BHSLE EIS

Anglo Coal (Callide Management) Pty Ltd

21 May 2012

# Boundary Hill South Lease Extension Project

## Initial Advice Statement

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Initial Advice Statement

Prepared for

Anglo Coal (Callide Management) Pty Ltd

Prepared by

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# Quality Information

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Prepared by Tim Graffen

Reviewed by Andrew Walsh

Revision History

| Revision | Revision Date | Details | Authorised | |
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| A | 26-Apr-2012 | Final Copy | Andrew Walsh Project Manager | Original previously signed |
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# 1.0 Introduction

Anglo Coal (Callide Management) Pty Ltd operates the Callide Mine, which is located in the Callide Basin of Central Queensland, approximately 20 km northeast of the rural town of Biloela and 85 km south west of the port of Gladstone (refer Figure 1). Callide Mine consists of four existing pits: Dunn Creek; The Hut; Trap Gully; and the Boundary Hill pit, which is located 20 km to the north of Dunn Creek operations. Coal production from the Callide Mine is currently 10 million tonnes per annum and the majority of the coal is used for domestic power generation in the Queensland market.

The existing Boundary Hill operation has a limited life span with resources expected to be exhausted by 2014. The successful approval and construction of the Boundary Hill South Lease Extension (BHSLE) project on Mining Lease Application (MLA) 80121, before 2014, will allow the mine to continue to provide resources that support long term secured contracts with the Callide and Gladstone Power Stations.

## 1.1 The Proponent

Boundary Hill Mine is an open cut mine managed by Anglo Coal (Callide Management) Pty Ltd, a wholly owned subsidiary of Anglo American. The mine lease extension will be managed as part of the existing Callide Mine.

## 1.2 Project Need

The BHSLE project will allow Anglo Coal (Callide Management) Pty Ltd to extend current mining activities at the Boundary Hill Mine and will allow Anglo Coal (Callide Management) Pty Ltd to continue providing coal to the Callide and Gladstone Power Stations. Anglo Coal (Callide Management) Pty Ltd is also a significant regional employer and plays an important role in supporting community events and assisting with the provision of local services.

## 1.3 Legislative Framework

**State**

The development and construction of the existing Boundary Hill operation was subject to an EIS and was approved under the and the *Environmental Protection Act 1994* (EP Act). The mine is licensed to operate under the conditions of both a Mining Lease (ML) and an Environmental Authority (EA).

Approval for the BHSLE project is being sought under the voluntary EIS provisions of the *Environmental Protection Act 1994* (EP Act) and *Mineral Resources Act 1989* (MR Act). It is the intention to proceed with the application, following agreement with the Queensland Department of Environment and Heritage Protection, as a compliant Level 1 mining project for which an EIS is required under the EP Act.

**Commonwealth**

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was lodged in 2007 for the (original) proposed Boundary Hill South Extension. Since then, the proposed lease expansion area has been altered as there was doubt over the ability of the previous application to effectively mitigate the blasting impact from the mine on the nearby Kilburnie Homestead.

An EPBC referral for the BHSLE project was lodged on 16 March 2012 as Commonwealth database searches indicate that the project may impact on some matters of national environmental significance. The new referral conforms to the boundaries as identified on Figure 3.

It has been identified that the project area has the potential to contain habitat for the Northern Quoll (*Dasyurus hallucatus*). Preliminary surveys have not been able to rule out the presence of the species in the area. Therefore further detailed ecological studies will be required. It is intended, following agreement and approval from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) to proceed with the EIS as a ‘controlled action’.

# 2.0 Project Description

## 2.1 Project Location

The BHSLE project is situated approximately 20 km north of Biloela in Central Queensland, approximately 85 km south west of Gladstone and 117 km south of Rockhampton. MLA 80121 will be amended to incorporate the currently proposed BHSLE project area (Figure 2).

The BHSLE project is located immediately to the south and east of the existing Boundary Hill operation, within the Banana Shire Council local government area. The Boundary Hill operation is located over Mining Leases (ML) 5655 and 6994. The BHSLE project is located on MLA 80121.

The project is proposed to be carried out on land described as: Part Lot 1 SP231268; Part Lot 94 RN1524; Lot 134 RN417; Lot 1 SP231268; Part Lot 170 FTY1843; Part Lot TR170 FTY1843 – Timber Reserve; and Lot 122 SP108702.

To the north east of the BHSLE there is an existing Timber Reserve (TR170 on plan FTY1843) which is identified on the Queensland Government's interactive mapping as 'potential State Forest'. The southern limit of the proposed mining operations is located approximately 1.2 km to the north of the Kilburnie Homestead on Argoon Road in the Leichhardt Pastoral District, Biloela. The closest pastoral homestead to the west is approximately 2 km from the proposed mining lease.

## 2.2 Mining Operations

The current Boundary Hill pit is mined using open cut mining techniques. Overburden is removed by a BE 1350 walking dragline supported by a hydraulic excavator and truck pre-strip fleet. A hydraulic excavator is used to load coal into rear dump trucks for transport to an in-pit crusher. The coal is either stockpiled at an in-pit run-of-mine (ROM) stockpile or crushed and screened at the Boundary Hill Coal Handling Plant (CHP) area. The crushed coal is then conveyed to a screening and secondary crusher plant. Coal is sold as an unwashed product, and therefore no tailings are generated.

This method will continue to be used for the BHSLE project with minimal changes required to the current infrastructure. The additional activities associated with the BHSLE will include:

- Development of open cut mining operations in the extension area;
- Construction of a haul road north from the extension open cut pit to facilitate transport of overburden for backfilling into the existing Boundary Hill residual void;
- Construction of a new overburden dump area to the west of the area to be mined;
- A conveyor to the CHP, located approximately 3 km to the north; and
- Minor additional mine infrastructure.

The BHSLE comprises an area of approximately 1,069 ha, of which approximately 317 ha will be subject to disturbance associated with the mining operations including pits and spoil dumps (Figure 3).

## 2.3 Project Infrastructure Requirements

The significant infrastructure in the Boundary Hill South area is a conveyor and crushing system that runs from the pit to the rail loadout at Boundary Hill. Various haul roads will be located throughout the area, as well as a main power line that runs to the east of the pit and down towards the southern pits.

# 3.0 Community and Statutory Consultation

A Stakeholder and Community Engagement Strategy will be developed for the BHSLE project based on engagement activities undertaken at Callide Mine to date and building on existing stakeholder databases. Key stakeholder groups include:

- Mine Workforce (employees) and their families;
- Regular contractors and service providers;
- Near neighbours and adjacent landholders;
- Traditional Owners;
- Banana Shire Council;
- Customers;
- Regulators;
- Government organisations, services and institutions; and
- Local community and business groups.

The engagement strategy will incorporate the three elements discussed below.

### 3.1.1 Community Engagement

An underpinning strategy for community and stakeholder engagement will be to ensure that existing information is not requested repeatedly, but is instead retained for validation and gap analysis based on interaction and engagement with the community and stakeholders.

### 3.1.2 Stakeholder Negotiation

From previous stakeholder negotiation and engagement activities, it is understood that the community at Boundary Hill have long standing and predominately positive relationships with Anglo Coal (Callide Management) Pty Ltd and staff involved in the Boundary Hill operation.

There is an existing sensitivity to dust, noise and vibration impacts resulting in the need to respectfully continue the engagement process with a number of potentially impacted properties. This includes the Stewart's historical Kilburnie Homestead and other nearby property owners.

A key challenge for the engagement strategy for the BHSLE project will be developing an approach that facilitates community and stakeholder understanding of the proposed changes to the operation.

### 3.1.3 Government Agency Liaison

Proactive and effective engagement in the early phases of the project will be a critical success factor. The mechanisms and activities for this engagement will be tailored to ensure the needs of all parties are identified and considered.

# 4.0 Existing Environment

## 4.1 Land Systems

### 4.1.1 Land Use

The land use in the region is predominantly cattle grazing on native and improved pastures, however mining is also a significant use in the region. The town of Biloela is located approximately 20 km south of the project site, with scattered rural homesteads in the surrounding hinterland. A state timber reserve is located on the proposed expansion lease expansion boundary in the north east.

During the EIS process, a detailed land use analysis, including identification of existing tenures and zoning overlays, will be undertaken.

### 4.1.2 Topography and Geology

**Regional Geology**

The Boundary Hill operation is located within the Callide Basin, which trends north west to south east. The Callide Basin is approximately 22 km long and 8 km wide. During the tertiary period the Callide Basin sequence was tilted to the south west resulting in the eastern margins being exposed and eroded and the western margins being subsequently buried under tertiary sediments of the Biloela Basin. Volcanic activity accompanied the tilting and basalt flows blanket much of the eastern part of the Basin. Basalt dykes and stocks intruded the Callide coal measures at Boundary Hill.

**Local Geology**

The Callide Coal Measures are the primary coal measures of economic significance at the Boundary Hill operation. These have been correlated with the Triassic Ipswich Coal Measures. The unit consists of up to 180 m of conglomerate, sandstones, carbonaceous siltstones, carbonaceous shales and seams of sub-bituminous thermal coal. It occurs as thick pods (up to 23 m) of coal separated laterally and characterised by a large amount of seam splitting and deterioration in which the seam thicknesses are often around 4 m.

## 4.2 Climate

The Biloela region experiences warm, dry winters and hot summers, which is typical of the seasonal climate for east central Queensland. The temperature range varies from average daily July minimum temperatures of 5.1°C to average daily January maximum temperatures of 33.3°C. Annual mean rainfall in the region is approximately 700 mm, with the majority of the rainfall occurring in the summer months.

Annual rainfall at Callide Mine is approximately 650 mm. A pronounced wet season is apparent with highest average monthly rainfalls occurring between December and February and lowest between June and September. The highest maximum daily temperatures (31°C - 33°C) occur between December and February, and the lowest maximum daily temperatures (20°C - 25°C) occur between June and August.

Prevailing winds are east and south-east between January and April, moving to the south and south-east between May and August, then north and north-east from September to December. Average daily wind speed varies between 2 and 2.7 m/s through the year.

## 4.3 Hydrology

**Surface Water**

The Boundary Hill operation is located in the Callide Creek Valley. The southern and central portions of ML5655 drain westward via Gate Creek to Callide Creek, whereas the northern portion and the entire area of ML6994 drain five kilometres northward to Bell Creek and subsequently to Callide Creek. The project will drain south west into Callide Creek via two main drainage features.

**Groundwater**

The Callide Valley Groundwater Management Area (GMA) includes Callide Creek and its tributary streams and covers an area of approximately 3,100 $km^2$. Groundwater in the Callide Valley GMA is obtained from unconsolidated Quaternary alluvium. Groundwater usage in the Callide Creek catchment commenced in the

1920's and is predominantly used for irrigation. The Callide Mine also uses some groundwater for their operations.

Callide Mine has a network of groundwater monitoring bores which are used to detect changes in the groundwater surrounding the mine. Presently, the Environmental Management Plan for the mine incorporates the bore data. Annual reviews enable early detection of potential contamination.

## 4.4 Ecology

### 4.4.1 Flora

A search of the EPBC Protected Matters Tool identified four threatened ecological communities (TEC), listed as 'endangered', in the vicinity of the BHSLE project area:

- Brigalow (*Acacia harpophylla* dominant and co-dominant);
- Coolabah – Blackbox Woodlands of the Brigalow Belt South Bioregion;
- Semi-evergreen vine thickets of the Briglow Belt and Nandewar Bioregions; and
- Weeping Myall Woodlands.

#### 4.4.1.1 EPBC Threatened Ecological Communities

The EPBC Protected Matters Search listed four TECs, listed as 'endangered', that may occur in the vicinity of the project area as shown below (Table 4-1). Regional Ecosystems (RE's) that align with TECs are not mapped as occurring within the BHSLE area. Identified RE's within the BHSLE area include 11.9.9, 11.9.13 and 11.10.1. Therefore the two TEC's are not expected to occur within the BHSLE footprint.

**Table 4-1Threatened Ecological Communities**

| Threatened Ecological Community | RE's that align with the ecological community | Mapped RE's in the BHSLE |
|---|---|---|
| **Brigalow (*Acacia harpophylla* dominant and co-dominant)** | 6.4.2, 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14, 11.12.21, 12.8.23, 12.9-10.6, 12.12.26 | 11.9.9<br>11.9.13<br>11.10.1 |
| **Coolabah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions** | 11.3.3, 11.3.15, 11.3.16, 11.3.25, 11.3.27 | |
| **Semi-evergreen vine thickets of the Brigalow Belt and Nandewar Bioregions** | 11.3.11, 11.4.1, 11.8.13, 11.11.18, 11.2.3, 11.9.4 | |
| **Weeping Myall Woodland** | 11.3.2, 11.3.28 | |

#### 4.4.1.2 Threatened Flora

The EBPC Protected Matters Report identified five EPBC threatened species (3 vulnerable, 2 endangered) that are likely to occur or have habitat that occurs in the BHSLE area (Table 4-2).

**Table 4-2 Threatened Flora Species**

| Scientific Name | Common Name | Status | Preferred Habitat | Likelihood of occurring |
|---|---|---|---|---|
| ***Cycas megacarpa*** | | Endangered | Woodland or open woodland dominated by eucalypts | Possible |
| ***Bulbophyllum globuliforme*** | Miniature Moss Orchid | Vulnerable | The species grows only on Hoop Pines (Araucaria cunninghamii), colonising the upper branches of mature trees in upland rainforest | Unlikely |

| Scientific Name | Common Name | Status | Preferred Habitat | Likelihood of occurring |
|---|---|---|---|---|
| ***Cossinia australiana*** | Cossinia | Endangered | Patches of Araucarian vineforests or vine thickets on fertile soils in central and southern Queensland | Possible |
| ***Poliantion minutiflorum*** | | Vulnerable | Forest and woodland on sandstone slopes and gullies with skeletal soil, or deeper soils adjacent to deeply weathered laterite | Unlikely |
| ***Quassia bidwillii*** | Quassia | Vulnerable | Rainforest or on rainforest margins, open forest and woodland areas adjacent to both temporary and permanent watercourses | Unlikely |

The presence of Threatened flora species on site will be further investigated as part of ecological assessments undertaken during the EIS process.

The Wildlife Online search of listed species protected under the *Nature Conservation Act 1994* identified three plant species as occurring with a 3 km radius of central point -24.228S, 150.511E:

- *Deeringia amaranthoides* (Least Concern);
- *Harpullia pendula* (Least Concern); and
- *Cossinia australiana* (Endangered).

#### 4.4.1.3 State Significant Vegetation

Mapped vegetation of state significance identified in Figure 4 includes:

- Remnant Regional Ecosystems (Table 4-3);
- Essential Habitat; and
- High Value Regrowth Vegetation.

**Table 4-3 RE's Represented in the Study Area**

| Regional Ecosystems | Short Description | VM Act Status |
|---|---|---|
| **11.9.9** | *Eucalyptus crebra* woodland on fine-grained sedimentary rocks | Least Concern |
| **11.9.13** | *Eucalyptus moluccana* or *E. macrocarpa* open forest on fine grained sedimentary rocks | Of Concern |
| **11.10.1** | *Corymbia citriodora* open forest on coarse-grained sedimentary rocks | Least Concern |

### 4.4.2 Fauna

No endangered terrestrial fauna were recorded on the existing Boundary Hill operations area during the 1998 terrestrial fauna survey. The EPBC Protected Matters Report lists 15 threatened (12 vulnerable, 3 endangered) species that have habitat that is likely or may occur within the BHSLE area (Table 4-4).

**Table 4-4 Threatened Fauna**

| Scientific Name | Common name | Status | Preferred Habitat | Likelihood of occurring |
|---|---|---|---|---|
| ***Erythrotriorchis radiatus*** | Red Goshawk | Vulnerable | Tall open Eucalypt forests | Possible |
| ***Geophaps scripta scripta*** | Squatter Pigeon | Vulnerable | Grassy Woodlands and Open Forests | Possible |
| ***Neochmia ruficauda ruficauda*** | Star Finch | Endangered | Damp grasslands, sedgelands or grassy woodlands near permanent water or areas of regular inundation | Unlikely |
| ***Peophila cincta cincta*** | Black-throated Finch | Endangered | Woodland savannah and riverine vegetation | Unlikely |
| ***Rostratula australis*** | Australian Painted Snipe | Vulnerable | Usually found in shallow inland wetlands, either freshwater or brackish, and often the wetlands are of a type that is temporarily or infrequently filled. | Unlikely |
| ***Turnix melanogaster*** | Black-breasted Button Quail | Vulnerable | Inhabit fragments of microphyll and notophyll vine forest, thickets and coastal scrubs | Unlikely |
| ***Chalinolobus dwyeri*** | Large-eared Pied Bat | Vulnerable | Frequenting low to mid-elevation dry open forest and woodland close to Roosts in caves (near their entrances), crevices in cliffs, old mine workings | Unlikely |
| ***Nyctophilus timoriensis*** | Greater Long-eared Bat | Vulnerable | Common in box/ironbark/cypress-pine vegetation | Possible |
| ***Dasyurus hallucatus*** | Northern Quoll | Endangered | Preferred habitat consists of rocky escarpment, open forest and open woodland | Possible* |
| ***Hipposideros semoni*** | Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat | Endangered | Found in tropical rainforest, monsoon forest, wet sclerophyll forest and open savannah woodlands. No obligatory requirements for cave roost, the species will roost in tree hollows, shallow cave and fissures. | Possible |
| ***Delma torquata*** | Collared Delma | Vulnerable | Eucalypt dominated woodland and open forest where it is associated with suitable micro-habitats (exposed rocky outcrops) | Possible |
| ***Denisonia maculata*** | Ornamental Snake | Vulnerable | Riparian woodland and open forest on sandy and clay soils | Possible |
| ***Egernia rugosa*** | Yakka Skink | Vulnerable | Usually found in open dry sclerophyll forest or woodland. | Possible |
| ***Furina dunmalli*** | Dunmall's Snake | Vulnerable | Open forest and woodland, particularly brigalow (*Acacia harpophylla*) forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils | Possible |
| ***Paradelma orientalis*** | Brigalow Scaly-foot | Vulnerable | Found on sandstone ridges in woodlands and vine thickets, and in open forests and woodlands, especially Ironbark, Cypress | Possible |

| Scientific Name | Common name | Status | Preferred Habitat | Likelihood of occurring |
|---|---|---|---|---|
| | | | Pine, Brigalow, Bull Oak, Spotted Gum and vine scrubs | |
| ***Rheodytes leukops*** | Fitzroy River Turtle | Vulnerable | Rivers with large deep pools with rocky, gravelly or sandy substrates, connected by shallow riffles. | Unlikely |

*Initial site reconnaissance surveys were based on EPBC Act 1999 referral guidelines for the endangered northern quoll, *Dasyurus hallucatus* (2011). Methods employed included hair trapping, camera surveys, habitat surveys and scat analysis. Surveys have not turned up any evidence of northern quolls within the proposed expansion area. However, habitat might still be suitable for northern quolls. As part of the EIS process, more detailed fauna surveys will be undertaken in order to quantify habitat aspects further. Results of the Preliminary Survey are shown in Appendix A.

A wildlife online search for protected species listed under the *Nature Conservation Act 1994* identified no protected fauna species as being present within a 3 km radius of -24.228S, 150.511E.

The presence of Threatened fauna species on site will be further investigated as part of ecological assessments undertaken during the EIS process.

## 4.5 Noise and Vibration

The surrounding area is predominantly rural farmland used for cattle grazing on native and some improved pasture. The nearest sensitive receptors are summarised in Table 4-5.

**Table 4-5 Summary of Noise Sensitive Receptors**

| Sensitive Receptor | Direction from Proposed Mine Lease | Approximate Distance from Mine Lease |
|---|---|---|
| **Kilburnie Homestead** | South | 1.2 km |
| **Taperoo Homestead** | West | 1.2 km |
| **Stormaway Homestead** | North-west | 5 km |
| **Brennan's Homestead** | South-west | 5 km |

At present, open cut mining operations are not planned to advance within 1.2 km of Kilburnie Homestead. A noise bund may be established at the southern end of the pit to reduce the impact of noise from the mining operations on Kilburnie Homestead.

Detailed noise investigations will be undertaken during the EIS to enable a more intensive assessment of potential nuisance at surrounding sensitive receptors.

## 4.6 Air Quality

Emissions from the BHSLE area that may impact on air quality include:

- Dust from the operation of earthmoving equipment (draglines, shovels and loaders);
- Dust from movement of mobile equipment;
- Dust from coal processing facility and stockpiles;
- Dust from exposed spoil and other disturbed land; and
- Dust from the use of explosives.

The BHSLE will be required to meet air quality standards for occupational health and safety, and the EP Act, including the *Environmental Protection (Air) Policy 2008*. Where required, mitigation strategies will be developed based on the results of the detailed Air Quality studies undertaken as part of the EIS process.

## 4.7 Cultural Heritage

Previous cultural heritage work has been undertaken in the Boundary Hill operational area and historical information gathered for the broader area as part of the original EIS process. Existing information on Indigenous and historic cultural heritage will be reviewed and more up to date information gathered as part of the BHSLE project EIS process

South of the BHSLE project boundary is Kilburnie Homestead, a building of historical significance. The BHSLE project boundary has been revised to ensure minimal impact on that homestead. Mitigation measures will be developed to minimise any residual impact on the historic heritage of that homestead.

## 4.8 Traffic and Transport

It is anticipated that transportation related impacts resulting from the BHSLE project will be limited to operational and previously disturbed areas. It has not yet been determined whether coal will be hauled via truck from the project to the CHP or conveyed. Once this is determined the impacts will be fully assessed during the EIS process. Product coal is transported off lease by rail.

## 4.9 Socio-economics

Anglo Coal (Callide Management) Pty Ltd's mining operations are a major employer in the Biloela region. Community consultation undertaken by the mine in 2008/2009 identified key socio-economic issues, some of which may be associated with or attributable to the operations:

- Housing and Accommodation
  - High rental prices
  - Increased cost of houses
- Environmental
  - Water management
  - Dust and noise
  - Weed control
  - Global Warming
- Health and Infrastructure
  - Unavailability of medical doctors and dentists
  - Long waiting period to get doctor's appointments
- Employment
  - Not enough local employment
- Education
  - Few options of secondary school
  - Need a private secondary school
  - Promotion of TAFE/tertiary education
  - Current childcare facilities insufficient
- Social and Community
  - Information to community members
  - Recreational activities for youth and kids
  - Teenage alcohol and drug abuse
  - Inability to attend social events due to shift work
  - Few social events involving mine

- Have to drive out of town for entertainment
- Assistance to local *i*ndigenous people with skills training and employment opportunities

- Economic issues
  - High food prices
  - More shops needed in Biloela

The economic impact of coal mines and associated infrastructure produce a range of economic benefits such as revenue from saleable coal and employment. Where a coal mine employs a large number or people from a particular community, as is the case in Biloela, there is often input from the mine back into community events.

A Social Impact Assessment (SIA) will be completed in accordance with the *Sustainable Resource Communities Policy* released by the Queensland Government in 2008. This Policy follows on from the S*ustainable Futures Framework for Queensland Mining Towns (2007)* and builds on the key principles of leadership, collaboration, corporate responsibility, sustainability, communication and community engagement. The SIA will describe the potential impacts on the existing social environment and practical measures for protecting or enhancing social values.

## 4.10 Waste

Waste generation at the BHSLE project is limited as the proposed expansion will incorporate existing infrastructure to export coal. As there is no washing of coal on-site there are no tailings produced. The expansion area will incorporate a new spoil dump which will be located to the west of the new pit. Disposal of scrap tyres will be in accordance with the existing Waste Management Plan, which will be amended to incorporate the new lease area.

## 4.11 Environmental Management Plan

After having identified the environmental issues that could arise as a consequence of the proposed development, detailed mitigation measures will be developed and presented in an Environmental Management Plan (EMP), developed during the EIS process, to ensure that environmental values are protected. The EMP will incorporate mitigation measures already included and implemented as part of the EMP for the existing Boundary Hill operations and conditions issued as part of the Environmental Authority pursuant to the EP Act.

Appendix A

# Figures

# BOUNDARY HILL SOUTH LEASE EXPANSION (BHSLE)

## Regional Location

Figure 01


**Legend**

- Highway
- Main Road
- Railway Line

N

Scale: 1:1,000,000 (when printed at A3)

0 25 50

Kilometers

| | |
|---|---|
| PROJECT ID | 60238883 |
| LAST MODIFIED | CFS 21-Feb-2012 |
| FILE NAME | 60238883_ENV_009 |

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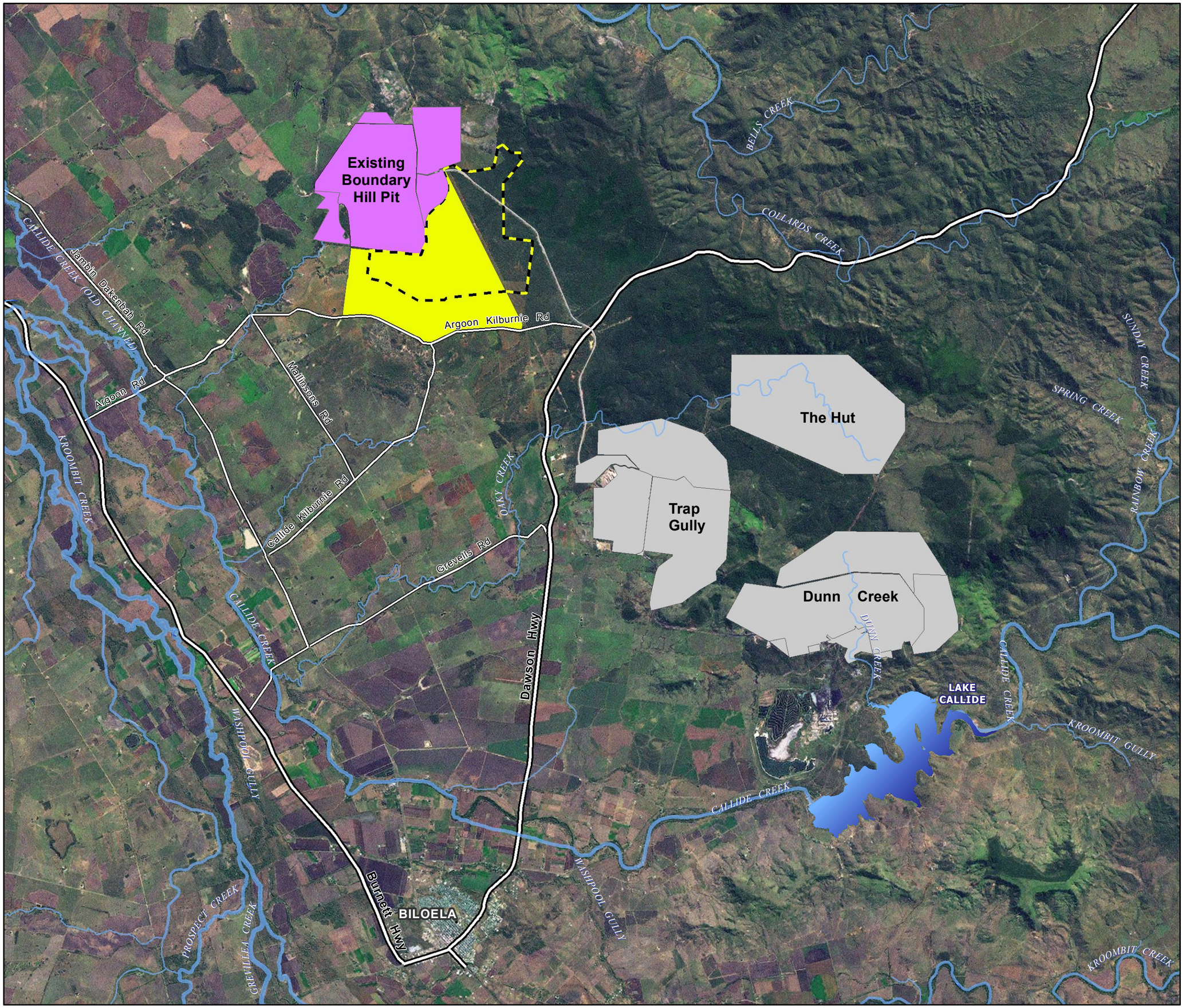
# BOUNDARY HILL SOUTH LEASE EXPANSION (BHSLE)

## Location Map




**Legend**

- highway
- Local Road
- Callide Southern Mine Area Boundaries
- Existing Boundary Hill Pit
- 2007 MLA
- Proposed BHSLE 2012 MLA

N

Scale: 1:100,000 (when printed at A3)

0 1,000 2,000 4,000

Metres

PROJECT ID 60238883

LAST MODIFIED CFS 21-Feb-2012

FILE NAME 60238883_ENV_003

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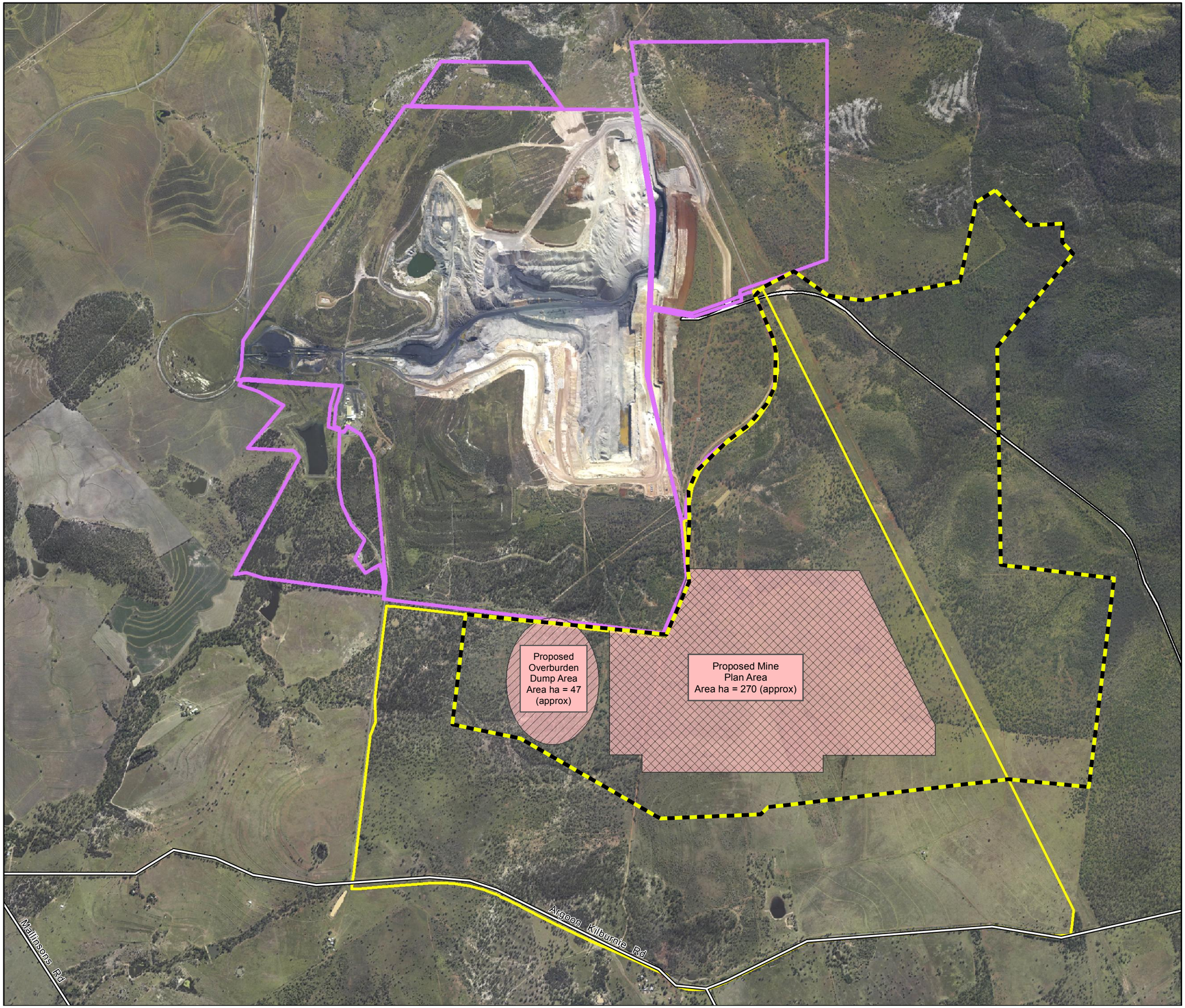
# BOUNDARY HILL SOUTH LEASE EXPANSION (BHSLE)

## Proposed Disturbed Land

**Figure 03**




**Legend**

- Highway
- Local Road
- Existing Boundary Hill Pit
- 2007 MLA
- Proposed BHSLE 2012 MLA

N

Scale: 1:25,000 (when printed at A3)

0 250 500 1,000

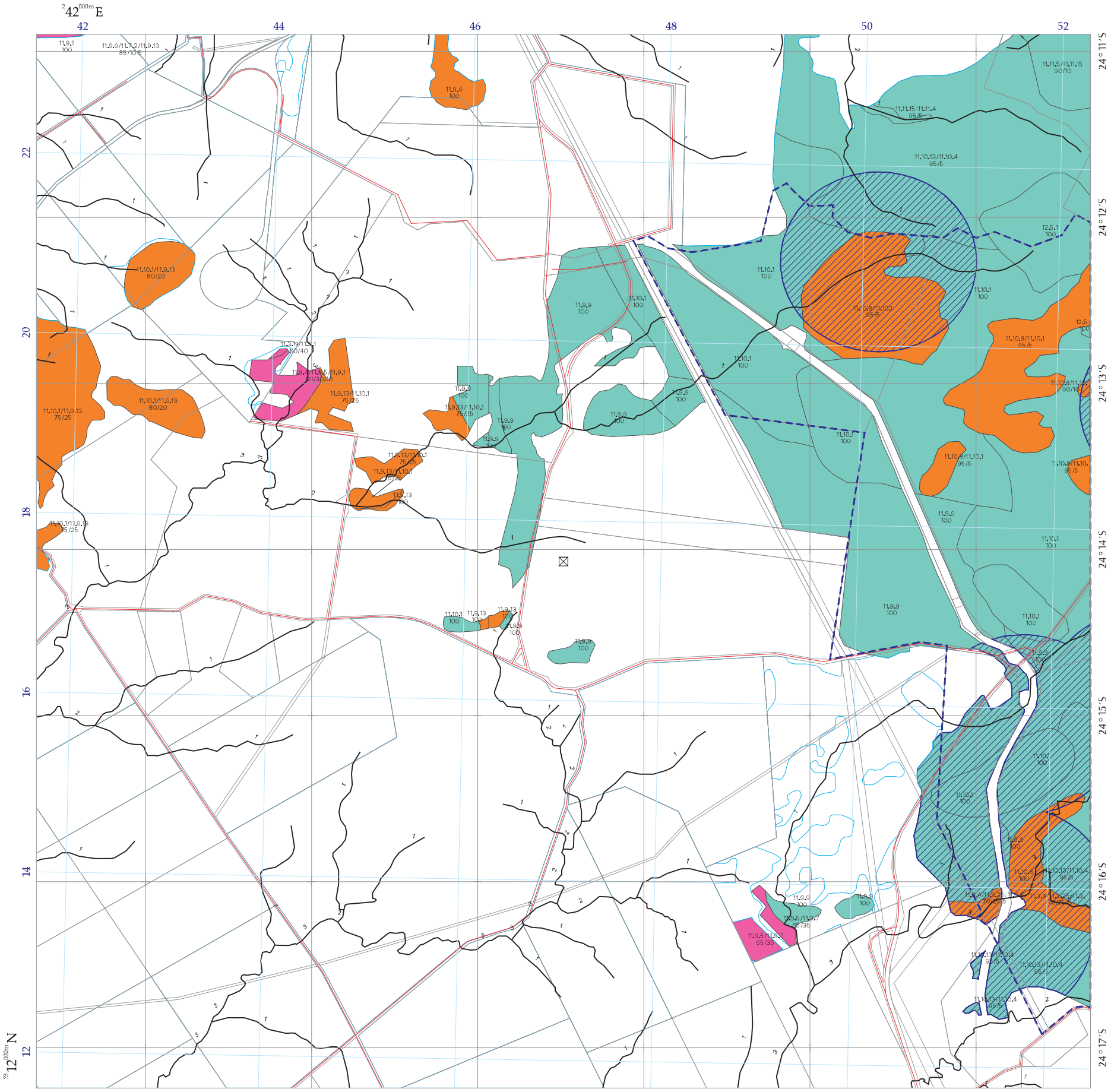
Metres

PROJECT ID 60238883

LAST MODIFIED CFS 21-Feb-2012

FILE NAME 60238883_ENV_007

AECOM




# Vegetation Management Act Regional Ecosystem and Remnant Map-Version 6.1

Based on 2006 Landsat TM imagery

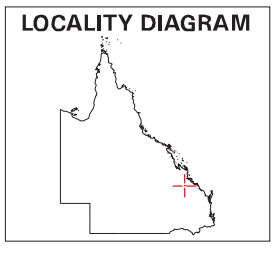
Requested By: TIM.GRAFFEN@AECOM.COM
Date: 09 Mar 12 Time: 16.26.26

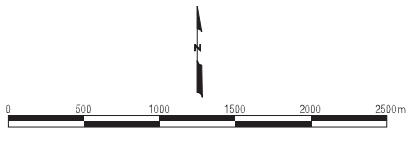
Centered on Coordinate:
Latitude: -24.2345 Longitude: 150.5086 (decimal degrees)
Bioregion: Brigalow Belt

- Remnant vegetation containing endangered regional ecosystems
- Remnant vegetation containing of concern regional ecosystems
- Remnant vegetation that is a least concern regional ecosystem
- Remnant vegetation under Section 20AH of the VMA
- Non-remnant
- Plantation Forest
- Dam or Reservoir
- Remnant Vegetation
- PMAV Category X area
- Great Barrier Reef Wetlands
- Vegetation Management Act Essential Habitat
  For further information on VMA Essential Habitat, please see the attached VMA Essential Habitat map.
- Subject Lot
- Watercourse (Stream order shown as black number against stream where available)
- Bioregion boundary
- Roads
  © Pitney Bowes Business Insight 2012
- National Park, Conservation Area State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only.
- Towns
- Coordinate entered

Queensland Government

LOCALITY DIAGRAM






A remnant map covers areas not covered by a regional ecosystem map.

Defined map areas are labelled with the regional ecosystem (RE) code along with the percentage breakdown if more than one RE occurs within the area. Detailed definitions of regional ecosystems are available from www.derm.qld.gov.au/REDD. Defined map areas smaller than 5ha may not be labelled.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/-100 metres. The extent of remnant regional ecosystems as of 2006, depicted on this map is based on rectified 2006 Landsat TM imagery (supplied by the Statewide Landcover and Trees Study (SLATS), Department of Environment and Resource Management (DERM)).

Some watercourse lines are derived from GeoScience Australia 1:250 000 mapping.

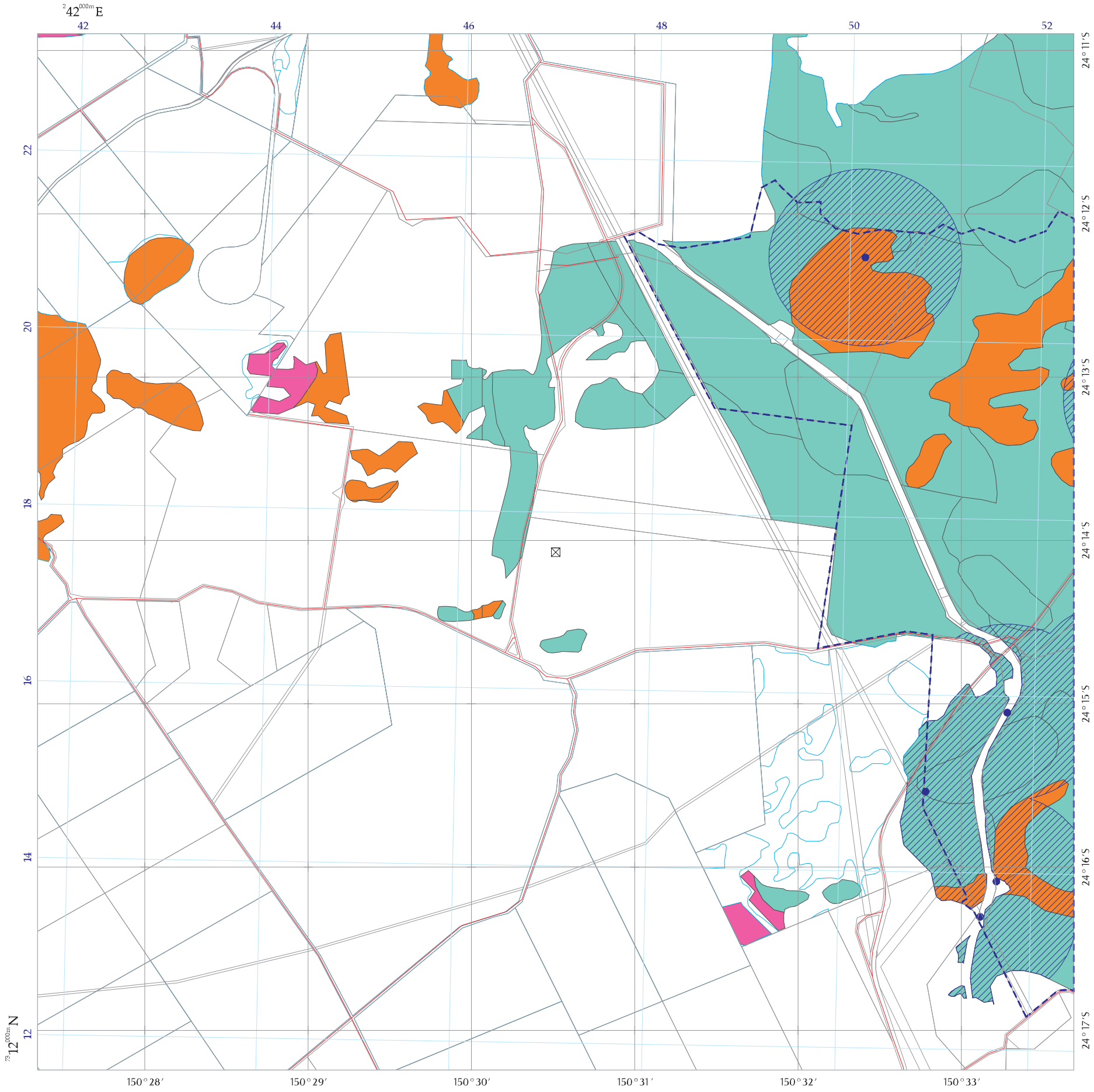
Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Environment and Resource Management and MapInfo Australia Pty Ltd, makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims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

All datasets are updated as they become available to provide the most current information as of the date shown on this map.

Additional information is required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.derm.qld.gov.au/vegetation or contact the Department of Environment and Resource Management.

Digital regional ecosystem data is available in shapefile format, for Lot on Plans from www.derm.qld.gov.au/REDATA or from DERM for larger areas.

Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)




# Vegetation Management Act Essential Habitat Map Version 3.1

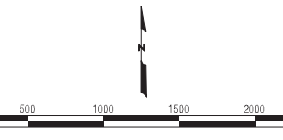
- Remnant vegetation containing endangered regional ecosystems
- Remnant vegetation containing of concern regional ecosystems
- Remnant vegetation that is a least concern regional ecosystem
- Remnant vegetation under Section 20AH of the VMA
- Non-remnant
- Plantation Forest
- Dam or Reservoir
- Remnant Vegetation
- PMAV Category X area
- Vegetation Management Act Essential Habitat
- Vegetation Management Act Essential Habitat Species Records
- Subject Lot
- Roads
  © Pitney Bowes Business Insight 2012
- National Park, Conservation Area State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only.
- Towns
- ⊠ Coordinate entered

Requested By: TIM.GRAFFEN@AECOM.COM
Date: 09 Mar 12 Time: 16.26.28

Centered on Coordinate:
Latitude: -24.2345 Longitude: 150.5086 (decimal degrees)

Queensland Government

LOCALITY DIAGRAM






Labels for the Vegetation Management Act Essential Habitat are centred on the subject lot (1.1km surrounding and including a Lot on Plan). Labels correlate to the label field in the attached essential habitat database.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/-100 metres. The extent of remnant regional ecosystems as of 2006, depicted on this map is based on rectified 2006 Landsat TM imagery (supplied by SLATS, Department of Environment and Resource Management).

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Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)