area of the habitats within the Site

The surveys undertaken may not provide a true indication of seasonal habitat utilisation by fauna species within the site. Some cryptic flora species may only be detected during particular flowering periods. The field investigations undertaken were limited to passive techniques (e.g. no live trapping) and were limited to early summer season. Additional survey effort would be required to provide a more comprehensive inventory of species, both threatened and common.

4. Results and Discussions

This section includes the results of the database and literature review. Some information is contained in the appendices and is referenced below.

4.1. Desktop and Literature Review

Results of the desktop and literature review can be found in Appendices B-E, as listed in Table 6: Desktop and Literature Review Sources.

4.2. Field Survey

Results of field surveys are detailed in the following sections. A comprehensive list of flora and fauna species identified during the field survey is included in Appendix F: List of Flora and Fauna Species Identified on Site

4.2.1. Commonwealth Environmental Matters

Field survey results for Commonwealth Matters of National Environmental Significance (MNES) are outlined in Table 7: Commonwealth Environmental Matters – Field Survey Results

Table 7: Commonwealth Environmental Matters – Field Survey Results

Commonwealth environmental matters	Present (Y/N)	Location	Description*	Status*	Condition	Comments
TECs	Y	Within road reserve west of the property.	11.4.10 *Eucalyptus populnea* or *E. woollsiana*, *Acacia harpophylla*, *Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Endangered	Intact remnant and regrowth vegetation. Minor weed incursion.	Narrow strip of remnant and regrowth vegetation within road reserve at western property boundary.
EPBC threat-listed flora	N	N/A	N/A	N/A	N/A	N/A
EPBC threat-listed fauna	N	N/A	N/A	N/A	N/A	N/A
Migratory species	N	N/A	N/A	N/A	N/A	N/A
Marine species	Y	Present at small property dam.	*Grallina cyanoleuca* (Australian magpie-lark)	Listed marine species under the *EPBC Act*.	N/A	Two individuals seen and heard opportunistically.

*Status taken from DoE 2014

4.2.2. Queensland Environmental Matters

4.2.2.1. Field survey results

Field survey results for State environmental matters (EVNT etc) are outlined in Table 8.

Table 8: State Environmental Matters - Field Survey Results

State environmental matters	Present (Y/N)	Location	Description*	Status*	Comments
Endangered regional ecosystems	Y	Within road reserve west of the property.	11.4.10 *Eucalyptus populnea* or *E. woollsiana, Acacia harpophylla, Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Endangered	Narrow strip of remnant and regrowth vegetation within road reserve at western property boundary.
Of concern regional ecosystems	Y	Within road reserve to the north-east of the property.	11.3.25 *Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines.	Of concern	Sub-dominant remnant vegetation within road reserve at north-eastern property boundary.
NC Act listed flora (EVNT)	N	N/A	N/A	N/A	N/A
NC Act listed fauna (EVNT)	N	N/A	N/A	N/A	N/A
NC Act Special Least Concern flora	Y	Within SW section of remnant vegetation.	*Cymbidium canaliculatum (*black orchid*)*	SLC	Sparse individuals, mostly associated with *Eucalyptus crebra*.

*Status and description taken from DNRM 2014 and EHP2014

4.2.2.2. Ground Truthed Regional Ecosystems

DNRM mapping identified one RE and two heterogeneous REs to be present on site. This was ground truthed as incorrect and results are presented in Table 9.

Table 9: Ground Truthed Regional Ecosystems

RE ID	Status (biodiversity)*	Short description	Condition
11.4.10	Endangered	*Eucalyptus populnea* or *E. woollsiana, Acacia harpophylla, Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Intact remnant vegetation. Minor weed incursion.
11.5.1/11.3.25	Of concern	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines.	Sub-dominant remnant vegetation with moderate weed incursion, associated with an unmapped drainage line.
11.5.1	No Concern at present	*Eucalyptus crebra* and/or *E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces.	Remnant intact vegetation within the northern part of the central vegetation, with evidence of selective logging.
11.7.4	No Concern at present	*Eucalyptus decorticans* and/or Eucalyptus spp., Corymbia spp., *Acacia spp., Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust.	Dense vegetation intact vegetation within the southern part of the central vegetation, with evidence of selective logging.
11.7.5	No Concern at present	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks.	Dense patches of vegetation confined to the south west and north eastern part of the central vegetation. Associated with escarpments.
11.7.5b	No Concern at present	*Acacia aprepta* shrubland.	Remnant intact dominant shrubland on crest of lateritic rise.

*Description taken from DNRM 2014

All ground truthed regional ecosystems are represented schematically in Appendix H: Ground Truthed Regional Ecosystems and Regrowth.

4.2.2.2.1. Regrowth

DNRM mapping identified one RE and two heterogeneous REs to be present on site. This was ground truthed as incorrect and results are presented in Table 10.

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Table 10: Ground Truthed Regrowth

Regrowth	Description*	Condition
Regrowth that contains endangered regional ecosystem.	11.4.10 *Eucalyptus populnea* or *E. woollsiana, Acacia harpophylla, Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Intact regrowth vegetation within road reserve. Minor weed incursion. Appears +25 years of age
Regrowth that contains no concern at present regional ecosystem.	11.7.4 *Eucalyptus decorticans* and/or Eucalyptus spp., Corymbia spp., *Acacia spp., Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust.	Reasonable condition regrowth, with areas of non vegetated patches associated with escarpments. Appears +25 years of age.

*Description taken from DNRM 2014

All areas of ground truthed regrowth are represented thematically in Appendix H: Ground Truthed Regional Ecosystems and Regrowth.

4.2.2.3. Other Significant Species

One SLC plant species was observed during the survey, *Cymbidium canaliculatum* (black orchid), and was generally associated with narrow-leaved ironbark. The individuals detected were sparsely located within the vegetation. Refer to Appendix I: Ground Truthed NC Act Threat Listed and Other Significant Species Present on Site.

4.2.2.4. Other Environmental Values

Other values presented in this section provide further environmental context only for the site.

The site provides extensive potential habitat opportunities with numerous hollow logs, trees, stags, fallen timber, windrowed timber, decorticating trees, burrows and termite mounds.

4.2.2.5. Weeds and Pests

Distribution of Weeds of National Significance (WoNS), Class 1, 2 and 3 species declared under the *LP Act* on site has been mapped based on field survey results. Appendix J: Ground Truthed Weeds Present on Site is a schematic of the field surveyed weeds and pests.

Pest flora encountered during the field survey are listed in Table 11.

Table 11: Pest Flora Recorded During the Ecological Field Survey on Site

Scientific Name	Common Name	Status*	Area of Occurrence
Opuntia aurantiaca	tiger pear	Class 2 *(LP Act)* and WoNS	Cluster of individuals within mid-western remnant vegetation, and within clearing.
Opuntia stricta	prickly pear	Class 2 *(LP Act)* and WoNS	Stand alone individuals sparsely located within remnant vegetation.
Opuntia tomentosa	velvety-tree pear	Class 2 *(LP Act)* and WoNS	Stand alone individuals sparsely located within remnant vegetation.
Bryophyllum delagoense	mother-of-millions	Class 2 *(LP Act)*	Extensive area at homestead surrounds SE corner of the property.
Agave sisalana	sisal hemp	Environmental	Numerous individuals at homestead surrounds, several individuals located within remnant

Scientific Name	Common Name	Status*	Area of Occurrence
			vegetation.

*Status taken from Australian Weeds Committee 2012

4.2.3. Disturbance

The eastern and western sides of the site have been cleared for grazing activities, some regrowth is present. The clearing also contains large piles of windrowed timber. An extensive patch of remnant vegetation remains in the middle of the property. The vegetation has been dissected by old farm tracks, and also contains two small dams. Selective logging is evident in isolated patches within the vegetation

The property has a very low weed density, with the majority of weeds occurring around the homestead and within cleared areas.

5. Conclusions

As a result of the desktop and field assessments undertaken for the Site, the following ecological values were identified:

- One (1) environmental value was identified on the Site that is of Commonwealth conservation significance. Endangered Regional Ecosystem RE11.4.10 is present within the road reserve west of the property. Coal Seam Gas (CSG) works will require clearing of this vegetation for works in an adjacent property. This RE is also considered a Threatened Ecological Community (TEC) under the *EPBC Act*.
- One (1) Endangered regional ecosystems identified on the Site as being of State conservation significance. RE11.4.10 regrowth and remnant vegetation, present within the road reserve west of the property.
- One (1) Of Concern regional ecosystems identified on the Site as being of State conservation significance. RE11.3.25 sub-dominant vegetation associated with a drainage line situated in the road reserve north-east of the property boundary.
- One (1) Commonwealth listed marine species was identified during the survey; *Grallina cyanoleuca* (Australian magpie-lark).
- One (1) SLC plant species, *Cymbidium canaliculatum* (black orchid) were recorded in various locations.

Four (4) Class 2 declared weed species under the *LP* Act were observed on the Site. *Opuntia tomentosa* (velvety pear tree) and *Opuntia stricta* (prickly pear) occur sparsely as individuals within the Site. *Opuntia aurantiaca* (tiger pear) occurs in small clusters, particularly in the clearing, and *Bryophyllum delagoense* (mother-of-millions) occurs as a dense cluster around the homestead.The *Opuntia* species are also listed as WoNS. Environmental weed *Agave sisalana* (sisal hemp) also occurs around the homestead, with several individuals located within the vegetation.

It is recommended that the findings in this report are considered during detailed development planning such that disturbance to the ecological values of the site and locality may be avoided wherever practical. Where disturbance is unavoidable, impact mitigation measures are to be implemented in accordance with the approved site environmental management plan and regulatory approval conditions.

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Appendix A: Site Location and Survey Points

Legend

Survey Location

- Vegetation Community Survey Point

Queensland Waterways Zoning

Risk of Impact

- 2 - Moderate

Boundary

- Survey Area
- Site Location
- Surveyed Cadastral
- Permit

Source Information:
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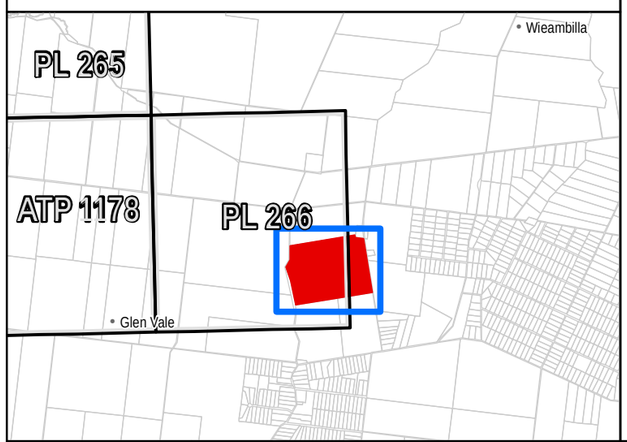

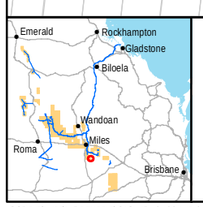

N

Scale 1:15,000 (at A3)

0 250 500 1,000

Metres

Coordinate System: GDA 1994 MGA Zone 56

Rev	Description	Drawn	Check	QA	Approved	Date
0	Issued For Use	ALM	PH	SAW	CZ	02/12/2014
A	Issued For Review	ALM	PH	SAW	CZ	25/11/2014

origin

Appendix A:
Site Location and Survey Points
Date: 2 December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

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Appendix B: Results of EPBC Protected Matters Search Tool

The search of the EBPC protected matters database was carried out on 14/11/2014

Australian Government

Department of the Environment

EPBC Act Protected Matters Report

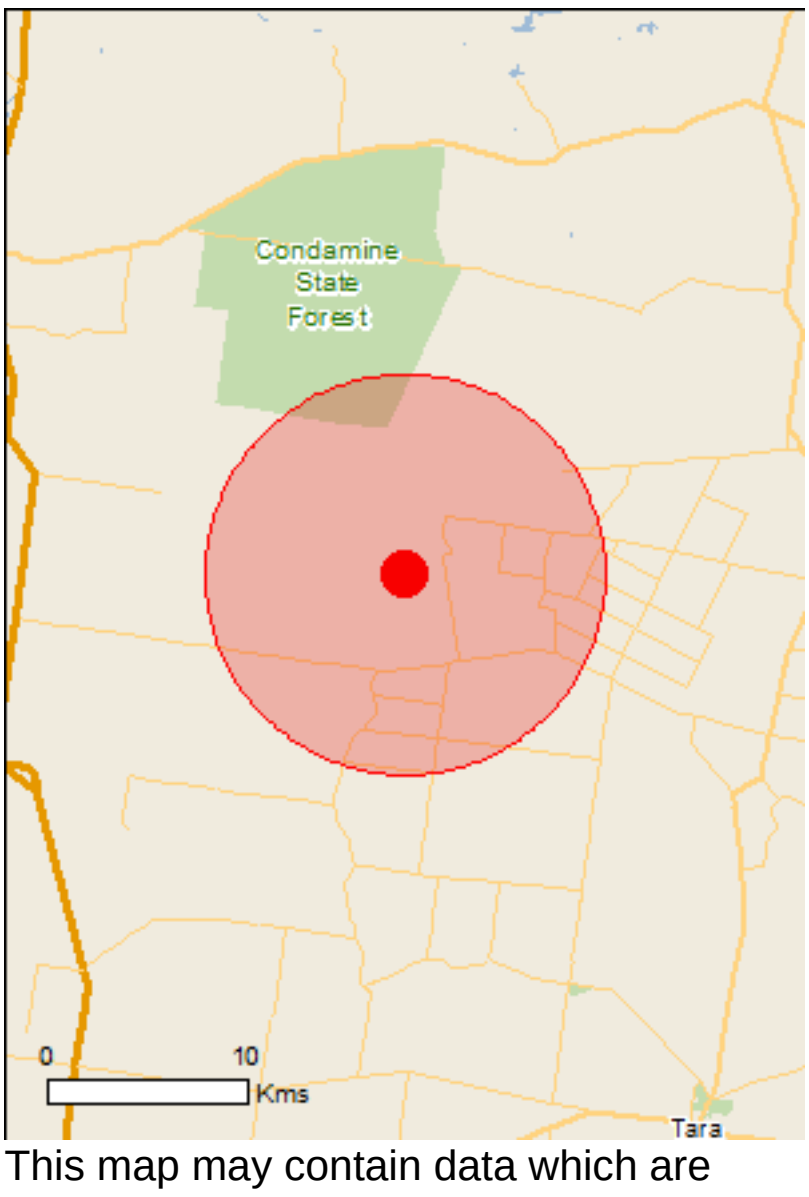
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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

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

Report created: 14/11/14 09:35:37

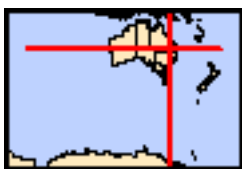
Summary
Details
Matters of NES
Other Matters Protected by the EPBC Act
Extra Information
Caveat
Acknowledgements



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

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	15
Listed Migratory Species:	9

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 and the heritage values of a place on the Register of the National Estate.

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.

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	9
Whales and Other Cetaceans:	None
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.

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	21
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (RAMSAR) [Resource Information]

Name	Proximity
Narran lake nature reserve	Upstream from 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
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
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 habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Nyctophilus corbeni		
South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Plants		
Acacia lauta		
[4165]	Vulnerable	Species or species habitat likely to occur within area
Cadellia pentastylis		
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii		
Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area
Westringia parvifolia		
[4822]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Anomalopus mackayi		
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area
Delma torquata		
Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat may occur within area
Migratory Wetlands Species		

Name	Threatened	Type of Presence
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat likely 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 may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may 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
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		
Canis lupus familiaris Domestic Dog [82654]		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

Name	Status	Type of Presence
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 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		
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		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
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Coordinates

-27.0567 150.3238

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

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:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA 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, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-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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Appendix C: Wildlife Online Database Search Results

The search of the Wildlife Online database was carried out on 14/11/2014.

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -27.0567
Longitude: 150.3238
Distance: 10
Email: claud.zappone@originenergy.com.au
Date submitted: Friday 14 Nov 2014 08:18:53
Date extracted: Friday 14 Nov 2014 08:20:03

The number of records retrieved = 188

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			1
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		2
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		1
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		3
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		2
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		8
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		3
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		1
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		2
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		4
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		9
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		2
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		2
animals	birds	Cacatuidae	*Eolophus roseicapillus*	galah		C		4
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		SL		2
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		3
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		3
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		1
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		1
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		2
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		2
animals	birds	Cuculidae	*Chalcites osculans*	black-eared cuckoo		C		1
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		2
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		1
animals	birds	Maluridae	*Malurus splendens*	splendid fairy-wren		C		1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		2
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		1
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		1
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		3
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		1
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		8
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		5
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		2
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		1
animals	birds	Meliphagidae	*Gavicalis virescens*	singing honeyeater		C		3
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		8
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		2
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		1
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		9
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		3
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		7
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		9
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		1
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		4
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		3
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		1
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		4
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		1
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		1
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		4
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		3
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		2
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		5
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		1
animals	mammals	Vespertilionidae	*Scotorepens sp.*					1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		5
animals	mammals	Vespertilionidae	*Nyctophilus corbeni*	eastern long-eared bat		V	V	1
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		NT		1
animals	mammals	Vespertilionidae	*Scotorepens sp. (Parnaby)*	central-eastern broad-nosed bat		C		1
animals	reptiles	Agamidae	*Amphibolurus burnsi*			C		2
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		2
animals	reptiles	Diplodactylidae	*Lucasium steindachneri*	Steindachner's gecko		C		1
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		3
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		4
animals	reptiles	Scincidae	*Lerista timida*			C		2
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		2
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		1
animals	reptiles	Scincidae	*Menetia timlowi*			C		1
animals	reptiles	Scincidae	*Lerista fragilis*			C		1
animals	reptiles	Varanidae	*Varanus tristis*	black-tailed monitor		C		1
animals	reptiles	Varanidae	*Varanus sp.*	goanna				1
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		1
plants	conifers	Cupressaceae	*Callitris glaucophylla*	white cypress pine		C		26
plants	ferns	Adiantaceae	*Cheilanthes sieberi*			C		1/1
plants	ferns	Adiantaceae	*Cheilanthes distans*	bristly cloak fern		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Acanthaceae	*Brunoniella australis*	blue trumpet		C		2
plants	higher dicots	Apocynaceae	*Rhyncharrhena linearis*			C		1/1
plants	higher dicots	Apocynaceae	*Parsonsia eucalyptophylla*	gargaloo		C		1
plants	higher dicots	Asteraceae	*Ozothamnus diotophyllus*			C		1/1
plants	higher dicots	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		2/1
plants	higher dicots	Asteraceae	*Gamochaeta pensylvanica*		Y			1/1
plants	higher dicots	Asteraceae	*Podolepis longipedata*	tall copper-wire daisy		C		1/1
plants	higher dicots	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1
plants	higher dicots	Asteraceae	*Rutidosis lanata*			V		2/2
plants	higher dicots	Cactaceae	*Opuntia stricta*		Y			3
plants	higher dicots	Caesalpiniaceae	*Senna artemisioides subsp. zygophylla*			C		1
plants	higher dicots	Campanulaceae	*Wahlenbergia tumidifructa*			C		1/1
plants	higher dicots	Campanulaceae	*Wahlenbergia fluminalis*	river bluebell		C		1/1
plants	higher dicots	Campanulaceae	*Wahlenbergia graniticola*	granite bluebell		C		1/1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1
plants	higher dicots	Casuarinaceae	*Allocasuarina luehmannii*	bull oak		C		54
plants	higher dicots	Droseraceae	*Drosera finlaysoniana*			C		1/1
plants	higher dicots	Droseraceae	*Drosera burmanni*			C		1/1
plants	higher dicots	Fabaceae	*Daviesia genistifolia*	broom bitter pea		C		1/1
plants	higher dicots	Fabaceae	*Glycine clandestina var. sericea*			C		1
plants	higher dicots	Goodeniaceae	*Goodenia delicata*			C		1/1
plants	higher dicots	Goodeniaceae	*Goodenia glabra*			C		1
plants	higher dicots	Haloragaceae	*Myriophyllum simulans*			C		1/1
plants	higher dicots	Lamiaceae	*Westringia cheelii*			C		2/2
plants	higher dicots	Lamiaceae	*Prostanthera*			C		1
plants	higher dicots	Loranthaceae	*Lysiana exocarpi subsp. tenuis*			C		2
plants	higher dicots	Loranthaceae	*Amyema pendula subsp. longifolia*			C		1/1
plants	higher dicots	Loranthaceae	*Amyema quandang var. bancroftii*	broad-leaved grey mistletoe		C		1
plants	higher dicots	Malvaceae	*Hibiscus sturtii var. sturtii*			C		3
plants	higher dicots	Mimosaceae	*Acacia jucunda*			C		2/1
plants	higher dicots	Mimosaceae	*Acacia conferta*			C		1
plants	higher dicots	Mimosaceae	*Acacia amblygona*	fan-leaf wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia hakeoides*	hakea wattle		C		2/1
plants	higher dicots	Mimosaceae	*Acacia wardellii*			V		8/4
plants	higher dicots	Mimosaceae	*Acacia burbidgeae*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia neriifolia*	pechey wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia muelleriana*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia blakei subsp. blakei*			C		8
plants	higher dicots	Mimosaceae	*Acacia crassa subsp. crassa*			C		3/1
plants	higher dicots	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		9
plants	higher dicots	Mimosaceae	*Acacia*			C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus woollsiana*			C		4/1
plants	higher dicots	Myrtaceae	*Eucalyptus bakeri*	Baker's mallee		C		2/2
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		75/1
plants	higher dicots	Myrtaceae	*Eucalyptus elegans*			C		3
plants	higher dicots	Myrtaceae	*Eucalyptus tereticornis subsp. tereticornis*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrtaceae	*Eucalyptus fibrosa subsp. nubila*			C		15
plants	higher dicots	Myrtaceae	*Eucalyptus crebra x E.populnea*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca densispicata*			C		2/2
plants	higher dicots	Myrtaceae	*Eucalyptus decorticans*			C		1/1
plants	higher dicots	Myrtaceae	*Kardomia jucunda*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca lanceolata*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		2
plants	higher dicots	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus viridis*			C		2/2
plants	higher dicots	Myrtaceae	*Eucalyptus exserta*	Queensland peppermint		C		3
plants	higher dicots	Plantaginaceae	*Gratiola pedunculata*			C		1/1
plants	higher dicots	Proteaceae	*Hakea lorea subsp. lorea*			C		1/1
plants	higher dicots	Proteaceae	*Grevillea striata*	beefwood		C		1
plants	higher dicots	Rhamnaceae	*Cryptandra longistaminea*			C		1
plants	higher dicots	Rubiaceae	*Oldenlandia galioides*			C		1/1
plants	higher dicots	Rubiaceae	*Everistia vacciniifolia forma vacciniifolia*			C		1
plants	higher dicots	Rubiaceae	*Pomax umbellata*			C		1/1
plants	higher dicots	Rutaceae	*Boronia splendida*			C		1/1
plants	higher dicots	Rutaceae	*Boronia bipinnata*	rock boronia		C		3
plants	higher dicots	Sapindaceae	*Dodonaea triangularis*			C		2
plants	higher dicots	Scrophulariaceae	*Eremophila mitchellii*			C		1/1
plants	higher dicots	Solanaceae	*Solanum nemophilum*			C		3
plants	monocots	Centrolepidaceae	*Centrolepis exserta*			C		1/1
plants	monocots	Cyperaceae	*Gahnia aspera*			C		3
plants	monocots	Cyperaceae	*Eleocharis blakeana*			C		3/3
plants	monocots	Cyperaceae	*Scleria sphacelata*			C		1
plants	monocots	Cyperaceae	*Schoenus kennyi*			C		1
plants	monocots	Hemerocallidaceae	*Dianella revoluta var. revoluta*			C		2
plants	monocots	Laxmanniaceae	*Lomandra leucocephala subsp. leucocephala*			C		2
plants	monocots	Laxmanniaceae	*Lomandra longifolia*			C		1
plants	monocots	Laxmanniaceae	*Lomandra filiformis subsp. filiformis*			C		1
plants	monocots	Laxmanniaceae	*Lomandra multiflora subsp. multiflora*			C		1
plants	monocots	Laxmanniaceae	*Laxmannia gracilis*	slender wire lily		C		1
plants	monocots	Orchidaceae	*Caladenia caerulea var. caerulea*			C		1
plants	monocots	Orchidaceae	*Cymbidium canaliculatum*			C		1
plants	monocots	Orchidaceae	*Pterostylis mitchellii*			C		1/1
plants	monocots	Poaceae	*Aristida queenslandica var. queenslandica*			C		2
plants	monocots	Poaceae	*Aristida ramosa*	purple wiregrass		C		1
plants	monocots	Poaceae	*Entolasia stricta*	wiry panic		C		1
plants	monocots	Poaceae	*Eragrostis sororia*			C		1
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		2
plants	monocots	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		1
plants	monocots	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		2
plants	monocots	Poaceae	*Eremochloa bimaculata*	poverty grass		C		1
plants	monocots	Poaceae	*Aristida caput-medusae*			C		3
plants	monocots	Poaceae	*Paspalidium criniforme*			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Aristida calycina var. calycina*			C		1
plants	monocots	Poaceae	*Aristida queenslandica var. dissimilis*			C		1
plants	monocots	Poaceae	*Eriachne pallescens var. pallescens*			C		1
plants	monocots	Poaceae	*Dinebra decipiens var. asthenes*			C		1

CODES

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

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

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

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

Appendix D: DNRM Mapped Regional Ecosystems

This Appendix provides an overview of DNRM mapped regional ecosystems.

Legend

- DNRM Stream Order

Biodiversity Status of Remnant Regional Ecosystems (RE)

Remnant Vegetation

- Endangered RE
- Of Concern RE
- No Concern at Present

Boundary

- Survey Area
- Site Location
- Surveyed Cadastral
- Permit

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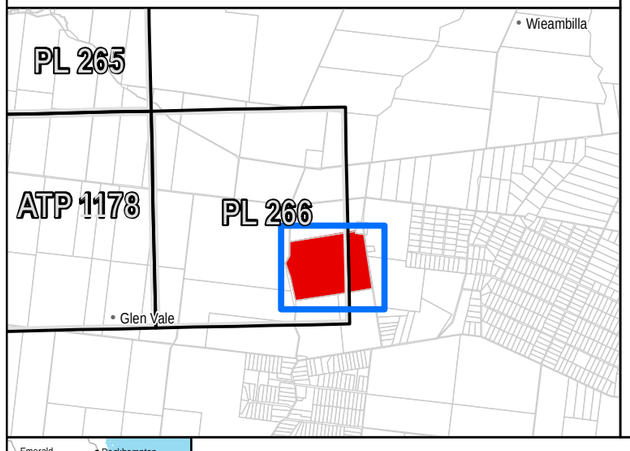

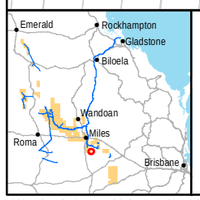

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Scale 1:15,000 (at A3)

0 250 500 1,000

Metres

Coordinate System: GDA 1994 MGA Zone 56

Rev	Description	Drawn	Check	QA	Approved	Date
0	Issued For Use	ALM	PH	SAW	CZ	02/12/2014
A	Issued For Review	ALM	PH	SAW	CZ	26/11/2014

Appendix D:
DNRM Mapped Regional Ecosystems
Date: 2 December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

S:\Data\Work_Requests\GISWR_24001 to 24500\GISWR_24118\Rev0\GISWR_24118_D_Rev0.mxd

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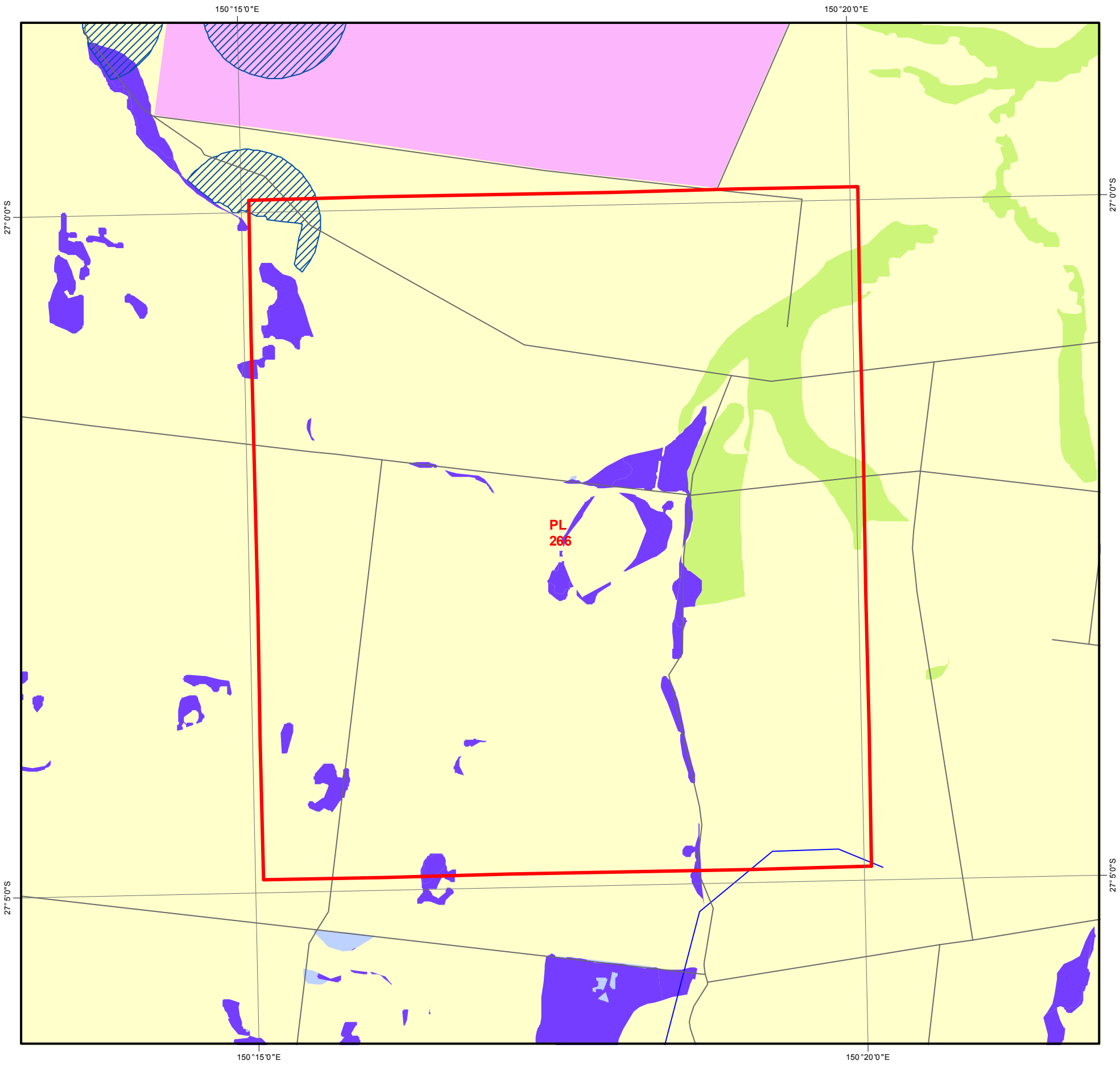
Appendix E: EHP Mapping of ESAs and Other Environmental Values on Site



ENVIRONMENTALLY SENSITIVE AREAS - non-mining resource activities (EP Act)

Requested By: CLAUD.ZAPPONE@ORIGINENERGY.COM.AU
Date: 14 Nov 14 Time: 08.18.37

Centred on Tenure:
PL 266

Selected Petroleum Lease

CATEGORY A
- National Parks
- Regional Parks (general)
- Forest Reserves
- Wet Tropics World Heritage Area
- Great Barrier Reef Marine Park Area
- Marine Parks other than General Use Zones

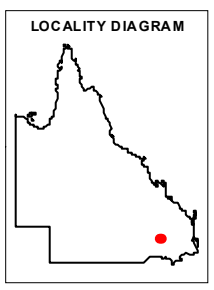
CATEGORY B
- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (remnant and mature regrowth (biodiversity status))
- Marine Parks other than General Use Zones
- Marine Plants

CATEGORY C
- Essential Habitat
- Nature Refuges
- Regional Parks (resource use area)
- State Forests
- Timber Reserves
- Of Concern Regional Ecosystems (remnant biodiversity status)

OTHERS
- Towns
- Roads
- © Pitney Bowes Software Pty Ltd 2014
- Rivers
- Springs
- Referable Wetlands
- Dominant Wetlands (51-100%)
- Subdominant Wetlands (0-50%)
- Queensland

Queensland Government

LOCALITY DIAGRAM



N

0 800 1600 2400 3200 4000 m

This product is projected into GDA 1994 MGA Zone 56

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Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QGIS.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient or subject to change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes are displayed.

Mature Regrowth vegetation, depicting endangered regional ecosystems, was incorporated as of 24/07/2012.

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Appendix F: List of Flora and Fauna Species Identified on Site

This Appendix provides a full list of all flora and fauna species recorded during the field surveys.

Family	Scientific name	Common name	Legislative status (*NC Act*, *LP Act*)°	Legislative status (*EPBC Act*)^
Flora				
Asparagaceae	**Agave sisalana*	*Sisal hemp*	LC	
Asteraceae	*Cassinia laevis*	*cough bush*	LC	
Asteraceae	*Ozothamnus diosmifolius*	*sago flower*	LC	
Cactaceae	**Opuntia stricta*	prickly pear	Class 2 (*LP Act*)	
Cactaceae	**Opuntia tomentosa*	velvety-tree pear	Class 2 (*LP Act*)	
Casuarinaceae	*Allocasuarina inophloia*	thready-bark she oak	LC	
Casuarinaceae	*Allocasuarina luehmannii*	bull oak	LC	
Chenopodaceae	*Sclerolaena birchii*	galvanized burr	LC	
Crassulaceae	**Bryophyllum delagoense*	mother of millions	Class 2 (*LP Act*)	
Cupressaceae	*Callitris glaucophylla*	white cypress pine	LC	
Cyperaceae	*Cyperus sp.*	a sedge	LC	
Cyperaceae	*Gahnia aspera*	rough saw-sedge	LC	
Euphorbiaceae	*Petalostigma pubescens*	quinine tree	LC	
Laminaceae	*Prostanthera cryptandroides* subsp. *euphrasioides*	a mint bush	LC	
Laminaceae	*Prostanthera leichhardtii*	a mint bush	LC	
Mimosaceae	*Acacia aprepta*	Miles mulga	LC	
Mimosaceae	*Acacia caroleae*	Carol's wattle	LC	
Mimosaceae	*Acacia conferta*	crowded-leaf wattle	LC	
Mimosaceae	*Acacia decora*	pretty wattle	LC	
Mimosaceae	*Acacia harpophylla*	brigalow	LC	
Mimosaceae	*Acacia ixiophylla*	umbrella wattle	LC	
Mimosaceae	*Acacia julifera*	a wattle	LC	
Mimosaceae	*Acacia leiocalyx*	early-flowering black wattle	LC	
Mimosaceae	*Acacia semirigida*	stony ridge wattle	LC	
Myrtaceae	*Angophora leiocarpa*	smooth-barked apple	LC	
Myrtaceae	*Corymbia trachyphloia*	brown bloodwood	LC	
Myrtaceae	*Eucalyptus crebra*	narrow-leaved ironbark	LC	
Myrtaceae	*Eucalyptus exserta*	Queensland peppermint	LC	
Myrtaceae	*Eucalyptus fibrosa* subsp. *fibrosa*	blue-leaved ironbark	LC	
Myrtaceae	*Eucalyptus woollsiana*	gum-topped box	LC	
Myrtaceae	*Kardomia jucunda*		LC	
Myrtaceae	*Lysicarpus angustifolius*	budgeroo	LC	
Myrtaceae	*Melaleuca lanceolata*	moonah	LC	
Myrtaceae	*Melaleuca pallescens*		LC	

Family	Scientific name	Common name	Legislative status (*NC Act, LP Act*)°	Legislative status (*EPBC Act*)^
Myrtaceae	*Melaleuca uncinata*	broom honey myrtle	LC	
Orchidaceae	*Cymbidium canaliculatum*	black orchid	SLC	
Phormiaceae	*Dianella caerulea*	blue flax-lily	LC	
Poaceae	*Ancistrachne uncinulata*	hooky grass	LC	
Poaceae	*Aristida caput-medusae*	many-headed wiregrass	LC	
Poaceae	*Triodia sp.*	a spinifex grass	LC	
Santalaceae	*Santalum lanceolatum*	sandalwood	LC	
Sapindaceae	*Dodonaea viscosa*	sticky hopbush	LC	
Rhamnaceae	*Cryptandra amara*	Pretty pearlflower, bitter cryptandra	LC	
Rubiaceae	*Psydrax oleifolia*	myrtle tree	*LC*	
Rutaceae	*Boronia bipinnata*	rock boronia	LC	
Rutaceae	*Geijera parviflora*	wilga	LC	
Fauna				
Birds				
Acanthizidae	*Smicrornis brevirostris*	weebill	LC	
Artamidae	*Cracticus tibicen*	Australian magpie	LC	
Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo	LC	
Cacatuidae	*Eolophus roseicapillus*	galah	LC	
Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo shrike	LC	
Columbidae	*Geopelia striata*	peaceful dove	LC	
Corcoracidae	*Struthidea cinerea*	apostlebird	LC	
Corvidae	*Corvus orru*	torresian crow	LC	
Maluridae	*Malurus cyaneus*	superb fairy wren	LC	
Meliphagidae	*Manorina melanocephala*	noisy miner	LC	
Monarchidae	*Grallina cyanoleuca*	magpie lark	LC	listed marine
Pachycephalidae	*Pachycephala rufiventris*	rufous whistler	LC	
Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler	LC	
Rhipiduridae	*Rhipidura leucophrys*	willie wagtail	LC	
Mammals				
Macropodidae	*Macropus giganteus*	Eastern grey kangaroo	LC	
Macropodidae	*Wallabia bicolor*	swamp wallaby	LC	
Reptiles				
Scincidae	*Calyptotis sp.*	a skink	LC	
Varanidae	*Varanus gouldii*	sand goanna	LC	

*Introduced species

°Status taken from DoE (2014)

^Status taken from EHP (2014b)

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Appendix G: Ground Truthed Threatened Ecological Communities

This Appendix provides mapping of all field validated EPBC TECs surveyed on site

Legend

DNRM Stream Order

Threatened Ecological Community

Brigalow

Boundary

Survey Area

Site Location

Surveyed Cadastral

Permit

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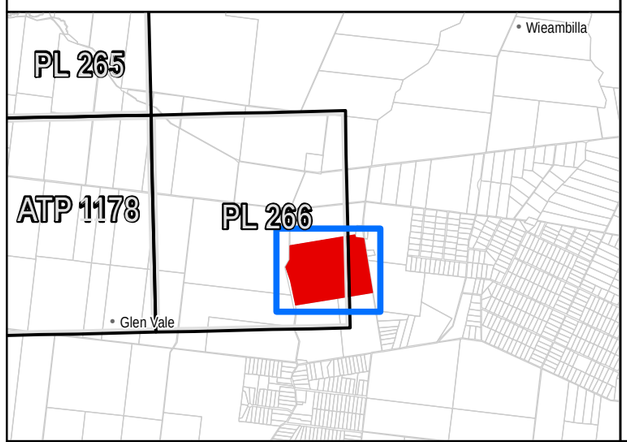

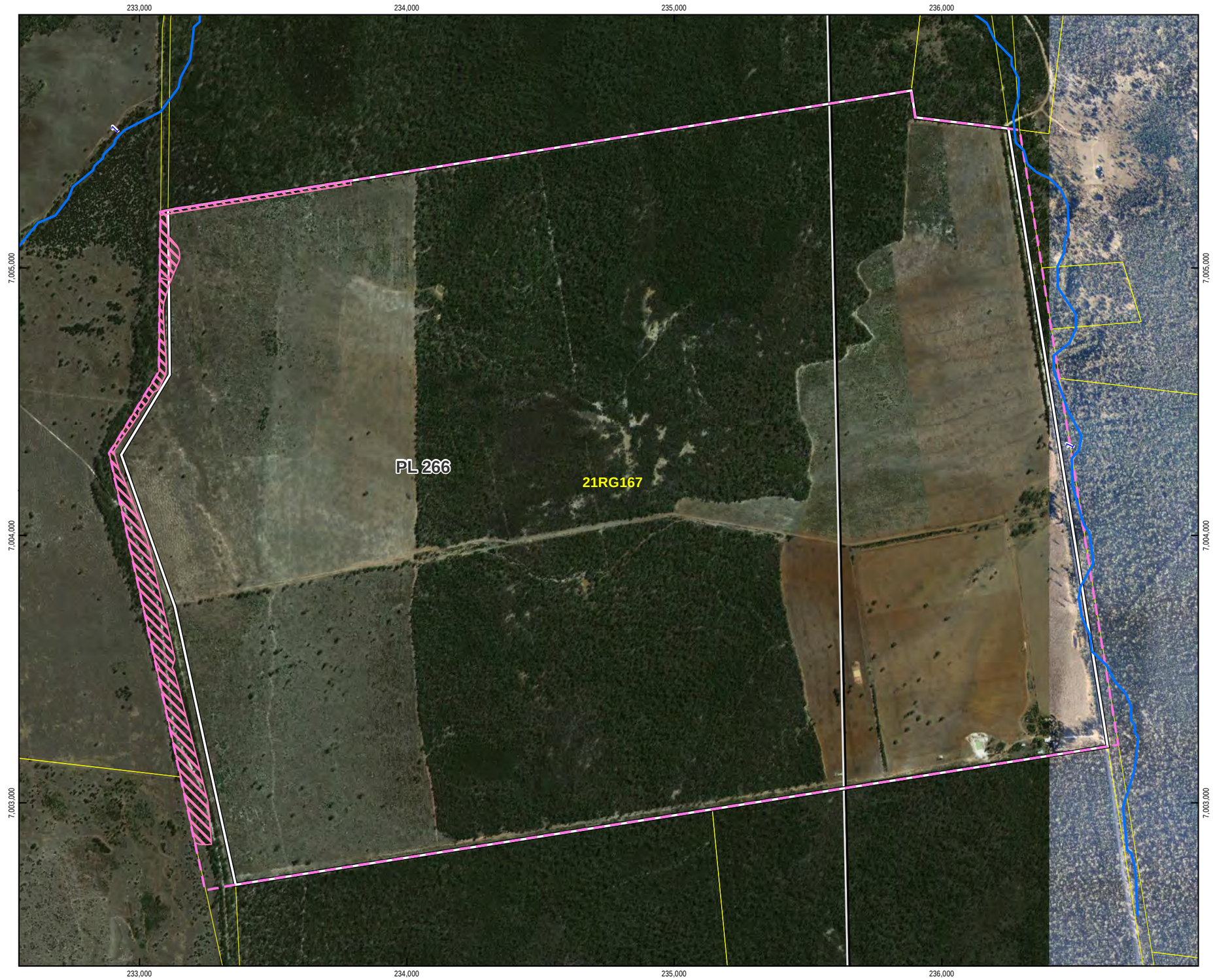

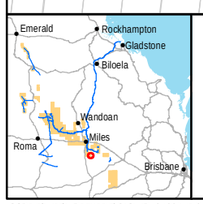

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Scale 1:15,000 (at A3)

0 250 500 1,000

Metres

Coordinate System: GDA 1994 MGA Zone 56

Rev	Description	Drawn	Check	QA	Approved	Date
0	Issued For Use	ALM	PH	SAW	CZ	02/12/2014
A	Issued For Review	ALM	PH	SAW	CZ	26/11/2014

origin

Appendix G:
Ground Truthed Threatened Ecological Communities
Date: **2** December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

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Appendix H: Ground Truthed Regional Ecosystems and Regrowth

This Appendix provides mapping of all field validated GTRE and Regrowth surveyed on site.

Legend

DNRM Stream Order

Ground Truthed Regional Ecosystems (RE) Biodiversity Status

Remnant Vegetation

- Endangered RE
- Of Concern RE
- No Concern at Present

Regrowth Vegetation

- Contains Endangered RE
- Contains Of Concern RE
- Not of Concern

Boundary

- Survey Area
- Site Location
- Surveyed Cadastral
- Permit

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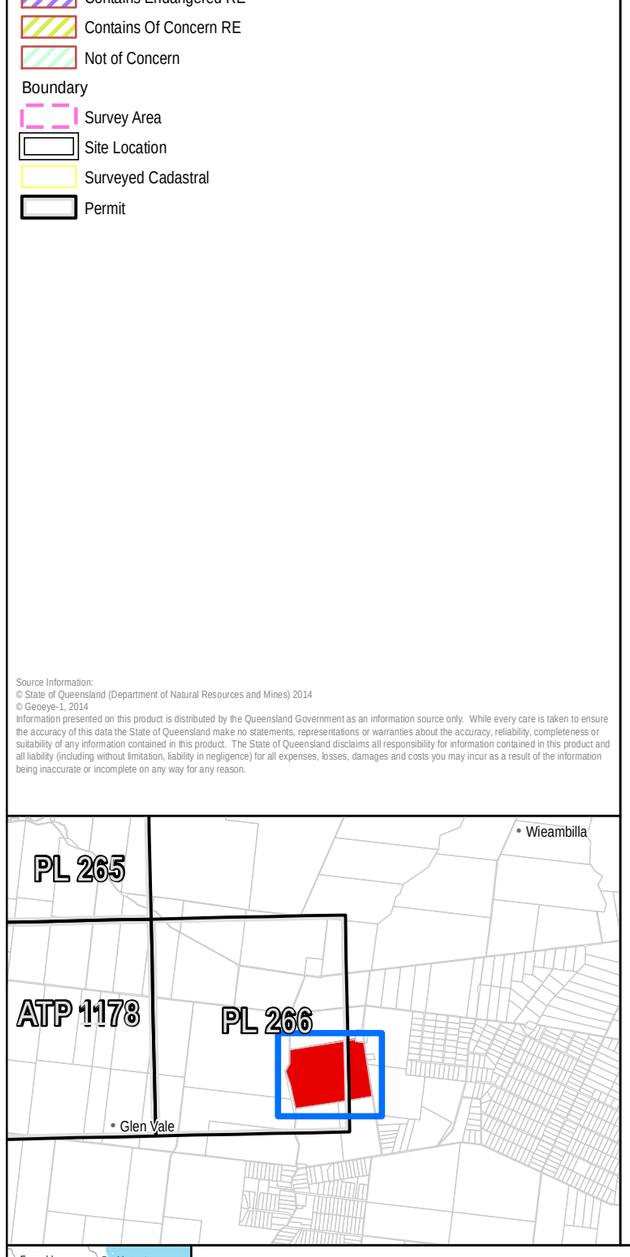

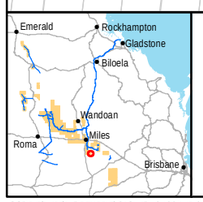

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Scale 1:15,000 (at A3)

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Metres

Coordinate System: GDA 1994 MGA Zone 56

Rev	Description	Drawn	Check	QA	Approved	Date
0	Issued For Use	ALM	PH	SAW	CZ	02/12/2014
A	Issued For Review	ALM	PH	SAW	CZ	26/11/2014

Appendix H:
Ground Truthed Regional Ecosystems
Date: **2** December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

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Appendix I: Ground Truthed NC Act Threat Listed and Other Significant Species Present on Site

This Appendix provides mapping of all field validated *NC Act* threat listed species recorded on site.

Legend

Special Least Concern Flora

- ▲ *Cymbidium canaliculatum*

Boundary

- Survey Area
- Site Location
- Surveyed Cadastral
- Permit

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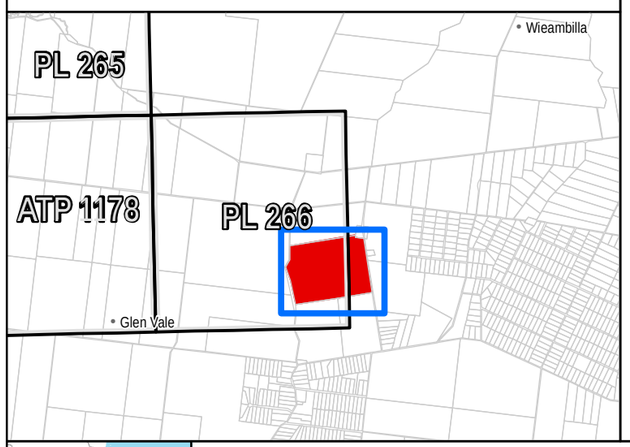

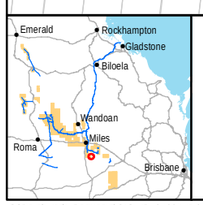

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Coordinate System: GDA 1994 MGA Zone 56

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0	Issued For Use	ALM	PH	SAW	CZ	02/12/2014
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Appendix I:
Ground Truthed NC Act Threat Listed Species and Other Significant Species Present on Site
Date: 2 December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

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Appendix J: Ground Truthed Weeds Present on Site

This Appendix provides mapping of all ground truthed weeds surveyed on site.

Legend

Pest Flora

- *Bryophyllum delagoense*
- *Opuntia aurantiaca*
- *Opuntia stricta*
- *Opuntia tomentosa*

Boundary

- Survey Area
- Site Location
- Surveyed Cadastral
- Permit

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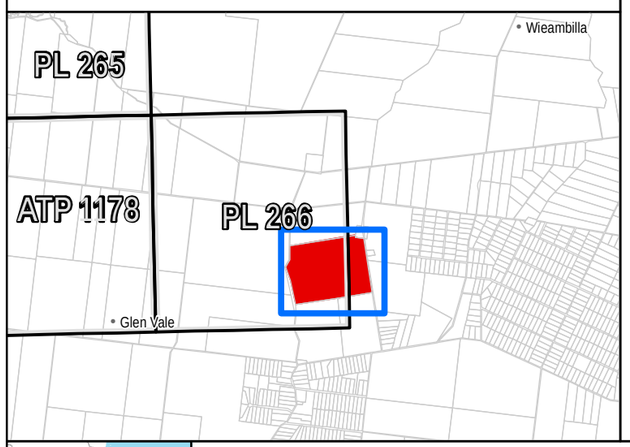

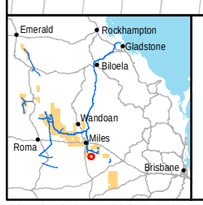

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Coordinate System: GDA 1994 MGA Zone 56

Rev	Description	Drawn	Check	QA	Approved	Date
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A	Issued For Review	ALM	PH	SAW	CZ	26/11/2014

Appendix J:
Ground Truthed Weeds Present on Site
Date: 2 December 2014

Map Number	Doc No	Rev
1 of 1	Q-4500-15-RP-1314	0
	Map ID GISWR_24118	

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