REPORT

Ecology Assessment Report

Q-4500-15-RP-0013

Australia Pacific LNG Upstream Phase 1

Lot 12 BWR64

Revision	Date	Description	Originator	Checked	QA/Eng	Approved
0		Issue for Use	S Cupitt	K MacPherson	K Lazarus	A White
C	03/04/2012	Issued for Review	Steve Cupitt	Michael Jones	Michael Jones	Jeromy Claridge
B	19/03/0212	Issued for review	Steve Cupitt	Richard Floyd/ Joe Gray	Michael Jones	Jeromy Claridge
A	29/08/2011	Issued for review	Steve Cupitt	Richard Floyd/ Joe Gray	Jeromy Claridge	Jeromy Claridge

Uncontrolled when printed unless issued and stamped Controlled Copy.

Table of Contents

1. Definitions & Abbreviations 5
1.1. Definitions 5
1.2. Abbreviations 5
1.3. Document References 5
2. Introduction 8
2.1. Purpose and Scope 8
2.2. Limitations 8
3. Site Context 9
3.1. Location 9
3.2. Climate 9
3.3. Geology and Soils 9
3.4. Current Land Use 9
4. Methodology 10
4.1. Desktop and Literature Review 10
4.2. Field Survey 10
4.2.1. Reconnaissance Survey 10
4.2.2. Vegetation Community Survey 10
4.2.3. Flora Survey 11
4.2.4. Fauna and Habitat Survey 11
4.2.5. Exotic Flora and Fauna Survey 12
4.2.6. Disturbance Survey 12
5. Results and Discussion 13
5.1. Desktop and Literature Review 13
5.1.1. Commonwealth Matters 13
5.1.2. State Matters 17
5.2. Field Survey 21
5.2.1. Commonwealth Matters 21
5.2.2. State Matters 28
5.2.3. Disturbance 34
6. Conclusion & Recommendations 35
7. Appendix A - Results of EPBC Protected Matters Search 37
8. Appendix B - Results of Wildlife Online Search 38
9. Appendix C - Results of DERM Referable Wetland search 39
10. Appendix D - Recorded fauna within the study area during field survey 40

11. Appendix E - Recorded flora within the study area during field survey 41

12. Appendix F: Maps 42

Table of Figures

Figure 1: Study Area Overview Rev 0 17/4/2012 42

Figure 2: ESAs mapped by DERM within the study area Rev 0 17/4/2012 43

Figure 3: REs mapped by DERM within the study area Rev 0 17/4/2012 44

Figure 4: TECs recorded within the study area Rev 0 17/04/2012 45

Figure 5: Fauna habitat features identified within the study area Rev 0 17/4/2012 46

Figure 6: Location of EVNT within the study area Rev 0 17/4/2012 47

Figure 7: Ground-truthed Res within the study area Rev 0 17/4/2012 48

List of Tables

Table 1: Definitions 5

Table 2: Abbreviations 5

Table 3: Associated Document References 5

Table 4: EPBC protected matters search tool results for TECs predicted to occur within the study area 13

Table 5: EPBC protected matters search tool results for listed flora species predicted to occur within the study area. 14

Table 6: EPBC protected matters search tool results for listed fauna species predicted to occur within the study area 14

Table 7: EPBC protected matters search tool results for listed migratory species predicted to occur within the study area and their likelihood of occurrence 15

Table 8: EPBC protected matters search tool results for listed marine species predicted to occur within the study area and their likelihood of occurrence 15

Table 9: EPBC protected matters search tool results for listed marine species predicted to occur within the study area and their likelihood of occurrence 16

Table 10: EPBC protected matters search tool results for weeds predicted to occur within the study area and their likelihood of occurrence 16

Table 11: EPBC protected matters search tool results for pest fauna species predicted to occur within the study area and their likelihood of occurrence 17

Table 12: Records of all endangered, vulnerable and near threatened species, as identified by the Nature Conservation Act (Wildlife online) search tool, near the study area 17

Table 13: Endangered REs mapped by DERM within the study area 19

Table 14: Of concern REs mapped by DERM within the study area 19

Table 15: No concern at present REs mapped by DERM within the study area 21

Table 16: TECs identified as potentially during field survey and their likelihood of occurrence 21

Table 17: EPBC listed flora species potentially occurring on site. 23

Table 18: EPBC protected fauna species or habitat of species potentially occurring within the study area 24

Table 19: EPBC migratory species or habitat of species potentially occurring within the study area 26

Table 20: Non-native flora recorded during the ecological field survey 27

Table 21 NC Act listed flora species identified during field survey and their observed distribution 28

Table 22: NC Act listed fauna species potentially occurring within the study area 29

Table 23: EPBC listed flora species potentially occurring on site 31

Table 24: Ground truthed endangered REs within the study area 32

Table 25: Ground truthed of concern REs identified within the study area 32

Table 26: No concern at present regional ecosystems mapped by DERM within the study area 33

1. Definitions & Abbreviations

Define key terms and phrases used in the report are shown in Table 1.

1.1. Definitions

Table 1: Definitions

Term	Definition
Project	Australia Pacific LNG Upstream Phase 1 Project
Study area	Lot 12 BWR64 of Australia Pacific LNG gas fields
Unidel	Unidel Group Pty Ltd

1.2. Abbreviations

Table 2: Abbreviations

Abbreviation	Description
DBH	Diameter at breast height
DERM	Department of Environment and Resource Management
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EIS	Environmental impact statement
EP Act	*Environmental Protection Act (Qld) 1994*
EPBC Act	*Environment Protection and Biodiversity Conservation Act (C'wlth) 1999*
ESA	Environmentally sensitive area
HVR	High value regrowth
MNES	Matters of national environmental significance
NC Act	*Nature Conservation Act (Qld) 1992*
NC Reg	*Nature Conservation (Wildlife) Regulation (Qld) 2006*
RE	Regional ecosystem

1.3. Document References

Table 3: Associated Document References

Document Number	Title
	Australian Soils Resource Information System (CSIRO 2011), http://www.asris.csiro.au/index_other.html
	Australian Government Bureau of Meteorology (2011), www.bom.gov.au.
	Barett, G., Silcocks, A., Barry, S., Cunningham, R., Poulter, R. (2003) Birds of Australia. Royal Australasian Ornithologists Union, Victoria.

Document Number	Title
	Royal Australasian Ornithologists Union, Victoria.
	Cogger, H.G. (2000). Reptiles and Amphibians of Australia. Reed.
	Cropper, S.C. (1993) *Management of Endangered Plants*, CSIRO Publications, East, Melbourne.DERM (2011a) Regional Ecosystem —Version 6.1 Dataset. Department of Environment and Resource Management, Brisbane.
	DERM (2011b) Essential Habitat Map–Version 3 Dataset. The Department of Environment and Resource Management, Brisbane.
	DERM (2011c) Regrowth Vegetation—Version 2.1 Dataset. Department of Environment and Resource Management, Brisbane. Accessed 04/8/2011.
	DERM (2011d).Environmentally Sensitive Area mapping. Online Maps, The Department of Environment and Resource Management, Brisbane. [URL: http://www.derm.qld.gov.au/ecoaccess/maps_of_environmentally_sensitive_areas.php]
	DERM (2011e).Copy of the certified Referable Wetland Mapping. Online Maps, The Department of Environment and Resource Management, Brisbane. [URL: http://www.derm.qld.gov.au/wildlife-ecosystems/ecosystems/referable-wetlands-maps.html]
	DERM (2011f). Wildlife Online Database. Online Report, The Department of Environment and Resource Management, Brisbane. [URL: http://www.derm.qld.gov.au/wildlife-ecosystems/wildlife/wildlife_online] Accessed on 15/3/2012.
	(DSEWPaC 2012a) Department of Sustainability, Environment, Water, Population and Communities (2012). *Calyptorhynchus lathami halmaturinus* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from:http://www.environment.gov.au/sprat. Accessed Tue, 10 Apr 2012 15:17:18 +1000.
	(DSEWPaC 2012b) Department of Sustainability, Environment, Water, Population and Communities (2012).*Haliaeetus leucogaster* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from:http://www.environment.gov.au/sprat. Accessed Tue, 10 Apr 2012 15:06:54 +1000.
	(DSEWPaC 2012c) Department of Sustainability, Environment, Water, Population and Communities (2012). *Sterna caspia* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from:http://www.environment.gov.au/sprat. Accessed Tue, 10 Apr 2012 15:02:15 +1000.
	(DSEWPaC 2012d). Department of Sustainability, Environment, Water, Population and Communities EPBC Act Protected Matters Report: Coordinates, Australian Government, Canberra [URL: http://www.environment.gov.au/epbc/pmst/index.html] Accessed 19/03/2012.
	Emison, W.B. & J.W. Porter (1978). Summer surveys of birds in the Mt Cobberas - Snowy River area of Victoria, Australia. *Emu*
	Eyre, T.J., Kelly, A.L, Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2011). *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual. Version 2.1.* Department of Environment and Resource Management (DERM), Biodiversity and Ecosystem Sciences, Brisbane.
	Isbell, R. (2002) *The Australian Soil Classification*, Revised Edition, CSIRO Publishing.
	Neldner, V.J., Wilson, B. A., Thompson, E.J. and Dillewaard, H. A. (2005) *Methodology*

Document Number	Title
	for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 3.1 Updated September 2005. Queensland Herbarium, Environmental Protection Agency, Brisbane.
	Northcote, K.H. with Beckmann, G.G., Bettenay, E., Churchward, H.M., van Dijk, D.C., Dimmock, G.M., Hubble, G.D., Isbell, R.F., McArthur, W.M., Murtha, G.G., Nicolls, K.D., Paton, T.R., Thompson, C.H., Webb, A.A., & Wright, M.J., 1960-68. *Atlas of Australian soils*, CSIRO and Melbourne University Press, Melbourne.
	Marchant S and Higgins PJ (Eds) (1990), Handbook of Australian, New Zealand and Antarctic Birds. Volume 1 Ratites to Ducks: Part B Australian Pelican to Ducks. Oxford University Press, Melbourne.
	Morcombe, M. (2000) Field Guide to Australian Birds. Steve Parish Publishing, Archerfield, Queensland.
	Queensland Herbarium (2011) Regional Ecosystem Description Database (REDD). Version 6.0b - January 2011, (January 2011) (Department of Environment and Resource Management: Brisbane).
	SEWPAC (2008) Approved Conservation Advice for *Westringia parvifolia*.
	TSSC (2001) Brigalow (*Acacia harpophylla*) dominant and co-dominant. Listing advice to the Minister for the Environment, Water, Heritage and the Arts, from the Threatened Species Scientific Committee on Amendments to the List of Ecological Communities under the Environment Protection and Biodiversity Conservation Act 1999. http://www.environment.gov.au/biodiversity/threatened/communities/brigalow.html
	TSSC (2011b) The Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions. Advice to the Minister for the Environment, Water, Heritage and the Arts, from the Threatened Species Scientific Committee on Amendments to the List of Ecological Communities under the Environment Protection and Biodiversity Conservation Act 1999.
	TSSC (2008) Cadellia pentastylis (Ooline). Approved Conservation Advice for Cadellia pentastylis (Ooline) under the *Environment Protection and Biodiversity Conservation Act 1999.* http://www.environment.gov.au/biodiversity/threatened/species/pubs/9828-conservation-advice.pdf
	TSSC (2008a) Homopholis belsonii. Approved Conservation Advice for Homopholis belsonii under the *Environment Protection and Biodiversity Conservation Act 1999.* http://www.environment.gov.au/biodiversity/threatened/species/pubs/2406-conservation-advice.pdf
	TSSC (2008b) Westringia parvifolia. Approved Conservation Advice for Westringia parvifolia under the *Environment Protection and Biodiversity Conservation Act 1999.* http://www.environment.gov.au/biodiversity/threatened/species/pubs/4822-conservation-advice.pdf
	Unidel (2011) Australia Pacific LNG Threatened Flora Management Plan Q-LNG01-15-MP-0108
	Unidel (2011) AUSTRALIA PACIFIC LNG UPSTREAM PH1 PIPELINE THREATENED FAUNA MANAGEMENT PLAN Q-LNG01-15-MP-0074
	Wilson, S. (2005) A Field Guide to Reptiles of Queensland. Reed New Holland, Sydney.

2. Introduction

Unidel Group Pty Ltd (Unidel) was commissioned to undertake a study of environmental constraints of Lot 12 on BWR 64. This report was completed by Steve Cupitt of Unidel. The field surveys of the site were undertaken by two ecologists, Steve Cupitt and Richard Floyd of Unidel.

2.1. Purpose and Scope

This report provides an overview of the ecological constraints within the study area. The results are based on a desktop assessment and field study undertaken by qualified ecologists. The field study included recommendations to avoid, minimise and mitigate potential ecological impacts where practicable.

The scope of the assessment included a review of the potential occurrence of:

- Threatened ecological communities (TECs), flora and fauna listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Regional ecosystems (REs) and high value regrowth (HVR) listed under the *Vegetation Management Act 1999* (VM Act);
- Flora and fauna listed under the *Nature Conservation Act 1992* (NC Act); and
- Pest and weeds listed under the *Land Protection (Pest and Stock Route Management) Act 2002*.

2.2. Limitations

Field survey efforts were focused on areas of the property containing ecological values and areas of interest to Origin.

Other areas of the property not directly surveyed were assessed using high quality aerial imagery and mapping datasets to refine RE mapping boundaries. Inference of potential presence of listed species was derived based upon the presence of listed species habitats sourced from previous field surveys undertaken, database searches, inspection of aerial imagery and extensive field experience.

Moreover, detailed quantitative fauna surveys were not undertaken as part of this assessment. Instead a rapid and opportunistic field survey strategy was employed to identify fauna species presence / absence within the designated time frame and within the prevailing weather conditions and season (early summer) at the time of survey. It is highly likely that additional comprehensive assessment would result in additional fauna species being identified within the study area.

3. Site Context

Proposed project activities will be confined to lot 12 BWR64. The area of the ecological assessment on the land parcel, referred to as the study area for this report, is shown in **Figure 1**, Appendix F**.**

3.1. Location

The study area is located 7km east along Fairymeadow Road, approximately 17km south-east of the township of Miles, in the Western Downs District. The site is within the Brigalow Belt South Bioregion.

3.2. Climate

The climate of the region is typical of sub-tropical Queensland. Miles has a mean long term (1908 – 2005) annual maximum temperature of 27.1°C and mean annual minimum of 12.2°C (BOM 2011). Mean long term (1885 – 2011) annual rainfall is 653.4mm and approximately 40% of annual rainfall occurs in the summer months of December, January and February (BOM 2011).

3.3. Geology and Soils

The study area occurs on Jurassic fluvial and lacustrine sediments overlain conformably by Cretaceous fluvial and shallow-marine sediments; maximum thickness about 2500 m. The Australian Soils Resource Information System shows the northern portion of the study area as occurring on Chromosol soils, as mapped by the Atlas of Australian Soils (Northcote *et al*. 1960-68). Chromosol soils are described as soils with a strong texture contrast between the A and B horizons, with the latter not strongly acid and not sodic (Isbell 2002). The southern portion of the study area north of the Condamine Rivers occurs on plains and rises with sand or loam on soils derived from underlying bedrock and exposed duricrust.

The study area includes two land zones, as defined by the Queensland Herbarium (Neldner et al. (2005); land zone 3 and land zone 5. Land zone 3 (alluvial plains) includes the floodplain of the Condamine River however extends across the majority of the site where low order watercourses are present. The REs confirmed on site indicate that land zone 5 (Cainozoic sand plains) is also present, generally occurring on more elevated parts of the study area where it rises up from the Condamine floodplain. The north eastern corner of the site is predominantly land zone 3.

3.4. Current Land Use

The land is predominantly cleared and is used for a mix of grazing and cotton production. A small borrow pit is located adjacent the southern boundary but is not located within the lot boundary. There is a single dwelling and outbuildings located on the northern portion of the site with some strips of vegetation remaining along fence lines and within linear depressions. In the south of the property, more vegetation has been retained and there is more variation in the land form, with steeper gullies present. A number of minor waterways are present on site, including tributaries of the Condamine River which runs along part of the southern boundary of the site.

4. Methodology

The methodology involved a desktop review of ecological databases and field surveys of the study area. A detailed explanation of these activities is outlined in the following sections.

Unidel is an organisation approved to undertake pre-clearance surveys (approved by Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) in writing on 28 June 2011).

4.1. Desktop and Literature Review

The following information sources were reviewed:

- EPBC Act protected matters search tool (DSEWPaC 2012d);
- DERM RE mapping (version 6.1) (DERM 2011a) and essential habitat mapping (version 3.1) (DERM 2011b);
- DERM HVR vegetation mapping (version 2.1) (DERM 2011c) and property map of assessable vegetation mapping;
- DERM Wildlife Online Database (DERM 2011f); and
- Australian Soils Resource Information System (CSIRO 2011).

The desktop database searches outlined above were undertaken using a central coordinate at -26.8058, 150.2430 and a 10km search area.

4.2. Field Survey

Scouting surveys were conducted in accordance with BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual. Version 2.1. (Eyre et al, 2011) and the Methodology for Survey and Mapping of REs and Vegetation Communities in Queensland (Neldner et al. 2005).

The field inspection of the study area was undertaken from 16th to 17th March 2011 by ecologists Steve Cupitt and Richard Floyd. The field inspection involved several steps as outlined in the following sections.

4.2.1. Reconnaissance Survey

A drive over of the property was first undertaken to rapidly assess the presence of habitat features or vegetation not obvious from the aerial imagery and DERM RE and HVR mapping.

4.2.2. Vegetation Community Survey

Each patch of vegetation (including regrowth) within the study area was surveyed. This was undertaken in accordance with the quaternary site assessment methodology, as specified in Neldner *et al.* (2005). The boundaries of endangered and of concern REs and HVR were checked in the field. Information was collected, including height of each strata occurring within a vegetation type and the identification of dominant species, in line with the methodology described in the environmental constraints planning and field development protocols (Australian Pacific LNG 2011). This information was used to assess the accuracy of RE mapping and the occurrence of any TECs within the study area.

A random meander survey, using the random meander technique as specified in Cropper (1993), was also undertaken throughout potential habitat of endangered, vulnerable or near threatened (EVNT) flora species known from the locality.

4.2.3. Flora Survey

Targeted surveys for threatened and regionally significant flora species identified from database searches were undertaken where their habitat was identified in the field. Surveys were conducted using the Random Meander Technique described by Cropper (1993). If threatened flora species were found in large numbers within the study area, estimates of numbers of individuals were made based on densities actually counted over a smaller area (i.e. through quadrat counts). If small numbers of a threatened flora species were detected, population size was determined through a count of individual plants.

4.2.4. Fauna and Habitat Survey

During the flora survey opportunistic observations of fauna were recorded. Mammals, birds, reptiles and insects were noted during field traverses and limited fauna habitat searches (logs, rocks and other debris were turned) were undertaken. Where EVNT fauna species were encountered, they were counted and recorded at the point where they were observed.

Habitat characteristics assessed throughout the property included:

- Presence of tree hollows;
- Presence of senescent (old) or dead trees (stags);
- Rocky outcrops;
- Wetland, riverine and groundwater springs;
- Density of shrub and ground layers;
- Canopy cover;
- Soil type;
- Ridges and upper slopes;
- Fallen bark, timber or logs;
- Leaf litter;
- Decorticating bark;
- Presence of winter flowering species;
- Presence of Termite mounds; and
- Presence of pest or weed species.

An assessment of habitat quality was then made based upon the relative abundance of fauna microhabitats and the provision of the above habitat characteristics. The greater the diversity and abundance of microhabitats and habitat characteristics, the greater the potential habitat value of the area.

The northern portion of the site contains only small, distinct areas of vegetation which are clearly mapped by the Department of Environment and Resource Management (DERM). The use of that area for grazing and cotton production suggests that habitat values would be low and fauna survey was not considered necessary. A 600 m exclusion zone was also imposed around the dwelling located on the north of the site. As no disturbance was proposed to the existing vegetation in the northern portion, the fauna survey effort was focussed on the southern portion of the site which contains more extensive vegetation communities

4.2.5. Exotic Flora and Fauna Survey

Environmental and declared pest (as defined by the *Land Protection (Pest and Stock Route Management) Act (Qld) 2002* (LP Act) (Queensland Government 2002 populations and Weeds of National Significance (WoNS) were noted and their abundance recorded at the time of survey in line with the methodology described in the environmental constraints planning and field development protocols (Australian Pacific LNG 2011).

4.2.6. Disturbance Survey

Evidence of disturbance at each vegetation community/habitat feature was recorded for type, sensitivity and estimated time of most recent occurrence. The recording of disturbance was also conducted at an opportunistic level where appropriate.

Uncontrolled when printed unless issued and stamped Controlled Copy.

5. Results and Discussion

This section presents the results of studies undertaken along with a discussion of key findings. The results have been broken into two sections; desktop and literature review, and field survey.

5.1. Desktop and Literature Review

Data sources used for desktop searches of the study area are listed in section 4.1. A summary of results follows.

5.1.1. Commonwealth Matters

A review of the EPBC protected matters search tool as described in section 4.1 was undertaken. A copy of the full report is presented in **Appendix A**. In addition, a search of DERM's Wildlife Online database identified a number of species listed under the EPBC Act as being recorded within 10 km of the study area was undertaken. These species have also been included in the assessment of species having potential to occur within the study area in Section 5.2.1.

Threatened Ecological Communities

The results of the EPBC protected matters search for TECs and their likelihood of occurrence at the search area can be seen below in **Table 4**.

Table 4: EPBC protected matters search tool results for TECs predicted to occur within the study area

Name	Status	Type of presence[1]
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Likely to occur
White box-yellow box-Blakely's red gum grassy woodland and Derived native grassland	Critically Endangered	May occur
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Known to occur
Coolibah – Black box woodlands of the Darling riverine plains and Brigalow belt south bioregions	Endangered	May occur
Weeping myall woodlands	Endangered	Likely to occur

[1] The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the potential presence of suitable habitat (Appendix A).

Listed Flora

The results of the EPBC protected matters search for listed flora species in the search area are presented in **Table 5**.

Table 5: EPBC protected matters search tool results for listed flora species predicted to occur within the study area.

Scientific Name	Common Name	Status	Type of presence[1]
Cadellia pentastylis	Ooline	Vulnerable	Likely to occur
Homopholis belsonii	Belson's panic grass	Vulnerable	May occur
Westringia parvifolia	-	Vulnerable	Likely to occur

Listed Fauna

The results of the EPBC protected matters search for listed fauna species in the search area are presented in **Table 6.**

Table 6: EPBC protected matters search tool results for listed fauna species predicted to occur within the study area

Class	Scientific Name	Common Name	Status	Type of presence[1]
Birds	*Erythrotriorchis radiatus*	Red goshawk	Vulnerable	Likely to occur
	Geophaps scripta scripta	Squatter pigeon	Vulnerable	Likely to occur
	Neochmia ruficauda ruficauda	Star finch	Endangered	Likely to occur
	Rostratula australis	Australian painted snipe	Vulnerable	May occur
Mammals	*Chalinolobus dwyeri*	Large-eared pied bat	Vulnerable	May occur
	Nyctophilus timoriensis	Greater long-eared bat	Vulnerable	May occur
Fish	*Maccullochella peelii peelii*	Murray cod	Vulnerable	May occur
Reptiles	*Egernia rugosa*	Yakka skink	Vulnerable	Likely to occur
	Furina dunmalli	Dunmall's snake	Vulnerable	May occur
	Paradelma orientalis	Brigalow scaly-foot	Vulnerable	Likely to occur
	Anomalopus mackayi	Five-clawed worm-skink, Long-legged worm-skink	Vulnerable	May occur
	Delma torquata	Collared delma	Vulnerable	May occur

[1] The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the community or species identified or the potential presence of suitable habitat (Appendix A).

Migratory Species

The results of the EPBC protected matters search for listed migratory species in the search area are presented in **Table 7.**

Table 7: EPBC protected matters search tool results for listed migratory species predicted to occur within the study area and their likelihood of occurrence

Class	Scientific Name	Common Name	Type of presence [1]
Migratory marine birds	*Apus pacificus*	Fork-tailed swift	May occur
	Ardea alba#	Great egret, White egret	May occur
	Ardea ibis#	Cattle egret	May occur
Migratory terrestrial species	*Haliaeetus leucogaster*	White-bellied Sea-eagle	Likely to occur
	Hirundapus caudacutus	White-throated needletail	May occur
	Merops ornatus	Rainbow bee-eater	May occur
Migratory wetlands species	*Gallinago hardwickii*	Latham's snipe, Japanese snipe	May occur
	Nettapus coromandelianus albipennis	Australian cotton pygmy-goose	May occur
	Rostratula benghalensis s. lat.	Painted snipe	May occur

Marine Species

The results of the EPBC protected matters search for listed marine species in the search area are presented in **Table 8.**

Table 8: EPBC protected matters search tool results for listed marine species predicted to occur within the study area and their likelihood of occurrence

Scientific Name	Common Name	Type of presence[1]
Anseranas semipalmata	Magpie goose	May occur
Apus pacificus	Fork-tailed swift	May occur
Ardea alba	Great egret, white egret	May occur
Ardea ibis	Cattle egret	May occur
Gallinago hardwickii	Latham's snipe, Japanese snipe	May occur
Haliaeetus leucogaster	White-bellied sea –eagle	likely to occur
Hirundapus caudacutus	White-throated needle-tail	May occur
Merops ornatus	Rainbow bee-eater	May occur
Nettapus coromandelianus albipennis	Australian cotton pygmy-goose	May occur
Rostratula benghalensis s. lat	Painted snipe	May occur

1 The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the community or species identified or the potential presence of suitable habitat (Appendix A).
Species is also listed as a Migratory Wetland Species under the EPBC Act 1999.

Fish

The results of the EPBC protected matters search for listed fish species in the search area are presented in **Table 9.**

Table 9: EPBC protected matters search tool results for listed marine species predicted to occur within the study area and their likelihood of occurrence

Scientific Name	Common Name	Type of presence[1]
Maccullochella peelii peelii	Murray cod	May occur

Weeds

The EPBC protected matters search identified Weeds of National Significance (WONS) and other non-native plants that may be present within the search area. These are listed in **Table 10**.

Table 10: EPBC protected matters search tool results for weeds predicted to occur within the study area and their likelihood of occurrence

Scientific Name	Common Name	Type of presence
Acacia nilotica subsp. indica	Prickly acacia (WONS)	May occur
Hymenachne amplexicaulis	Hymenachne, Olive hymenachne, Water stargrass, West indian grass, West indian marsh grass (WONS)	Likely to occur
Lycium ferocissimum	African boxthorn, Boxthorn	May occur
Parkinsonia aculeata	Parkinsonia, Jerusalem thorn, Jelly bean Tree, Horse bean (WONS)	Likely to occur
Parthenium hysterophorus	Parthenium weed, Bitter weed, Carrot grass, False ragweed (WONS)	Likely to occur
Pinus radiata	Radiata Pine, Monterey Pine, Insignis Pine, Wilding Pine	May occur
Salvinia molesta	Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed (WONS)	Likely to occur

1 The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the community or species identified or the potential presence of suitable habitat (Appendix A).

Pest Fauna

All pest fauna identified from the EPBC protected matters search tool are listed in **Table 11**.

Table 11: EPBC protected matters search tool results for pest fauna species predicted to occur within the study area and their likelihood of occurrence

Scientific Name	Common Name	Type of presence[1]
Bufo marinus	Cane toad	Likely to occur
Sus scrofa	Pig	Likely to occur
Felis catus	Domestic cat	Likely to occur
Oryctolagus cuniculus	Rabbit, European rabbit	Likely to occur
Vulpes vulpes	Red fox, Fox	Likely to occur

Wetlands

One internationally significant (Ramsar) wetland was identified by the EPBC protected matters search tool known as Narran Lake Nature Reserve, which is approximately 400 km south-west of the study area. There are no predicted impacts on this wetland as a consequence of the project.

5.1.2. State Matters

A summary of relevant desktop search results (Wildlife Online) for EVNT flora and fauna listed under the NC Act is presented in the following sections. Full results of the search conducted on March 15 2012 are presented in **Appendix B.**

Listed Flora

There are no records of EVNT flora species identified under the NC Act as occurring within the search area.

Listed Fauna

The results of the Wildlife Online search for NC Act EVNT listed fauna species and their likelihood of occurrence within the search area are provided in **Table 12**.

Table 12: Records of all endangered, vulnerable and near threatened species, as identified by the Nature Conservation Act (Wildlife online) search tool, near the study area

Class	Scientific Name	Common Name	NC Act Status
Birds	*Calyptorhynchus lathami*	Glossy black cockatoo	Vulnerable
	Lophoictinia isura	Square-tailed kite	Near Threatened
	Ephippiorhynchus asiaticus	Black-necked stork	Near Threatened
	Melithreptus gularis	Black-chinned honeyeater	Near Threatened
	Haliaeetus leucogaster	White-bellied sea-eagle	Special Least Concern
	Sterna caspia	Caspian tern	Special Least Concern

1 The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the community or species identified or the potential presence of suitable habitat (Appendix A).

Class	Scientific Name	Common Name	NC Act Status
	Merops ornatus	Rainbow bee-eater	Special Least Concern
	Hirundapus caudacutus	White-throated needletail	Special Least Concern
	Ardea modesta	Eastern great egret	Special Least Concern
Reptiles	*Strophurus taenicauda*	Golden-tailed gecko	Near Threatened
Amphibians	*Cyclorana verrucosa*	Rough collared frog	Near Threatened

Environmentally Sensitive Areas

DERM's ESA mapping (DERM, 2011d) was reviewed to identify ESAs (applicable to chapter 5A activities defined by the EP Act) mapped with respect to the study area.

Review of this mapping indicated that no category A ESAs are present on site. Category B ESAs present in the study area include endangered REs. Category C ESAs (of concern REs and referrable wetlands) are also present. No essential habitat was mapped on site (DERM, 2011b). ESA mapping for the study areas is shown in **Figure 2**, Appendix F**.**

Regional Ecosystems

The DERM (2011b) RE mapping for the study area is presented in **Figure 3.** All mapped REs (11.3.1, 11.3.2, 11.3.3, 11.3.4 and 11.3.25) identified from mapping interrogation as being present within the study area have a biodiversity status of endangered or of concern. A description of Endangered RE 11.3.1, identified during the desktop analysis, can be found in **Table 13**. Of concern REs identified during the desktop analysis and their description can be found in **Table 14**. No concern at present REs identified as occurring in the study area are shown in **Table 15**.

Table 13: Endangered REs mapped by DERM within the study area

RE code	General description	REDD Description (Queensland Herbarium 2011)
11.3.1*	Open forest of *Acacia harpophylla* and/or *Casuarina cristata*	Open-forest dominated by *Acacia harpophylla* and/or *Casuarina cristata* (particularly in southern parts), with or without scattered emergent *Eucalyptus spp*. such as *E. coolabah*, *E. largiflorens, E. populnea, E. orgadophila*, and *E. pilligaensis*. A low tree layer dominated by *Geijera parviflora* and *Eremophila mitchellii* is usually present. The vegetation sometimes occurs as low open-forest or woodland. Tree height generally about 11-15m and the low tree (to tall shrub) understorey layer is between 2 and 8m high (where present). Ground cover is generally sparse. Associated with Cainozoic alluvial plains which may be occasionally flooded. Landforms range from level to very gently sloping plains, alluvial flats, drainage floors, back-swamps and abandoned channels. Associated soils are predominantly deep to very deep cracking clays, sometimes with gilgai or texture contrast soils with sandy surface (particularly where *Eucalyptus populnea* is present).

*Note that RE 11.3.1 is also listed as an endangered threatened ecological community under the EPBC Act.

Table 14: Of concern REs mapped by DERM within the study area

RE code	General description	REDD Description (Queensland Herbarium 2011)
11.3.2	*Eucalyptus populnea*, *Callitris glaucophylla* and/or *Eucalyptus* spp. woodland to open woodland on alluvial plains.	*Eucalyptus populnea* woodland to open-woodland. *E. melanophloia* may be present and locally dominant. There is sometimes a distinct low tree layer dominated by species such as *Geijera parviflora, Eremophila mitchellii, Acacia salicina, Acacia pendula, Lysiphyllum* spp., *Cassia brewsteri, Callitris glaucophylla* and *Acacia excelsa*. The ground layer is grassy dominated by a range of species depending on soil and management conditions. Species include *Bothriochloa decipiens, Enteropogon acicularis, Aristida ramosa* and *Tripogon loliiformis*. Occurs on Cainozoic alluvial plains with variable soil types including texture contrast, deep uniform clays, massive earths and sometimes cracking clays.

RE code	General description	REDD Description (Queensland Herbarium 2011)
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	*Eucalyptus coolabah* woodland to open-woodland with a grassy understorey. A mid layer is often absent but scattered tree or shrub species, such as *E. populnea, Melaleuca bracteata, Alectryon oleifolius, Terminalia oblongata* (in the north) and *Acacia pendula, A. cambagei,* and occasionally *Muehlenbeckia florulenta* may be present. The ground layer is dominated by a range of grass and forb species depending on season, soil and management conditions. Can include small areas of grassland with scattered trees. Occurs on Cainozoic alluvial plains or levees with clay or sometimes texture contrast soils.
11.3.4	*Eucalyptus tereticornis* and/or *Eucalyptus spp.* tall woodland on alluvial plains	*Eucalyptus tereticornis* woodland to open-forest. Other tree species that may be present and locally dominant include *E. camaldulensis, Corymbia tessellaris, E. coolabah, C. clarksoniana, E. populnea or E. brownii, E. melanophloia, E. platyphylla or Angophora floribunda. E. crebra* and *Lophostemon suaveolens* may be locally dominant (subregion 14). A shrub layer is usually absent, and a tall grassy ground layer is often prominent, and may include any of *Bothriochloa bladhii* subsp. *bladhii, Aristida spp., Heteropogon contortus, Dichanthium spp.* and *Themeda triandra*. Heavily grazed areas tend to have shorter or annual grasses such as *Dactyloctenium radulans* or *Bothriochloa spp.* Occurs on Cainozoic alluvial plains and terraces. Occurs on variety of soils, including deep cracking clays, medium to fine textured soils, and deep texture-contrast soils.
11.3.25	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	*Eucalyptus camaldulensis* or *E. tereticornis* open-forest to woodland. Other tree species such as *Casuarina cunninghamiana, E. coolabah, Melaleuca bracteata, Melaleuca viminalis, Livistona* spp. (in north), *Melaleuca spp*. and *Angophora floribunda* are commonly present and may be locally dominant. An open to sparse, tall shrub layer is frequently present dominated by species including *Acacia salicina, A. stenophylla* or *Lysiphyllum carronii.* Low shrubs are present, but rarely form a conspicuous layer. The ground layer is open to sparse and dominated by perennial grasses, sedges or forbs such as *Imperata cylindrica, Bothriochloa bladhii, B. ewartiana, Chrysopogon fallax, Cyperus dactylotes, C. difformis, C. exaltatus, C. gracilis, C. iria, C. rigidellus, C. victoriensis, Dichanthium sericeum, Leptochloa digitata, Lomandra longifolia or Panicum* spp. Occurs on fringing levees and banks of major rivers and drainage lines of alluvial plains throughout the region. Soils are very deep, alluvial, grey and brown cracking clays with or without some texture contrast. These are usually moderately deep to deep, soft or firm, acid, neutral or alkaline brown sands, loams or black cracking or non-cracking clays, and may be sodic at depth (Burgess 2003).

Table 15: No concern at present REs mapped by DERM within the study area

RE Code	General description	REDD Description (Queensland Herbarium 2011)
11.5.1	*Euclayptus crebra, Callitris glaucophylla, Angophora leocarpa, Allocasuarina leuhmannii* woodland on Cainozoic sand plains / remnant surfaces.	*Eucalyptus crebra* and/or *E. populnea* +/- *Angophora leiocarpa* +/- *E. pilligaensis* (in south of bioregion) dominate the woodland (to open-woodland) canopy. A low tree layer dominated by *Allocasuarina luehmannii* +/- *Melaleuca decora* +/- *Callitris glaucophylla* +/- *C. endlicheri* is usually present. In some areas *Allocasuarina luehmannii* low woodland is the dominant layer. The ground cover is usually sparse and dominated by perennial grasses. Occurs on Cainozoic sand plains, especially outwash from weathered sandstones. Duplex soils with sandy surfaces.

High Value Regrowth

High value regrowth containing of concern REs is mapped as being present within the study area, refer to **Figure 3**, Appendix F.

Referable Wetlands

The DERM referable wetland mapping (DERM 2011e) identified referable wetland management areas associated with the Condamine River along the south eastern boundary of the site. The DERM referable wetland (DERM 2011e) search results for the study area are included in **Appendix C.**

Essential Habitat

No essential habitat was identified in DERM ESA mapping (DERM 2011d) for the study area.

5.2. Field Survey

The survey was undertaken from the 16th to 17th March 2011. The field surveys of the site were undertaken by two ecologists Steve Cupitt and Richard Floyd. A description of the findings is provided within the following sections.

5.2.1. Commonwealth Matters

Field survey results concerning matters of national environmental significance are described in the following sections.

Threatened Ecological Communities

The occurrence of TECs identified as potentially occurring in the study area in the desktop analysis is detailed in **Table 16.** The field investigation found that a Brigalow TEC is present within the study area. This area is mapped on **Figure 4**, Appendix F.

Table 16: TECs identified as potentially during field survey and their likelihood of occurrence

Name	EPBC Act Status	Likelihood of Occurrence
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	**Known** to occur within the study area and identified during the field survey. Further details are provided below.

Name	EPBC Act Status	Likelihood of Occurrence
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	**Not present.** This TEC is found in REs 11.3.21 and 11.3.24 which were not present on site. The field survey failed to detect any areas of natural grasslands. Therefore, the Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland is not present in the study area.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	**Unlikely** to Occur. This TEC is only found within the Brigalow Belt Bioregion in REs 11.8.2a, 11.8.8 and 11.9.9a which were not present. The field survey failed to identify any White box (*Eucalyptus albens*), Yellow box (*Eucalyptus melliodora*) or Blakely's red gum (*Eucalyptus blakelyi*) or any derived (or natural) native grasslands within the study area. Therefore, the White box (*Eucalyptus albens*)-Yellow box (*Eucalyptus melliodora*)-Blakely's red gum (*Eucalyptus blakelyi*) Grassy Woodland and Derived Native Grassland is unlikely to occur in the study area.
Coolibah – black box woodlands of the Darling Riverine Plains and Brigalow Belt South Bioregions	Endangered	**Not present.** The Coolibah – Black box woodlands are a floodplain ecological community situated within the upper reaches of the Murray-Darling Basin and southern part of the Fitzroy River system and are limited to the Darling Riverine Plains and Brigalow Belt South bioregions. It occurs within REs 11.3.3, 11.3.15, 11.3.16, 11.3.28 and 11.3.37 (TSSC 2011). RE 11.3.3 occurred in the study area in small patches of less than 0.5 hectares (Figure 7) and as such does not qualify as the *Eucalyptus coolabah woodland on alluvial plains* TEC..
Weeping myall woodlands	Endangered	**Not present**. Weeping myall woodlands occur in a range of forms from open woodlands to woodlands, in which Weeping Myall (Acacia pendula) trees are the sole or dominant overstorey species. Although Weeping myall trees are often the only tree species in these woodlands, other trees can occur in the overstorey of the ecological community. The Weeping Myall Woodlands occurs on the inland alluvial plains west of the Great Dividing Range in NSW and Queensland. It occurs in the Riverina, NSW South Western Slopes, Darling Riverine Plains, Brigalow Belt South, Brigalow Belt North, Murray-Darling Depression, Nandewar and Cobar Peneplain IBRA Bioregions. This TEC is associated with REs 11.3.2 and 11.3.28. 11.3.2 was located on site however Weeping Myall was not observed.

Brigalow (Acacia harpophylla) dominant and co-dominant communities

The Brigalow TEC ranges from open forest to open woodland, generally 9-25m tall, and is characterised by the presence of Brigalow (*Acacia harpophylla*) as one of the three most

abundant tree species (Butler 2007). Brigalow is usually dominant in the tree layer or co-dominant with species such as *Casuarina cristata* (Belah), other species of *Acacia*, or species of *Eucalyptus*. Occasionally Belah, or species or *Acacia* or *Eucalyptus* may be more common than Brigalow within the broad matrix of Brigalow vegetation. A prominent shrub layer is usually present (TSSC 2011).

To be considered a threatened ecological community under the EPBC Act, Brigalow (*Acacia harpophylla* dominant and co-dominant) communities must have the following characteristics:

- Brigalow community where exotic species do not exceed 50% of perennial species in the ecosystem.

The listing of the Brigalow ecological community did not distinguish between remnant and regrowth Brigalow. Brigalow regrowth is part of the Brigalow ecological community listed under the EPBC Act only if it retains the species composition and structural elements typical of that found in undisturbed areas of the listed Brigalow ecological community.

In Queensland, the Brigalow TEC that has been listed under the EPBC Act is made up of 16 REs, all of which are listed as endangered under the *Vegetation Management Act 1999*. (TSSC, 2001). RE 11.3.1 is mapped as occurring in the study area and is one of the 16 REs that comprise Brigalow threatened ecological community

Listed Flora

No flora species listed under the EPBC Act were identified during the field investigation. A number of species were identified in the desktop analysis as potentially occurring on site and the suitability of habitat identified on site for each of these species is discussed in **Table 17**.

Table 17: EPBC listed flora species potentially occurring on site.

Scientific Name	Status	Likelihood of occurrence
Ooline *(Cadellia pentastylis)*	Vulnerable	**Likely to occur within area**. Associated with TEC Brigalow (*Acacia harpophylla* dominant and co-dominant) recorded as present within the study area. (TSSC 2008)
Belson's panic grass *(Homopholis belsonii)*	Vulnerable	**May Occur**. Belson's Panic Grass is found in White Box (*Eucalyptus albens*) communities and Wilga (*Geijera parviflora*) woodlands on rocky hills; Belah (*Casuarina cristata*) forests in alluvial soils on flat to undulating lands; Poplar Box (*Eucalyptus populnea*) woodlands; and dry woodlands on poor soils derived from basalt at 200m to 520m altitude. Belson's Panic Grass has also been recorded in Brigalow (*Acacia harpophylla*), Yarran (*A. melvillei*) and Weeping Myall (*A. pendula*) communities; Mountain Coolabah (*E. orgadophila*) communities; and on roadsides (DSEWPaC, 2010). It is known to occur in REs 11.3.1, 11.3.2, 11.3.17, 11.4.3, 11.4.7, 11.9.5 and 11.9.6(Unidel, 2011). REs 11.3.1 and 11.3.2 were identified in the study area and it is considered that this species may potentially occur on site. (TSSC 2008a)

Scientific Name	Status	Likelihood of occurrence
Westringia parvifolia	Vulnerable	**Unlikely**. This species grows with Baker's mallee (*Eucalyptus bakeri*) and Green mallee (*Eucalyptus viridis*) and between clumps of Spinifex (*Triodia* sp.) on sandy and stony soils. *Westringia parvifolia* is known from a small area near Yelarbon and Inglewood in south-east Queensland. The distribution range is approximately 80 km and there is no available information on population size. This species grows with *Eucalyptus bakeri* and *E. viridis* and between clumps of Spinifex (*Triodia* sp.) on sandy and stony soils (BRI collection details, n.d.; White & Francis, 1921). This species occurs within the Border Rivers Maranoa–Balonne (Queensland) Natural Resource Management Region (SEWPAC, 2008). The study area does not contain suitable habitat for this species. This species is unlikely to occur within the study area. (TSSC 2008b)

Listed fauna

No fauna species listed under the EPBC Act were identified as occurring in the study area during the field investigations. However, the study area contained numerous hollow logs, rocky areas and habitat trees which are likely to provide habitat for bird and mammal species. Additionally, the presence of gilgai and watercourses may provide habitat for aquatic fauna.

Areas of rock pavement, caves, dry creek-beds, feeder channels into the Condamine River, vertical banks and rocky scree north of the Condamine River riparian zone in the southern portion of the property provide potentially high habitat value for Brigalow Belt reptiles, particularly the Yakka skink (*Egernia rugosa*) and Brigalow scaly foot (*Paradelma orientalis*).

The community adjacent the central southern boundary of the study area is open forest/woodland with shallow drainage channels, rocky scree, shallow sandstone bedrock, small rock overhangs and a good scatter of woody debris with patchy dense grass and leaf litters. This area and other habitat features of the site are identified on **Figure 5**. Habitat features identified within the study area have been used to assess the suitability of the site to provide habitat for the EPBC listed species listed in **Table 18**.

Table 18: EPBC protected fauna species or habitat of species potentially occurring within the study area

Scientific Name	Common Name	EPBC Act Status	Likelihood of Occurrence
Delma torquata	Collared delma	Vulnerable	**Likely to be present**. Species prefers rocky terrain with many small loose rocks. Such features are prevalent in the south-west of the study area (no individuals were observed).

Scientific Name	Common Name	EPBC Act Status	Likelihood of Occurrence
Furina dunmalli	Dunmalls snake	Vulnerable	**Potentially present**. Suitable habitat (riparian areas) is present within the study area. Although the species is extremely rare with low record numbers, this species has been observed to occur in cleared pastoral areas where suitable micro-habitat occurs (such as heavy soils) (Wilson 2005).
Egernia rugosa	Yakka skink	Vulnerable	**Likely to be present**. Preferred habitat for this species includes rocky outcrops, sand plains, dense ground vegetation, open dry sclerophyll (ironbark and Brigalow) forest and woodland, which have hollow logs, cavities in soil-bound root systems of fallen trees, rabbit warrens, and beneath rocks (Wilson 2005). These habitats are present.
Paradelma orientalis	Brigalow scaly foot	Vulnerable	**Likely to be present**. This species utilises a wide variety of open forest habitats on several (principally sandy) soil types, sheltering under fallen timber and bark, particularly areas adjacent to remnant vegetation) (Wilson 2005). Such habitat is present in the study area.
Erythrotriorchis radiatus	Red goshawk	Vulnerable	**Potentially present**. Potential foraging habitat occurs within the study area in riparian and open forest areas. There are no recent records from the search area suggesting that this species is absent.
Geophaps scripta scripta	Squatter pigeon	Vulnerable	**Likely to be present**. Potential habitat was recorded within the study area including grassy woodlands dominated by Eucalypts, and disturbed areas close to waterways (Morcombe 2000).
Rostratula australis	Australian painted snipe	Vulnerable	**Unlikely to be present**. This species prefers shallow grassy wetlands which are not present on site.
Nyctophilus timoriensis	Greater long eared bat	Vulnerable	**Potentially present**. This species occurs in dry forest habitats including River Red Gum, Open Woodland, Mallee, Brigalow and other arid and semi-arid habitats. Hollows in mature trees provide important shelter and nesting sites (Unidel 2011) and REs know to be used by this species were recorded within the study area.

Scientific Name	Common Name	EPBC Act Status	Likelihood of Occurrence
Chalinolobus dwyeri	Large eared pied bat	Vulnerable	**Potentially present**. This species is found in tall open eucalypt forest with an understorey of scattered small trees and palms (Churchill 1998). The species is known to roost in disused mine tunnels, rock overhangs, caves and Fairy Martin nests (Unidel 2011). Suitable foraging and roosting areas are present within the study area.

Migratory species

There were no migratory species identified as part of the field investigation within the study area, however dams, gilgais and drainage channels into the Condamine River may contain migratory wetland species at various times throughout the year.

Table 19 identifies the EPBC listed migratory species which may potentially occur within the study area.

Table 19: EPBC migratory species or habitat of species potentially occurring within the study area

Scientific Name	Common Name	Likelihood of Occurrence
Hirundapus caudacutus	White-throated needletail	**Likely to be present**. This species is known to occur over most types of habitat, and are probably recorded most often above wooded areas, including open forest and rainforest. They may also fly between trees or in clearings, below the canopy, but are less commonly recorded flying above woodland (Emison & Porter 1978; Friend 1982; Tarburton 1993). This species has been recorded within a 10 km radius of the study area.
Merops ornatus	Rainbow bee-eater	**Likely to be present**. This species is reliant on open forests and woodlands, shrublands, and occurs in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It typically occurs in open, cleared or lightly-timbered areas that are often, but not always, located in proximity to permanent water (Unidel 2011). This species has been recorded within a 10 km radius of the study area.
Gallinago hardwickii	Latham's snipe	**Likely to be present**. This species inhabits swamp and marsh margins and in wet pasture; freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture. This species has been recorded within a 10 km radius of the study area.

Scientific Name	Common Name	Likelihood of Occurrence
Hydroprogne caspia	Caspian tern	**Potentially present**. Caspian Tern prefers large expanses of water, including coastlines, large lakes, reservoirs and large rivers (DSEWPaC 2012c). This species could utilise the habitat provided by the Condamine River and has been recorded within a 10 km radius of the study area.
Haliaeetus leucogaster	White-bellied sea-eagle	**Likely to be present**. Large areas of open water (larger rivers, swamps, lakes, sea) and fringing vegetation are essential habitat features for this species (DSEWPaC 2012b). This species has been recorded within a 10 km of the study area.
Pluvialis fulva	Pacific golden plover	**Potentially present**. This species utilises fresh, brackish or saline lakes, billabongs, pools, swamps and wet claypans, especially those with muddy margins and often with submerged vegetation or short emergent grass. Other terrestrial habitats inhabited include short (or, occasionally, long) grass in paddocks, crops or airstrips, or ploughed or recently burnt areas, and they are very occasionally recorded well away from water (Marchant and Higgins 1993). This species has been recorded within a 10 km radius of the study area.
Ardea modesta	Eastern great egret	**Likely to be present**. This species has been reported in a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial). These include swamps and marshes, margins of rivers and lakes, damp or flooded grasslands, pastures and agricultural lands. This species has been recorded within 10 km of the study area.

Weeds

Weeds were limited throughout the site due to the site being intensively cultivated. The only weed species that was observed was Velvety Tree Pear (*Opuntia tomentosa*) which was sparsely located throughout vegetated areas. Velvety Tree Pear is listed as a class 2 declared weed under the *Land Protection (Pest and Stock Route Management) Regulation 2003.*

The non-native flora species encountered during the survey are listed in **Table 20** below .

Table 20: Non-native flora recorded during the ecological field survey

Scientific Name	Common Name	Occurrence
Opuntia tomentosa	Velvety Tree Pear	Sparsely located throughout vegetated areas within the study area.

Pest fauna

There were no EPBC listed pest fauna species identified during the field survey.

5.2.2. State Matters

Field survey results concerning NC Act listed flora and fauna are discussed in the following sections.

Listed flora

Surveys of the study area identified one species of EVNT flora; *Rutidosis lanata.*

Rutidosis lanata was identified in two locations within the study area. Its occurrences coincide with ecotones between RE 11.3.2/11.5.1 or appeared to be associated with slight variations in species composition and canopy cover in RE 11.5.1 on sandy soils. Both areas contained small populations within the mixed RE of 11.3.2/11.5.1 and combined represent less than 100 individuals. The two areas where *Rutidosis lanata* was observed are identified in **Figure 6**, Appendix F.

EVNT flora species encountered during the survey are listed in **Table 21** below.

Table 21 NC Act listed flora species identified during field survey and their observed distribution

Scientific Name	Common Name	Conservation Status	Occurrence
Rutidosis lanata	Red – soil woolly wrinklewort	Endangered	Noted in south west of study area. Condition of habitat was fair to good. Current threats include grazing and unmanaged fire regimes. The number of plants was not recorded.

Listed fauna

No EVNT fauna species were identified during the field investigations. However the study area provides potential habitat for birds and mammals in the form of hollow logs, small caves and rock areas, vertical banks and habitat trees. Additionally, the presence of small gilgai, drainage channels and watercourses may provide habitat for aquatic fauna. The Yakka skink (*Egernia rugosa*) and Brigalow scaly foot (*Paradelma orientalis*) may utilise leaf litter, woody debris and rocky scree across the study area.

Riparian vegetation along the Condamine River and drainage channels supports remnant vegetation of predominantly RE 11.3.2 but with small areas of RE 11.5.1. This riparian vegetation contains large, mature hollow-bearing trees that are likely to support roosting sites for the Greater long eared bat (*Nyctophilus corbeni*). *Eucalyptus crebra* in small patches of the riparian vegetation may provide potential roosting sites for the Large eared pied bat (*Chalinolobus dwyeri)*. The riparian vegetation associated with Condamine River therefore represents good quality habitat and is identified on **Figure 5**.

The presence of areas of *Allocasuarina leuhmannii* within RE 11.5.1 and along drainage lines, combined with previous sightings of Glossy black cockatoo (*Calyptorhynchus lathami)* within the property, suggest that suitable habitat is present for this NC Act listed vulnerable species. However, the significance of this species to the study area is unknown as no distinctive foraging areas (presence of crush cones) were detected during the fauna survey.

The NC Act listed fauna species potentially occurring in the study area are listed in **Table 22** below along with an assessment of the likelihood of occurrence.

Table 22: NC Act listed fauna species potentially occurring within the study area

Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Cyclorana verrucosa	Rough collared frog	Near Threatened	**Likely to be present**. Potential habitat is present within the study area and this species has been recorded within 10 km of the study area.
Paradelma orientalis	Brigalow scaly-foot	Vulnerable	**Likely to be present**. This species utilises a wide variety of open forest habitats on several (principally sandy) soil types, sheltering under fallen timber and bark, particularly areas adjacent to remnant vegetation) (Wilson 2005). Such habitat is present in the study area.
Strophurus taenicauda	Golden-tailed gecko	Near Threatened	**Likely to be present**. Potential habitat (woodland communities) is present within the study area Cogger, H.G. (2000).
Calyptorhynchus lathami	Glossy black cockatoo	Vulnerable	**Likely to be present**. Potential habitat (areas of *Allocasuarina leuhmannii*) is present within the study area. The species has been recorded previously within 10 km of the study area (DSEWPaC 2012a).
Geophaps scripta scripta	Squatter pigeon	Vulnerable	**Likely to be present**. Potential habitat was recorded within the study area including grassy woodlands dominated by Eucalypts, and disturbed areas close to waterways (Morcombe 2000).
Lophoictinia isura	Square tailed kite	Near Threatened	**Potentially present**. Potential foraging habitat occurs within the study area.
Ephippiprhynchus asiaticus	Black-neck stork	Near Threatened	**Likely to be present**. This species is mainly found in shallow, permanent, freshwater terrestrial wetlands, and surrounding marginal vegetation, including swamps, floodplains, watercourses and billabongs, freshwater meadows, wet heathland, farm dams and shallow floodwaters, as well as extending into adjacent grasslands, paddocks and open savannah woodlands. It is known to occur in RE 11.3.2 which was recorded in the study area and has been recorded within 10 km of the study area.
Melithreptus gularis	Black-chinned honeyeater	Near Threatened	**Likely to be present**. This species habitat include upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees (Chapman 1995; Higgins et al., 2001). It is known to occur within REs11.3.1 and 11.3.2 (both occurring on site). It has been recorded within 10 km of the study area.

Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Haliaeetus leucogaster	White-bellied sea eagle	Special Least Concern	**Likely to be present**. Large areas of open water (larger rivers, swamps, lakes, sea) and fringing vegetation are essential habitat features for this species (DSEWPaC 2012b). This species has been recorded within a 10 km of the study area.
Hirundapus caudacutus	White-throated needletail	Special Least Concern	**Likely to be present**. This species is known to occur over most types of habitat, and are probably recorded most often above wooded areas, including open forest and rainforest. They may also fly between trees or in clearings, below the canopy, but are less commonly recorded flying above woodland (Emison & Porter 1978; Friend 1982; Tarburton 1993). This species has been recorded within a 10 km radius of the study area.
Merops ornatus	Rainbow bee-eater	Special Least Concern	**Likely to be present**. This species is reliant on open forests and woodlands, shrublands, and occurs in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It typically occurs in open, cleared or lightly-timbered areas that are often, but not always, located in proximity to permanent water (Unidel 2011). This species has been recorded within a 10 km radius of the study area.
Gallinago hardwickii	Latham's snipe	Special Least Concern	**Likely to be present**. This species inhabits swamp and marsh margins and in wet pasture; freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture. This species has been recorded within a 10 km radius of the study area.
Hydroprogne caspia	Caspian tern	Special Least Concern	**Potentially present**. Caspian Tern prefers large expanses of water, including coastlines, large lakes, reservoirs and large rivers (DSEWPaC 2012a). This species could utilise the habitat provided by the Condamine River and has been recorded within a 10 km radius of the study area.
Ardea modesta	Eastern great egret	Special Least Concern	**Likely to be present**. This species has been reported in a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial). These include swamps and marshes, margins of rivers and lakes, damp or flooded grasslands, pastures and agricultural lands. This species is known to occur in RE 11.3.2 (recorded on site) and has been recorded within 10 km of the study area.

Uncontrolled when printed unless issued and stamped Controlled Copy.

Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Pluvialis fulva	Pacific golden plover	Special Least Concern	**Potentially present**. This species utilises fresh, brackish or saline lakes, billabongs, pools, swamps and wet claypans, especially those with muddy margins and often with submerged vegetation or short emergent grass. Other terrestrial habitats inhabited include short (or, occasionally, long) grass in paddocks, crops or airstrips, or ploughed or recently burnt areas, and they are very occasionally recorded well away from water (Marchant and Higgins, 1993). This species has been recorded within a 10 km radius of the study area.

Pest Fauna

No pest fauna was recorded in the study area.

Commonwealth Listed flora

No flora species listed under the EPBC Act were identified during the field investigation. A number of species were identified in the desktop analysis as potentially occurring on site and the suitability of habitat identified on site for each of these species is discussed in **Table 23.**

Table 23: EPBC listed flora species potentially occurring on site

Scientific Name	Status	Likelihood of occurrence
Ooline *(Cadellia pentastylis)*	Vulnerable	**Likely** to occur within area. Associated with TEC Brigalow (*Acacia harpophylla* dominant and co-dominant) recorded as present within the study area. (TSSC 2008)
Belson's panic *grass (Homopholis belsonii)*	Vulnerable	**May Occur**. Belson's Panic Grass is found in White Box (*Eucalyptus albens*) communities and Wilga (*Geijera parviflora*) woodlands on rocky hills; Belah (*Casuarina cristata*) forests in alluvial soils on flat to undulating lands; Poplar Box (*Eucalyptus populnea*) woodlands; and dry woodlands on poor soils derived from basalt at 200m to 520m altitude. Belson's Panic Grass has also been recorded in Brigalow (*Acacia harpophylla*), Yarran (*A. melvillei*) and Weeping Myall (*A. pendula*) communities; Mountain Coolabah (*E. orgadophila*) communities; and on roadsides (DSEWPaC, 2010). It is known to occur in REs 11.3.1, 11.3.2, 11.3.17, 11.4.3, 11.4.7, 11.9.5 and 11.9.6(Unidel, 2011). REs 11.3.1 and 11.3.2 were identified in the study area and it is considered that this species may potentially occur on site. (TSSC 2008a)

Environmentally Sensitive Areas

DERM mapping identified Category B and C environmentally sensitive areas including endangered and of concern REs, respectively. Unidel's field survey confirmed the presence of the aforementioned ESAs.

Regional Ecosystems

The distribution and boundaries of DERM REs in the study area were ground-truthed and were found to be correct. One endangered RE, four of concern RE and one no concern at present RE were identified within the study area. REs recorded within the study area are discussed in **Table 24 - Table 26** and are shown in **Figure 7**, Appendix F.

Table 24: Ground truthed endangered REs within the study area

RE	General Description	Description
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on cracking clay soils on Cainozonic alluvial plains.	This RE exists in large linear shade stands comprised exclusively of RE 11.3.1 along the north eastern boundary of the study area and nearby internal roads. Stands are approximately 60m wide. The RE was verified as true to it's REDD description (section 5.1.2) and found to be in generally good condition.

Table 25: Ground truthed of concern REs identified within the study area

RE	General description	Description
11.3.2	*Eucalyptus populnea*, *Callitris glaucophylla* and/or *Eucalyptus* spp. woodland to open woodland on alluvial plains.	This RE exists as part of a large linear shade stand in the central east of the study area, ranging in width from 30 to 60m wide. It also occurs in the south west of the site and adjacent to, and offset from the banks of the Condamine River. The RE was verified as true to its REDD description (section 5.1.2) and found to be in generally good condition. It was mixed in all occurrences with RE 11.5.1.
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	This RE occurred as part of a mixed polygon along the northern banks of the Condamine River. The community was in good condition, with only minor disturbance to vegetation in this area from historical land uses.
11.3.4	*Eucalyptus tereticornis* and/or *Eucalyptus spp.* tall woodland on alluvial plains	This RE occurred as part of a mixed polygon along the northern banks of the Condamine River. The community was in good condition, with only minor disturbance to vegetation in this area from historical land uses.
11.3.25	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	This RE occurred as part of a mixed polygon along the northern banks of the Condamine River. The community was in good condition, with only minor disturbance to vegetation in this area from historical land uses.

Table 26: No concern at present regional ecosystems mapped by DERM within the study area

RE Code	General description	Description
11.5.1	*Euclayptus crebra, Callitris glaucophylla, Angophora leocarpa, Allocasuarina leuhmannii* woodland on Cainozoic sand plains / remnant surfaces.	This RE exists as part of a large linear shade stand in the central east of the study area, ranging in width from 30 to 60m wide. It also occurs in the south west of the site and adjacent and offset from the banks of the Condamine River. The RE was verified as true to its REDD description (section 5.1.2) and found to be in generally good condition. It was mixed in all occurrences with RE 11.3.2.

DERM RE mapping shows an area of mixed REs 11.3.2 and RE 11.5.1 as a mixed polygon (90%/10% respectively) on the southern boundary of the study area. There is another area of the same vegetation adjacent the central eastern boundary. Field surveys indicate the mapping is accurate and the vegetation is consistent with the mixed polygon of REs 11.3.2 (dominant) and RE 11.5.1 (sub-dominant). An area of unmapped RE land-zone seven fringing rock pavement areas was located to the south-west of the study area and 100m north of the Condamine River. This area is disturbed by an existing quarry site (clearly visible on aerial photography) and extends east running parallel with the Condamine River. This area within the study area is not large enough nor contains enough species to be defined as an RE.

High Value Regrowth

The areas mapped by DERM as HVR were surveyed, refer **Figure 3**, Appendix F for locations. It was determined that that they were consistent with DERM HVR mapping (**Figure 7,** Appendix F), though degraded from stock use and invasive grasses.

Wetland Ecosystems

Through ground survey and desktop imagery searches for watercourses, the study area supports several wetland communities. A wetland ecosystem of the Condamine River watershed lies within and bordering the study area, within the of concern REs 11.3.2 – *Eucalyptus populnea* woodland on alluvial plains, 11.3.25 – *Eucalyptus tereticornis* or *Eucalyptus camaldulensis* woodland fringing drainage lines, 11.3.3 – *Eucalyptus coolabah* woodland on alluvial plains and 11.3.4 – *Eucalyptus tereticornis* and/or *Eucalyptus spp*. tall wood on alluvial plains. Wetland areas are included in the fauna habitat mapping in **Figure 5,** Appendix F .

The Condamine River lies within the Condamine-Balonne River catchment area. The EPBC protected matters search, identified only one Ramsar Wetland, Narran Lakes Nature Reserve in northern NSW along the southern end of the Condamine-Balonne River catchment area. This area is situated approximately 500 km west-south-west of the site. Any potential impacts would be negligible due to the physical separation of the wetland from the project area.

Uncontrolled when printed unless issued and stamped Controlled Copy.

5.2.3. Disturbance

The site is heavily disturbed with signs of fragmentation, species thinning, and edge effects of understorey invasion from declared weed species.

The area in the south west of the study area (**Figure 3,** Appendix F) was identified as being susceptible to erosion. Erosion from flooding in January 2011 was evident at the time of field survey as this area contains a large number of drainage channels associated with the Condamine River.

The area adjoining the Condamine River (identified as potential habitat in **Figure 5**, Appendix F) has been impacted by flooding. This area is also considered to be fragile and susceptible to erosion.

Uncontrolled when printed unless issued and stamped Controlled Copy.

6. Conclusion & Recommendations

The review of ecological databases and field surveys of the study area confirmed ecological constraints within the study area.

The study area was found to contain some ecological features which must be considered when designing and situating proposed infrastructure. These ecological features include:

- The presence of one TEC protected under the EPBC Act Brigalow (*Acacia harpophylla*) dominant and co-dominant communities:
  - This TEC should be avoided;
  - If impacts are unavoidable then steps will be taken to minimise and mitigate the impact in line with the approved site environmental management plan and regulatory approval conditions;
- The presence of category B ESA (endangered RE) and category C ESAs (of concern REs and referable wetlands) ;
- Potential habitat features for nine threatened and seven migratory fauna species listed under the EPBC Act and five near threatened, three vulnerable and six special least concern fauna species listed under NC Act. This includes riparian habitats that represent potential habitat (hollow bearing trees and water availability) for various threatened flora and fauna species;
- Given the presence of suitable habitat and therefore the likely presence of EPBC Act and NC Act EVNT species, it is recommended that additional targeted surveys are undertaken in accordance with relevant EPBC Act survey guidelines (available at *http://www.environment.gov.au/epbc/guidelines-policies*) to assess the potential occurrence of the following species:

Collared delma	White-throated needletail	Glossy black cockatoo
Dunmalls snake	Rainbow bee-eater	Square tailed kite
Yakka skink	Latham's Snipe	Black-neck stork
Brigalow scaly foot	Caspian tern	Black-chinned honeyeater
Golden-tailed gecko	White-bellied sea-eagle	Greater long eared bat
Red goshawk	Pacific golden plover	Large eared pied bat
Squatter pigeon	Eastern great egret	
Australian painted snipe	Rough collared frog	

- Several areas of field verified HVR in the central and south-western sections of the study area (refer to **Figure 3,** Appendix F) are considered fragile, susceptible to erosion and contains a large number of drainage channels to the Condamine River

After comparing various environmental data sources regarding environmental matters, the following is recommended:

- That proposed development should be situated on cleared/non-remnant areas;

- Where possible infrastructure be sited outside the areas confirmed as HVR in the central and south-western sections of the study area (refer to **Figure 7**, Appendix F). This area is considered fragile, susceptible to erosion and contains a large number of drainage channels to the Condamine River;
- *Rutidosis lanata* in noted areas (see **Figure 6**, Appendix F) should be avoided;
- Hollow-bearing trees should be avoided, or where they cannot be avoided, that spotter/catchers are used to tap trees and handlers are available to move fauna species before disturbance or habitat removal;
- Noted habitat areas (i.e., riparian vegetation along Condamine River, rock pavement edges, drainage channels) should be avoided as they are fragile and susceptible to erosion;
- Weed species should be treated in order to minimise the risk of spreading these weeds. These species should be mitigated through the development and implementation of a weed management strategy and control of the plants pre-construction. Aim to reduce spread or perform vehicle wash-down on all vehicles entering and leaving the property;
- That a 200m buffer between minor development and endangered REs should be observed;
- Sediment traps to reduce overland flow rates and avoid sediment deposition off site should be installed at all points of drainage from construction areas;
- Immediately prior to the clearing of vegetation within the study area (within 24hrs) a destructive search of all suitable microhabitats within the clearing area should be completed by competent persons to locate EVNT species. Such persons should be familiar with the microhabitat preferences of the Golden-tailed Gecko, Yakka Skink and Brigalow Scaly-foot in particular;
- A survey of the proposed development footprint should be conducted to determine the presence/absence of nest sites of diurnal raptors, particularly the Square-tailed Kite. If a nest is located, it should be inspected to determine whether it is active or inactive. If an active nest is found, it should be flagged, protected and buffered until such time as any chicks have fledged;
- All hollow bearing trees (including potential roost sites for microchiropteran bats) should be flagged prior to the commencement of clearing activities. These trees should be left for a period of two to three days following the clearing of the surrounding vegetation to encourage fauna to move into adjacent areas. When these trees are cleared they should be nudged with machinery several times to flush any fauna still present prior to being felled; and
- All fauna captured during the pre-clearing survey and spotter/catcher activities should be re-located to an area of habitat which is outside of construction areas for the project, i.e. an area of habitat which will not be subject to future disturbance. The relocation site should be agreed with DERM prior to commencing works.

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

7. Appendix A - Results of EPBC Protected Matters Search

Conducted on 19 March, 2012

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

EPBC Act Protected Matters Report

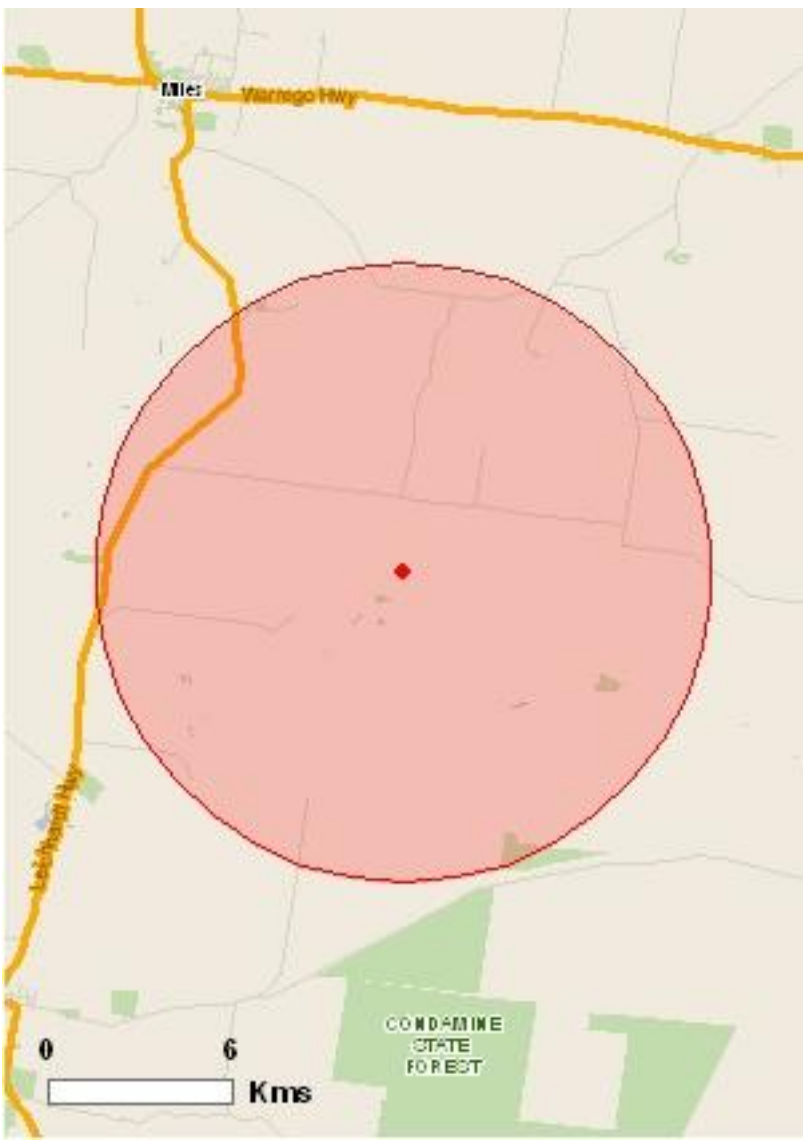
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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 about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Report created: 19/03/12 13:03:30

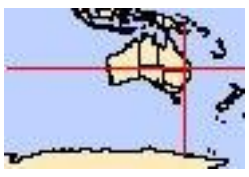
Summary
Details
Matters of NES
Other Matters Protected by the EPBC Act
Extra Information
Caveat
Acknowledgements



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

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environment 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 - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	5
Threatened Species:	15
Migratory Species:	11

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. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

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. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	10
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	12
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance (RAMSAR)	[Resource Information]
Name	Proximity
Narran lake nature reserve	Upstream from Ramsar

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-	Endangered	Community known to

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
dominant)		occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

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 likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Maccullochella peelii peelii Murray Cod, Cod, Goodoo [68443]	Vulnerable	Species or species habitat may occur within area
MAMMALS		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Nyctophilus timoriensis (South-eastern form) Greater Long-eared Bat, South-eastern Long-eared Bat [66888]	Vulnerable	Species or species habitat may occur within area
PLANTS		
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii [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

Name	Status	Type of Presence
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat likely to occur within area
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat likely to occur within area
Paradelma orientalis		
Brigalow Scaly-foot [59134]	Vulnerable	Species or species habitat known to occur within area

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 may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to 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
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Nettapus coromandelianus albipennis		
Australian Cotton Pygmy-goose [25979]		Species or species habitat may occur within area
Rostratula benghalensis s. lat.		
Painted Snipe [889]	Vulnerable*	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may 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 likely to 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
Nettapus coromandelianus albipennis Australian Cotton Pygmy-goose [25979]		Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe [889]	Vulnerable*	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,

Name	Status	Type of Presence
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
Mammals		
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
[Oryctolagus cuniculus](#) Rabbit, European Rabbit [128]		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		
[Acacia nilotica subsp. indica](#) Prickly Acacia [6196]		Species or species habitat may 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
[Lycium ferocissimum](#) African Boxthorn, Boxthorn [19235]		Species or species habitat may 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

-26.8 150.25

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

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

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
-Other groups and individuals

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

Please feel free to provide feedback via the Contact Us page.

© Commonwealth of Australia
Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

8. Appendix B - Results of Wildlife Online Search

Searches conducted on 15th March 2012

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 26.7943
Longitude: 150.252
Distance: 10
Email: rfloyd@unidel.com.au
Date submitted: Thursday 15 Mar 2012 15:56:24
Date extracted: Thursday 15 Mar 2012 16:00:08

The number of records retrieved = 336

Disclaimer

As the DERM 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			6
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		4
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		21
animals	amphibians	Hylidae	*Cyclorana verrucosa*	rough collared frog		NT		2
animals	amphibians	Hylidae	*Cyclorana novaehollandiae*	eastern snapping frog		C		4
animals	amphibians	Hylidae	*Cyclorana alboguttata*	greenstripe frog		C		4
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		8/1
animals	amphibians	Limnodynastidae	*Limnodynastes salmini*	salmon striped frog		C		19
animals	amphibians	Limnodynastidae	*Limnodynastes fletcheri*	barking frog		C		4
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		3
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		41
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		9/1
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		1
animals	birds	Acanthizidae	*Gerygone albogularis*	white-throated gerygone		C		4
animals	birds	Acanthizidae	*Acanthiza uropygialis*	chestnut-rumped thornbill		C		2
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		9
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		1
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		8
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		1
animals	birds	Acanthizidae	*Gerygone fusca*	western gerygone		C		2
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		2
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		2
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		6
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		3
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		2
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		1
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		NT		1
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		1
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		1
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		2
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		3
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		3
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		2
animals	birds	Anatidae	*Aythya australis*	hardhead		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		8
animals	birds	Anatidae	*Anas rhynchotis*	Australasian shoveler		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		4
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		1
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		5
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		C		1
animals	birds	Ardeidae	*Ardea modesta*	eastern great egret		C		6
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		5
animals	birds	Ardeidae	*Nycticorax caledonicus*	Nankeen night-heron		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		6
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		1
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		2
animals	birds	Artamidae	*Artamus minor*	little woodswallow		C		1
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		4
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		5
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		7
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		9
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		3
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		1
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		2
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		8
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		8
animals	birds	Cacatuidae	*Eolophus roseicapillus*	galah		C		10/1
animals	birds	Cacatuidae	*Calyptorhynchus lathami*	glossy black-cockatoo		V		1
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Campephagidae	*Lalage sueurii*	white-winged triller		C		4
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		7
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		2
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		2
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		1
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		1
animals	birds	Charadriidae	*Pluvialis fulva*	Pacific golden plover		C		1
animals	birds	Charadriidae	*Vanellus tricolor*	banded lapwing		C		2
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		6
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		4
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		NT		2
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		2
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		2
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		1
animals	birds	Columbidae	*Columba livia*	rock dove	Y			2
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		1
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		8
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		7
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		2
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		1
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		2
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		2
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		7
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		4
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		9
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		3
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	*Chalcites minutillus russatus*	Gould's bronze-cuckoo		C		1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		3
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		4
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		1
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		1
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		4
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		2
animals	birds	Estrildidae	*Stagonopleura guttata*	diamond firetail		C		3
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		5
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		3
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		6
animals	birds	Fregatidae	*Fregata ariel*	lesser frigatebird		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		7
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Halcyonidae	*Todiramphus pyrrhopygius*	red-backed kingfisher		C		1
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		6
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		3
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		3
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		5
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		1
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		C		1
animals	birds	Laridae	*Gelochelidon nilotica*	gull-billed tern		C		1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		9
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		1
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		2
animals	birds	Meliphagidae	*Sugomel niger*	black honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		1
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		6
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		2
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		1
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		10
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		1
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		5
animals	birds	Meliphagidae	*Ptilotula penicillatus*	white-plumed honeyeater		C		4
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		9
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		9
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		NT		2
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		5
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		5
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		5
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		5
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		4
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		4
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		8
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		3
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		9
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		2
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		6
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		1
animals	birds	Otididae	*Ardeotis australis*	Australian bustard		C		1
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		4
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		8
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		3
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		10
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		1
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			1
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		5
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		1
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		1
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		2
animals	birds	Petroicidae	*Melanodryas cucullata*	hooded robin		C		1
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		5
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		2
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		7
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		1
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		2
animals	birds	Phasianidae	*Excalfactoria chinensis*	king quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		2
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		2
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		8
animals	birds	Psittacidae	*Glossopsitta pusilla*	little lorikeet		C		3
animals	birds	Psittacidae	*Northiella haematogaster*	blue bonnet		C		1
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		4
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		5
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		7
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		1
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		2
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		1
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		2
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		1
animals	birds	Rallidae	*Porphyrio porphyrio*	purple swamphen		C		1
animals	birds	Rallidae	*Porzana pusilla*	Baillon's crake		C		1
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		2
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		6
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		9
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		C		3
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			2
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		3
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		6
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		4
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		3
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		2
animals	birds	Turnicidae	*Turnix velox*	little button-quail		C		2
animals	bony fish	Percichthyidae	*Macquaria ambigua*	golden perch				2
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		5
animals	mammals	Dasyuridae	*Planigale tenuirostris*	narrow-nosed planigale		C		1
animals	mammals	Dasyuridae	*Sminthopsis macroura*	stripe-faced dunnart		C		2
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		2
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		7
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			4
animals	mammals	Muridae	*Pseudomys delicatulus*	delicate mouse		C		10
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		1/1
animals	mammals	Suidae	*Sus scrofa*	pig	Y			1
animals	mammals	Vespertilionidae	*Scotorepens sp.*					1
animals	mammals	Vespertilionidae	*Nyctophilus gouldi*	Gould's long-eared bat		C		1
animals	mammals	Vespertilionidae	*Scotorepens balstoni*	inland broad-nosed bat		C		1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		10
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		8
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		6/1
animals	reptiles	Diplodactylidae	*Lucasium steindachneri*	Steindachner's gecko		C		6
animals	reptiles	Diplodactylidae	*Diplodactylus tessellatus*	tessellated gecko		C		8
animals	reptiles	Elapidae	*Suta suta*	myall snake		C		4
animals	reptiles	Elapidae	*Suta dwyeri*			C		4
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		5
animals	reptiles	Elapidae	*Brachyurophis australis*	coral snake		C		3
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		1
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		2
animals	reptiles	Elapidae	*Cryptophis boschmai*	Carpentaria whip snake		C		1
animals	reptiles	Elapidae	*Denisonia devisi*	De Vis' banded snake		C		5
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		28/1
animals	reptiles	Gekkonidae	*Gehyra variegata*	tree dtella		C		5
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		22
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		4
animals	reptiles	Pygopodidae	*Pygopus schraderi*			C		6
animals	reptiles	Scincidae	*Carlia vivax*			C		1/1
animals	reptiles	Scincidae	*Ctenotus sp.*					1
animals	reptiles	Scincidae	*Lerista timida*			C		2
animals	reptiles	Scincidae	*Cryptoblepharus pannosus*	ragged snake-eyed skink		C		3
animals	reptiles	Scincidae	*Lerista punctatovittata*			C		3
animals	reptiles	Scincidae	*Morethia boulengeri*			C		7
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	*Egernia striolata*	tree skink		C		2
animals	reptiles	Scincidae	*Ctenotus robustus*			C		5
animals	reptiles	Scincidae	*Carlia pectoralis*			C		1
animals	reptiles	Scincidae	*Menetia timlowi*			C		2
animals	reptiles	Scincidae	*Menetia greyii*			C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		1
animals	reptiles	Scincidae	*Eremiascincus fasciolatus*	narrow-banded sand swimmer		C		2
animals	reptiles	Typhlopidae	*Ramphotyphlops ligatus*			C		4
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
animals	reptiles	Varanidae	*Varanus panoptes*	yellow-spotted monitor		C		5
plants	ferns	Adiantaceae	*Cheilanthes distans*	bristly cloak fern		C		1
plants	higher dicots	Acanthaceae	*Brunoniella australis*	blue trumpet		C		2
plants	higher dicots	Acanthaceae	*Rostellularia adscendens var. adscendens*			C		1
plants	higher dicots	Acanthaceae	*Rostellularia adscendens*			C		1
plants	higher dicots	Amaranthaceae	*Nyssanthes erecta*			C		2
plants	higher dicots	Amaranthaceae	*Ptilotus nobilis subsp. semilanatus*			C		1
plants	higher dicots	Apocynaceae	*Marsdenia viridiflora subsp. viridiflora*			C		1
plants	higher dicots	Asteraceae	*Calotis cuneata*			C		1
plants	higher dicots	Asteraceae	*Solenogyne bellioides*			C		1/1
plants	higher dicots	Asteraceae	*Ozothamnus diotophyllus*			C		2/2
plants	higher dicots	Asteraceae	*Vittadinia dissecta var. dissecta*			C		1
plants	higher dicots	Asteraceae	*Vittadinia constricta*			C		1/1
plants	higher dicots	Asteraceae	*Rutidosis murchisonii*			C		2/2
plants	higher dicots	Asteraceae	*Vittadinia sulcata*	native daisy		C		1/1
plants	higher dicots	Asteraceae	*Brachyscome multifida*			C		1/1
plants	higher dicots	Byttneriaceae	*Commersonia pedleyi*			C		1/1
plants	higher dicots	Cactaceae	*Opuntia stricta*		Y			2
plants	higher dicots	Cactaceae	*Opuntia tomentosa*	velvety tree pear	Y			1
plants	higher dicots	Casuarinaceae	*Casuarina cristata*	belah		C		1
plants	higher dicots	Chenopodiaceae	*Maireana decalvans*	black cottonbush		C		1
plants	higher dicots	Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*			C		1
plants	higher dicots	Chenopodiaceae	*Rhagodia spinescens*	thorny saltbush		C		1
plants	higher dicots	Chenopodiaceae	*Sclerolaena bicornis var. horrida*			C		1
plants	higher dicots	Crassulaceae	*Crassula tetramera*			C		1/1
plants	higher dicots	Ericaceae	*Leucopogon biflorus*			C		1/1
plants	higher dicots	Ericaceae	*Leucopogon mitchellii*			C		1/1
plants	higher dicots	Fabaceae	*Desmodium varians*	slender tick trefoil		C		1
plants	higher dicots	Fabaceae	*Dillwynia retorta*			C		1/1
plants	higher dicots	Fabaceae	*Mirbelia aotoides*			C		1/1
plants	higher dicots	Fabaceae	*Crotalaria mitchellii subsp. mitchellii*			C		1/1
plants	higher dicots	Goodeniaceae	*Scaevola spinescens*	prickly fan flower		C		1
plants	higher dicots	Malvaceae	*Sida corrugata*			C		1
plants	higher dicots	Malvaceae	*Abutilon oxycarpum*			C		1
plants	higher dicots	Malvaceae	*Sida sp. (Musselbrook M.B.Thomas+ MRS437)*			C		1/1
plants	higher dicots	Malvaceae	*Sida rohlenae subsp. rohlenae*			C		1
plants	higher dicots	Meliaceae	*Owenia acidula*	emu apple		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Mimosaceae	*Acacia jucunda*			C		1
plants	higher dicots	Mimosaceae	*Acacia omalophylla*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia hakeoides*	hakea wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia sparsiflora*			C		1/1
plants	higher dicots	Myoporaceae	*Myoporum montanum*	boobialla		C		3
plants	higher dicots	Myoporaceae	*Myoporum acuminatum*	coastal boobialla		C		1
plants	higher dicots	Myoporaceae	*Eremophila longifolia*	berrigan		C		1
plants	higher dicots	Myoporaceae	*Eremophila mitchellii*			C		5
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		3
plants	higher dicots	Myrtaceae	*Micromyrtus sessilis*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus woollsiana*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca pallescens*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus largiflorens*	black box		C		1/1
plants	higher dicots	Nyctaginaceae	*Boerhavia dominii*			C		1
plants	higher dicots	Oleaceae	*Jasminum didymum subsp. lineare*			C		1
plants	higher dicots	Phyllanthaceae	*Phyllanthus virgatus*			C		1
plants	higher dicots	Polygonaceae	*Muehlenbeckia florulenta*	lignum		C		1/1
plants	higher dicots	Rhamnaceae	*Cryptandra armata*			C		1/1
plants	higher dicots	Rubiaceae	*Asperula conferta*			C		1
plants	higher dicots	Rutaceae	*Geijera parviflora*	wilga		C		3
plants	higher dicots	Santalaceae	*Santalum lanceolatum*			C		1/1
plants	higher dicots	Sapindaceae	*Dodonaea biloba*			C		1/1
plants	higher dicots	Solanaceae	*Solanum ellipticum*	potato bush		C		1
plants	higher dicots	Solanaceae	*Physalis lanceifolia*		Y			1/1
plants	higher dicots	Verbenaceae	*Verbena aristigera*	Mayne's pest	Y			1
plants	monocots	Cyperaceae	*Cyperus*			C		1
plants	monocots	Cyperaceae	*Cyperus victoriensis*			C		1/1
plants	monocots	Cyperaceae	*Cyperus gracilis*			C		2
plants	monocots	Hemerocallidaceae	*Dianella longifolia var. stupata*			C		1/1
plants	monocots	Juncaceae	*Juncus subsecundus*			C		1/1
plants	monocots	Orchidaceae	*Cymbidium suave*			C		1/1
plants	monocots	Orchidaceae	*Pterostylis bicolor*			C		1/1
plants	monocots	Orchidaceae	*Cymbidium canaliculatum*			C		1
plants	monocots	Poaceae	*Aristida personata*			C		1
plants	monocots	Poaceae	*Chloris ventricosa*	tall chloris		C		2
plants	monocots	Poaceae	*Eragrostis sororia*			C		1
plants	monocots	Poaceae	*Pennisetum ciliare*			C		2
plants	monocots	Poaceae	*Enneapogon gracilis*	slender nineawn		C		1
plants	monocots	Poaceae	*Paspalidium gracile*	slender panic		C		1
plants	monocots	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		2
plants	monocots	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		1
plants	monocots	Poaceae	*Aristida caput-medusae*			C		1
plants	monocots	Poaceae	*Sporobolus creber*			C		1
plants	monocots	Poaceae	*Sporobolus caroli*	fairy grass		C		1
plants	monocots	Poaceae	*Themeda triandra*	kangaroo grass		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Panicum effusum*			C		1
plants	monocots	Poaceae	*Aristida ramosa*	purple wiregrass		C		1
plants	monocots	Poaceae	*Melinis repens*	red natal grass	Y			1
plants	monocots	Poaceae	*Arundinella nepalensis*	reedgrass		C		1
plants	monocots	Poaceae	*Enneapogon lindleyanus*			C		1
plants	monocots	Poaceae	*Enteropogon acicularis*	curly windmill grass		C		1
plants	monocots	Poaceae	*Eragrostis trichophora*		Y			1/1
plants	monocots	Poaceae	*Ancistrachne uncinulata*	hooky grass		C		1
plants	monocots	Poaceae	*Paspalidium caespitosum*	brigalow grass		C		1
plants	monocots	Poaceae	*Amphipogon caricinus var. scaber*			C		1/1
plants	monocots	Poaceae	*Megathyrsus maximus var. maximus*		Y			1
plants	monocots	Poaceae	*Chloris divaricata var. divaricata*	slender chloris		C		1
plants	monocots	Poaceae	*Dichanthium sericeum subsp. sericeum*			C		1
plants	monocots	Poaceae	*Aristida jerichoensis var. jerichoensis*			C		1

CODES

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

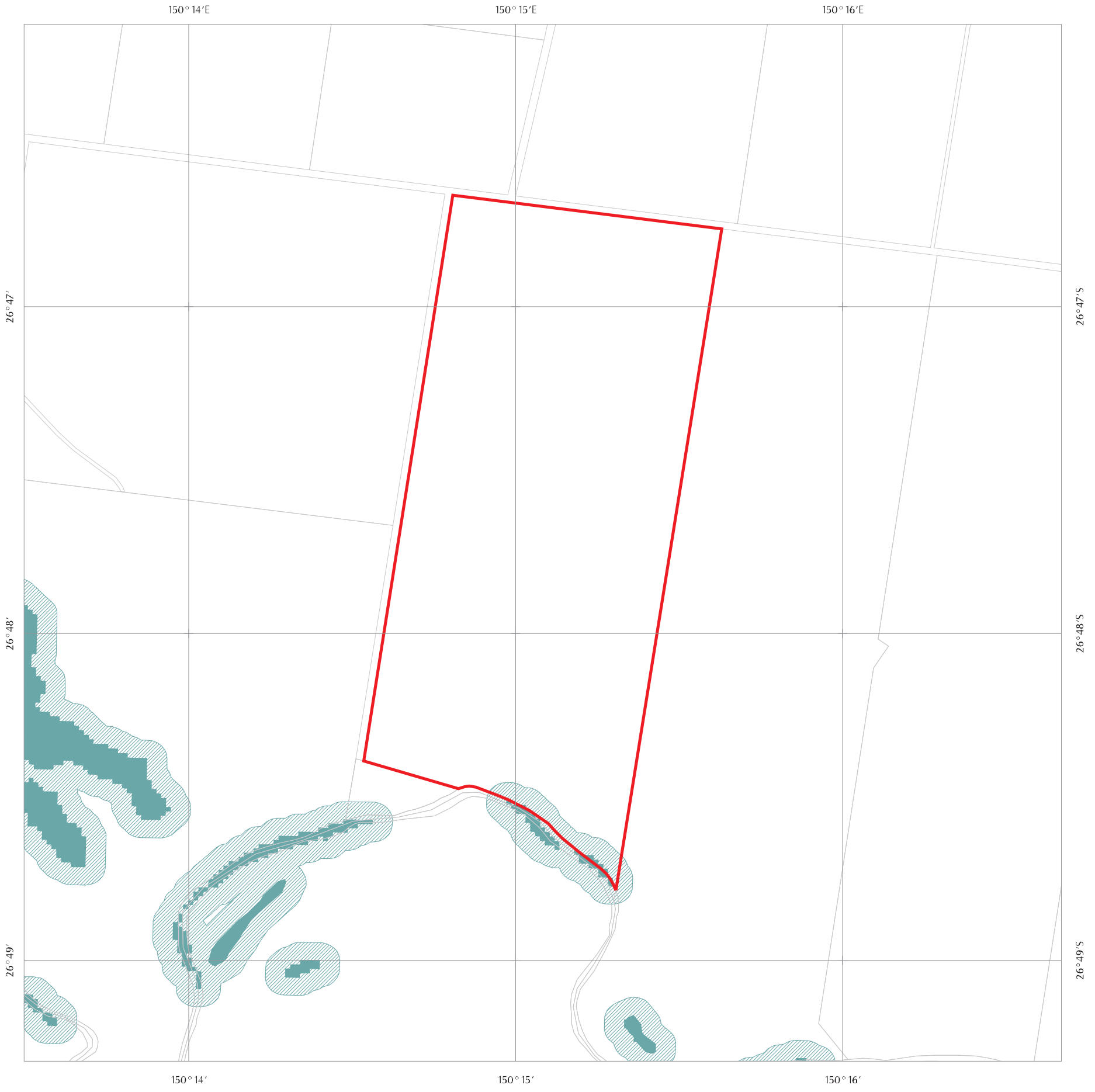
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

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.

9. Appendix C - Results of DERM Referable Wetland search

Searches conducted on 1st September 2011



Map of Referable Wetlands

Requested By: JGRAY@UNIDEL.COM.AU
Date: 01 Sep 11 Time: 08.42.55

Centered on Lot on Plan:
12 BWR64

Legend

- Selected Land Parcel
- Property Boundary

GBR Wetland Protection Area

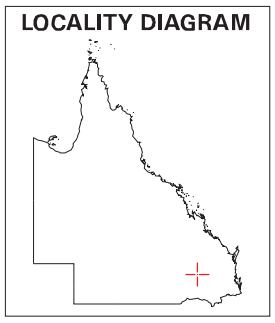
- Wetland
- Trigger Area

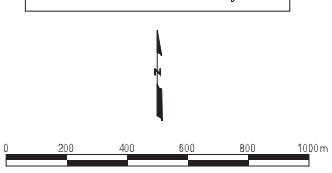
Wetland Management Area

- Wetland
- Trigger Area

Queensland Government

LOCALITY DIAGRAM





This scale bar is approximate only
Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)
This product is unprojected and is not suitable for measuring distances

This map should only be used to apply policies outlined in the Temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments (SPP for GBR Wetlands).

Information shown on the map includes multiple spatial datasets that define policies stated in the Temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments (SPP for GBR Wetlands). Datasets include wetlands, roads, rail lines and cadastral boundaries.

All datasets are current as at 30 April 2010.

The maps are produced at a scale relevant to the size of the lot on plan identified and should be printed as A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale i.e. property level. For property assessment, digital linework should be used as a guide only.

The Wetlands Regulatory Map is A4 portrait and should be printed at this size.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Resource Management at planning.support@derm.qld.gov.au

© The State of Queensland, 2011

10. Appendix D - Recorded fauna within the study area during field survey

Class	Family	Scientific Name	Common Name	NC Act Status
Birds	Anatidae	*Anas superciliosa*	Pacific Black Duck	C
Birds	Artamidae	*Cracticus tibicen*	Australian Magpie	C
Birds	Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo	C
Birds	Cacatuidae	*Eolophus roseicapillus*	Galah	C
Birds	Charadriidae	*Vanellus mile novaehollandiae*	Masked lapwing	C
Birds	Columbidae	*Geopelia striata*	Peaceful Dove	C
Birds	Corcoracidae	*Struthidea cinerea*	Apostlebird	C
Birds	Corvidae	*Corvus orru*	Torresian Crow	C
Birds	Estrildidae	*Taeniopygia guttata*	Zebra Finch	C
Birds	Falconidae	*Falco cenchroides*	Nankeen Kestrel	C
Birds	Maluridae	*Malurus cyaneus*	Superb Fairy-Wren	C
Birds	Maluridae	*Malurus lemberti*	Variegated Fairy-Wren	C
Birds	Nectariniidae	*Dicaeum hirundinaceum*	Mistletoebird	C
Birds	Pardalotidae	*Pardalotus Striatus*	Striated Pardalote	C
Birds	Pertroicidae	*Microeca fascinans*	Jacky Winter	C
Birds	Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	C

Uncontrolled when printed unless issued and stamped Controlled Copy.

11. Appendix E - Recorded flora within the study area during field survey

Family	Scientific Name	Common Name	NC Act Status
Fabaceae	*Acacia excelsa*	Rosewood	C
Fabaceae	*Acacia harpophylla*	Brigalow	C
Fabaceae	*Acacia pendula*	Weeping Myall	C
Fabaceae	*Acacia salicina*	Cooba	C
Casuarinaceae	*Allocasuarina luehmannii*	Bulloak	C
Myrtaceae	*Angophora leiocarpa*	Smooth Barked Apple	C
Poaceae	*Aristida ramosa*	Purple Wiregrass	C
Poaceae	*Bothriochloa decipiens*	Red Grass	C
Cupressaceae	*Callitris endlicheri*	Black Cypress Pine	C
Cupressaceae	*Callitris glaucophylla*	White Cypress Pine	C
Fabaceae	*Cassia Brewsteri*	Native Ladburnum	C
Casuarinaceae	*Casuarina cristata*	Belah	C
Myrtaceae	*Eucalyptus coolabah*	Coolibah	C
Myrtaceae	*Eucalyptus largiflorens*	Black Box	C
Myrtaceae	*Eucalyptus melanophloia*	Silver-leaved Ironbark	C
Myrtaceae	*Eucalyptus orgadophila*	Mountain Coolibah	C
Myrtaceae	*Eucalyptus woollsiana*		C
Poaceae	*Enteropogon acicularis*	Curly Windmill-grass	C
Myoporaceae	*Eremophila mitchellii*	Budda, False Sandalwood	C
Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Ironbark	C
Myrtaceae	*Eucalyptus populnea*	Bimble Box, Poplar Box	C
Rutaceae	*Geijera parviflora*	Wilga	C
Myrtaceae	*Melaleuca decora*	White Feather Honey Myrtle	C
Poaceae	*Tripogon loliiformis*	Fiveminute Grass	C
Cactaceae	*Opuntia tomentosa*	Velvety Tree Pear	Y

12. Appendix F: Maps

Figure 1: Study Area Overview Rev 0 17/4/2012

Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111_0_Overview.mxd

GIS Section - Unidel

Figure 1
Study area overview

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

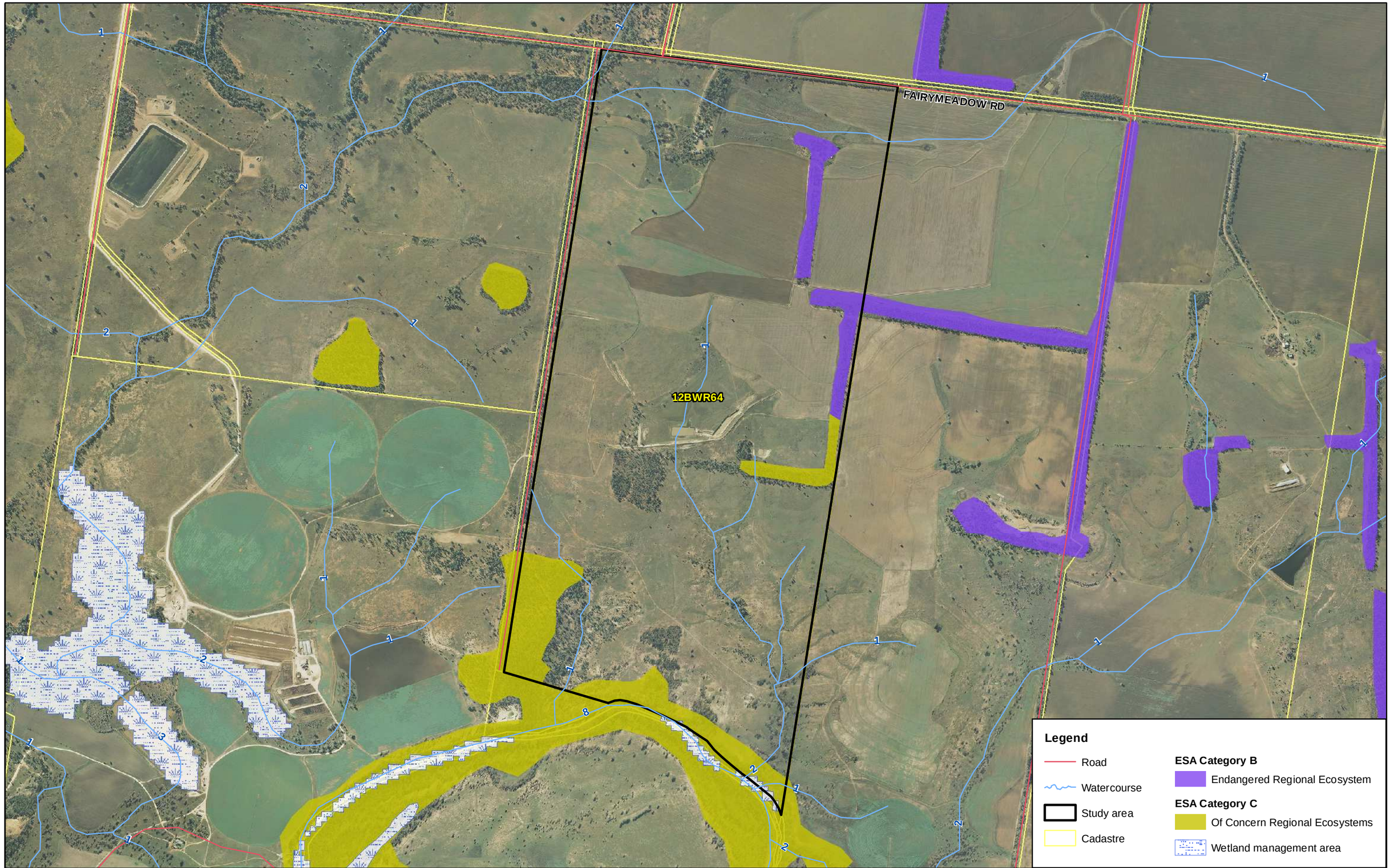
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 2: ESAs mapped by DERM within the study area Rev 0 17/4/2012



Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111\WR_2012_00111_0_ESA.mxd

origin

GIS Section - Unidel

Figure 2
ESAs mapped within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

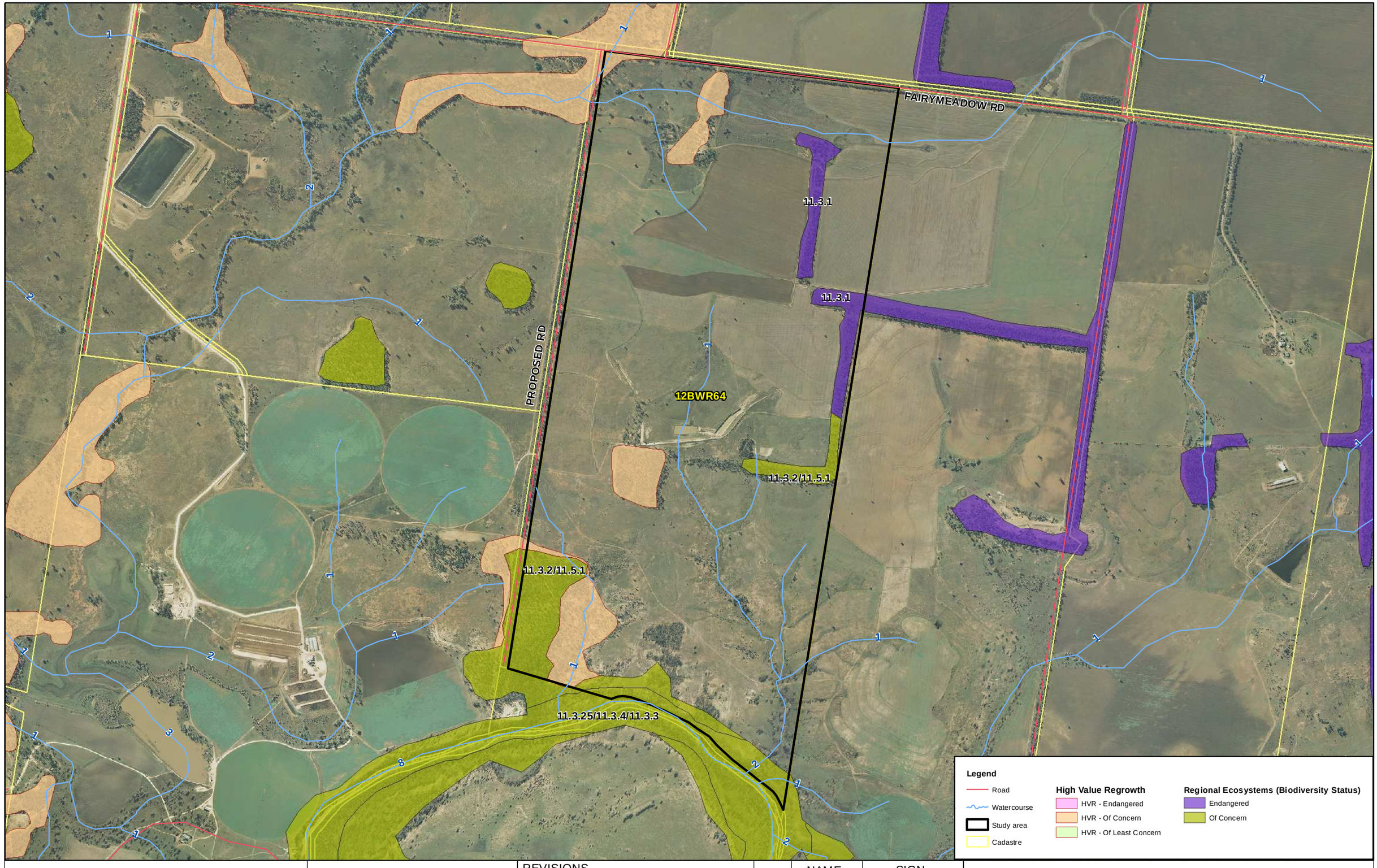
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010
Regional Ecosystems Version 6.1 © State of Queensland (Environmental Protection Agency) 2009

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 3: REs mapped by DERM within the study area Rev 0 17/4/2012



Path: P:\Clients - Projects\Origin Energy\ORI011- Scouting & Preclearance Surveys\GIS\WR_2012_00111\WR_2012_00111_0_RE.mxd

origin

GIS Section - Unidel

Figure 3

REs mapped by DERM within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

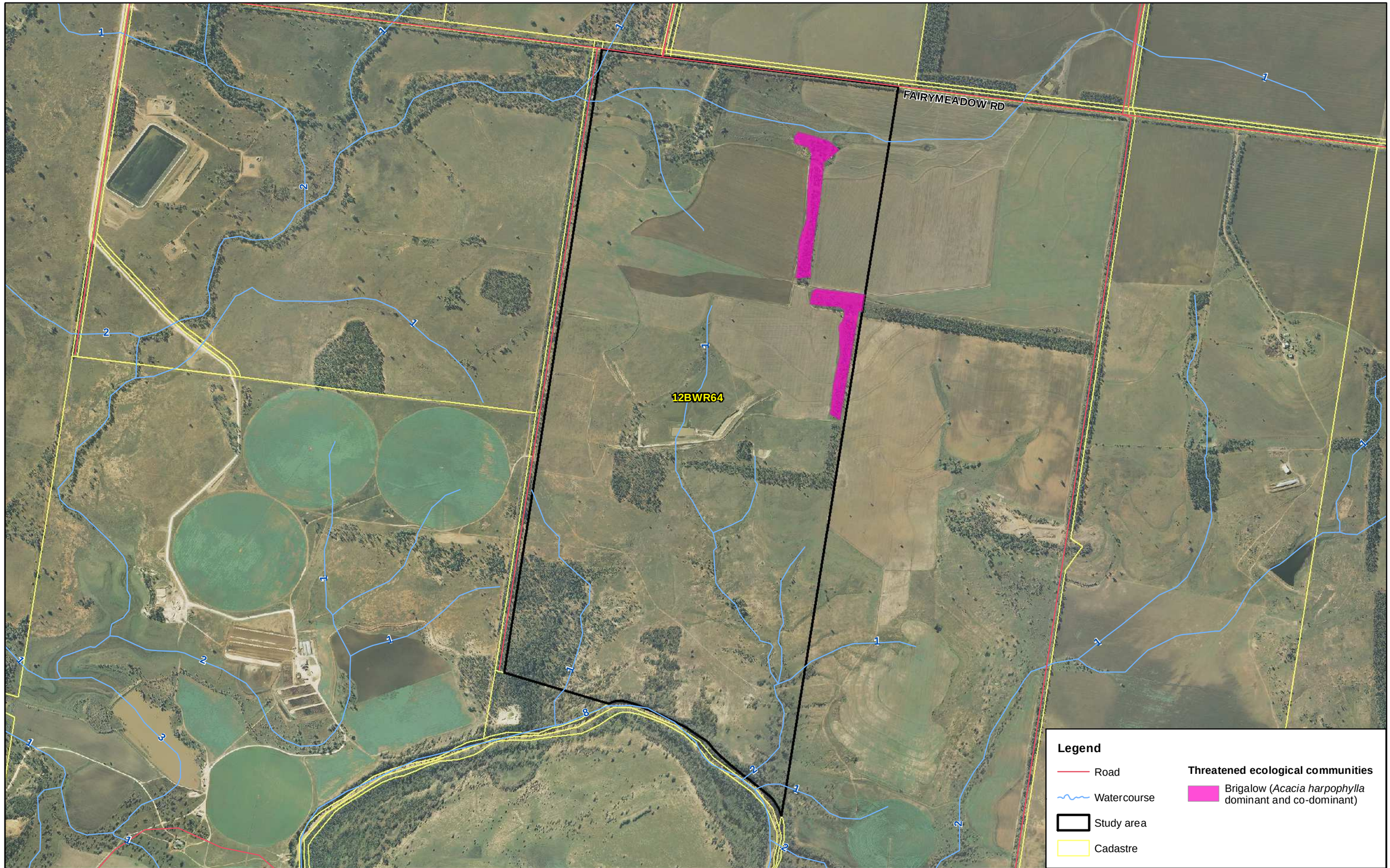
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland (Department of Environment and Resource Management) 2010
Regional Ecosystems Version 6.1 © State of Queensland (Environmental Protection Agency) 2009

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 4: TECs recorded within the study area Rev 0 17/04/2012



Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111WR_2012_00111_0_TEC.mxd

origin

GIS Section - Unidel

Figure 4
Threatened ecological communities within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

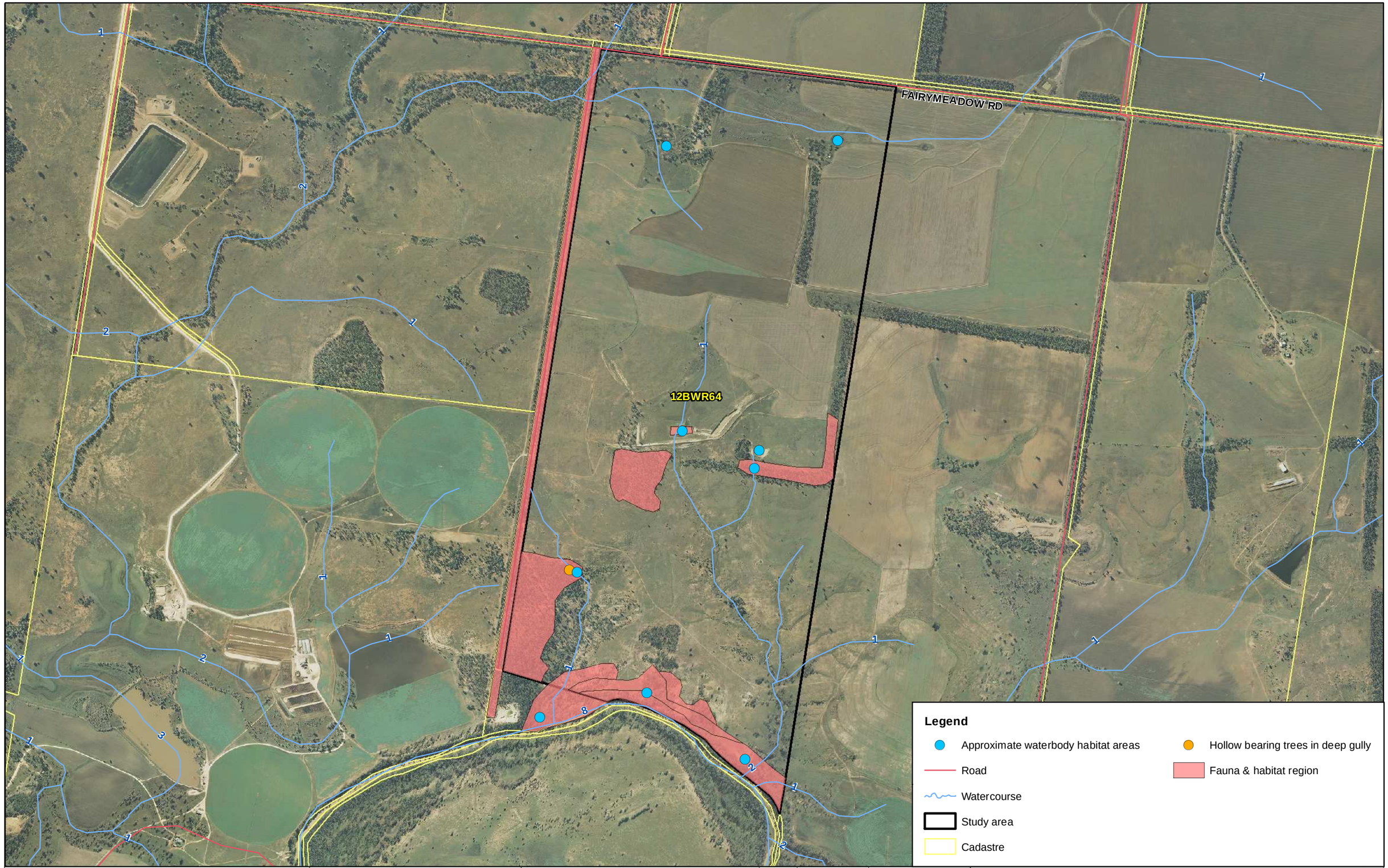
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 5: Fauna habitat features identified within the study area Rev 0 17/4/2012



Legend

- Approximate waterbody habitat areas
- Hollow bearing trees in deep gully
- Road
- Fauna & habitat region
- Watercourse
- Study area
- Cadastre

Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111\WR_2012_00111_0_Fauna.mxd

GIS Section - Unidel

Figure 5
Fauna habitat features identified within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

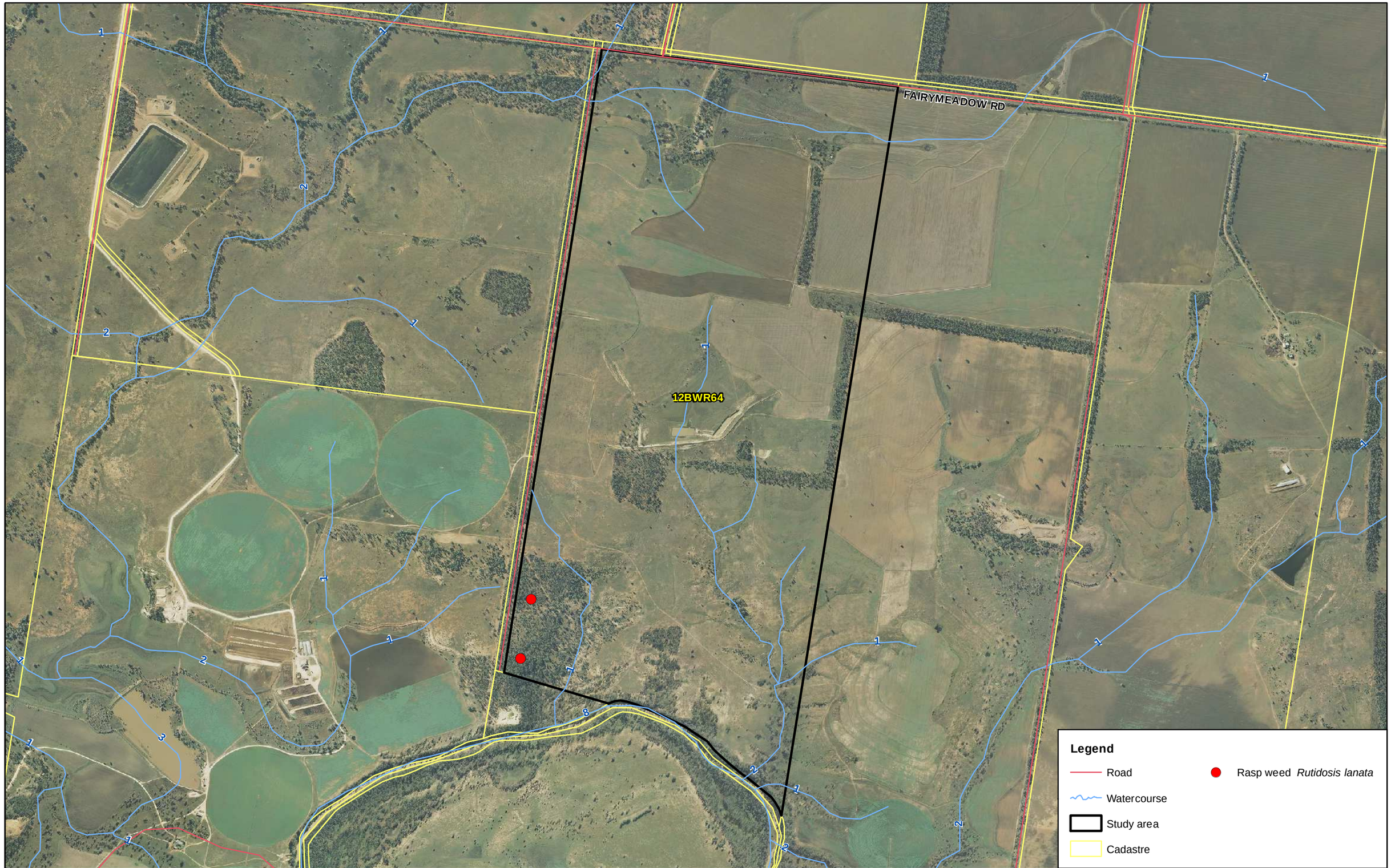
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 6: Location of EVNT within the study area Rev 0 17/4/2012



Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111WR_2012_00111_0_EVNT.mxd

origin

GIS Section - Unidel

Figure 6
Location of EVNT within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

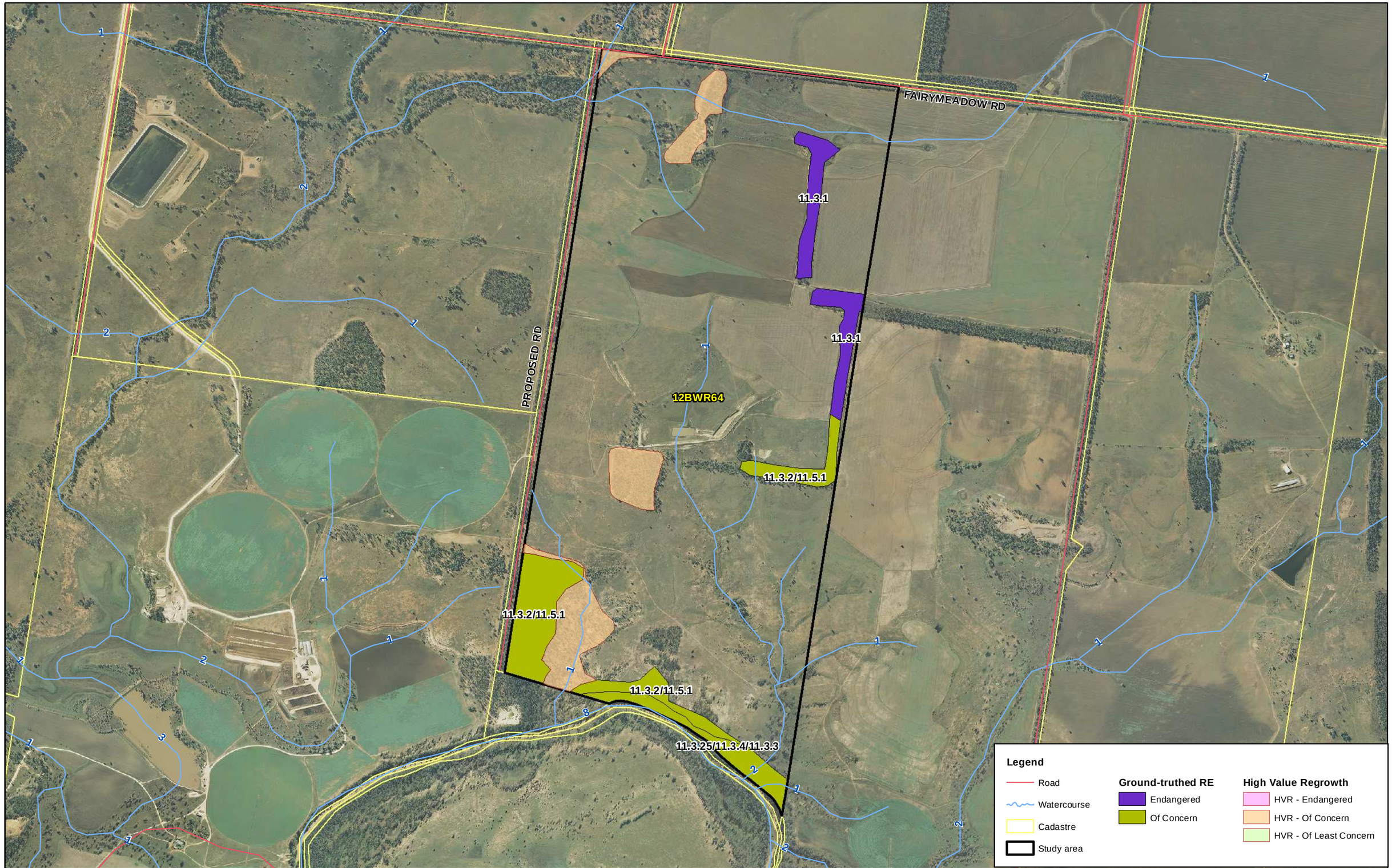
StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

Figure 7: Ground-truthed REs within the study area Rev 0 17/4/2012



Path: P:\Clients - Projects\Origin Energy\OR1011-Scouting & Preclearance Surveys\GIS\WR_2012_00111WR_2012_00111_0_GTRE.mxd

GIS Section - Unidel

Figure 7
Ground-truthed REs within the study area

Date: 17/04/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4500-15-RP-0013

REVISIONS		
A	Issued for review	22/03/2012
0	Issued for use	17/04/2012
REV	DESCRIPTION	DATE

	NAME	SIGN.
DRAWN	KS	
CHECK	JB	
QA	RC	
APP		

N

Location Indictive and subject to change

StreetPro Australia © Pitney Bowes Business Insight (PSMA Australia Ltd and Department of Health and Ageing) 2009
Queensland DCDB © State of Queensland (Department of Environment and Natural Resources) 2010
Ordered Drainage 100K - Queensland © State of Queensland
(Department of Environment and Resource Management) 2010
Regional Ecosystems Version 6.1 © State of Queensland (Environmental Protection Agency) 2009

0 90 180 360 540 720

(A3) GCS GDA 1994 Metres 1:18,000

Unidel Group Pty Ltd does not guarantee the accuracy or completeness of the map and does not make any warranty about the data.
Unidel Group Pty Ltd is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.