



LEGEND

-  Koala (*Phascolarctos cinereus*) Habitat
-  Site Outline

SOURCE:
Habitat - James Warren & Associates Pty Ltd
Aerial - Michel Group Services (Ref: 6400-197.dwg)
- photo taken March 2010

0 500m
SCALE: 1 : 12 500 @ A3

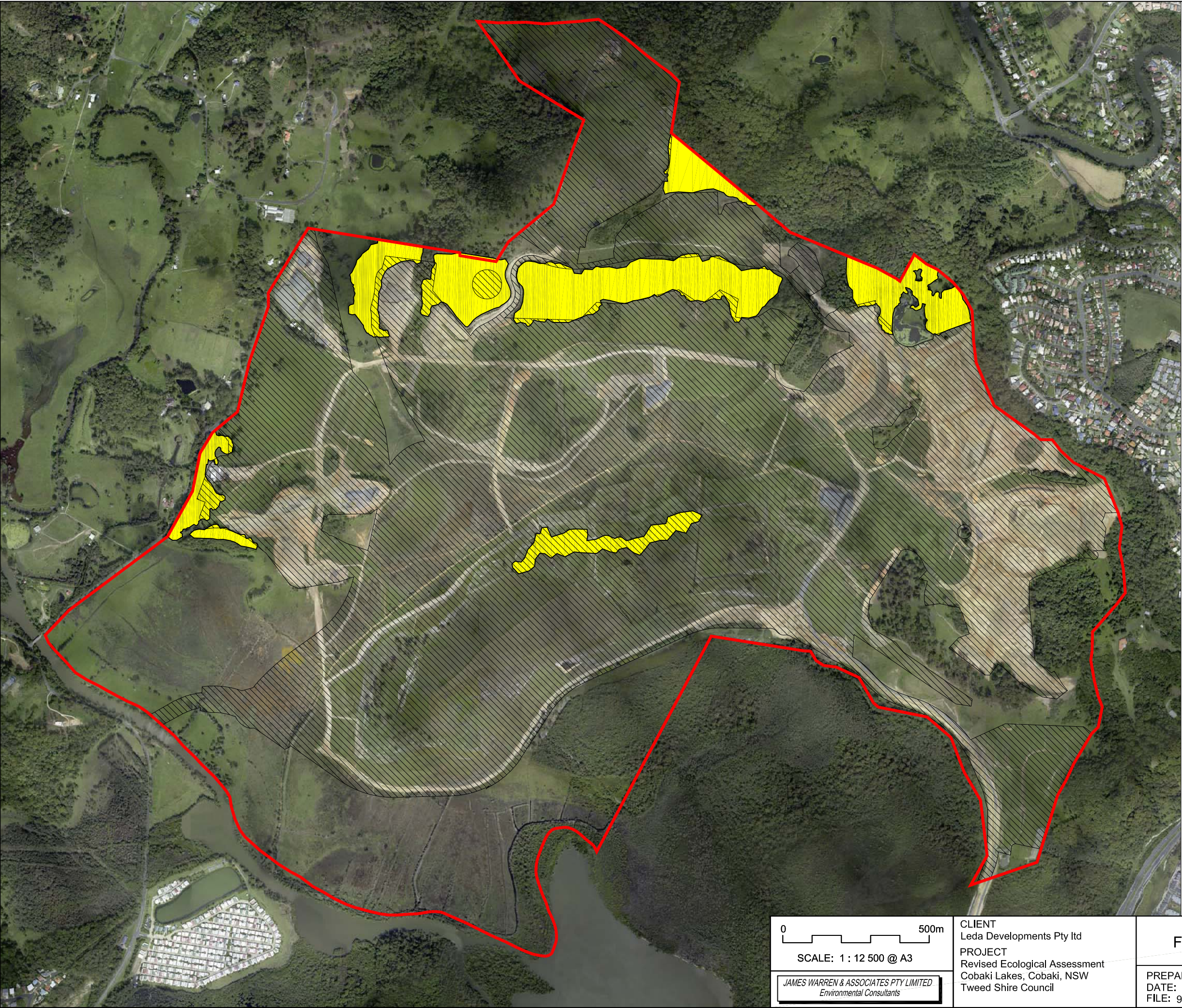
JAMES WARREN & ASSOCIATES PTY LIMITED
Environmental Consultants

CLIENT
Leda Developments Pty Ltd
PROJECT
Revised Ecological Assessment
Cobaki Lakes, Cobaki, NSW
Tweed Shire Council

FIGURE 20

PREPARED: BW
DATE: 30 June 2010
FILE: 97038_EA_Base.dwg

TITLE
IDENTIFIED
KOALA HABITAT
(JWA 2008)



LEGEND

Koala (*Phascolarctos cinereus*) Habitat

Proposed Development Areas

Site Outline

SOURCE:
Habitat - James Warren & Associates Pty Ltd
Impact Area - Design Forum Architects
(Ref: DA 01.01 E Master Plan.dwg)
Aerial - Michel Group Services (Ref: 6400-197.dwg)
- photo taken March 2010

0 500m
SCALE: 1 : 12 500 @ A3

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FIGURE 21
PREPARED: BW
DATE: 05 April 2013
FILE: 97038_EA_Base.dwg

TITLE
IMPACT ON
IDENTIFIED
KOALA HABITAT
(JWA 2008)

TABLE 4
POTENTIAL LOSS OF KOALA HABITAT
RESULTING FROM THE PROPOSED DEVELOPMENT

| Community | TOTAL AREA (ha) | Area to be Removed (ha) | Area to be Removed (%) |
|--------------|-----------------|-------------------------|------------------------|
| 1a | 31.84 | 3.65 | 11.46% |
| 1d | 2.58 | 0.75 | 29.07% |
| 6 | 3.80 | 3.80 | 100% |
| 7 | 4.19 | 3.60 | 85.92% |
| TOTAL | 42.63ha | 11.80ha | 27.68% |

In total, 11.80 hectares of suitable Koala habitat (27.68% of the total available habitat) may potentially be lost from the Subject site. All potential Koala habitat to be removed occurs within portions of the site with existing development approval.

The most recent Koala survey (December 2007) failed to record recent Koala activity on the Subject site. The Swamp mahogany and Scribbly gum communities (communities 6 & 7) on the Subject site occur as isolated stands of trees, which are likely to be relatively inaccessible to Koalas residing in the locality.

4.2.5.4 Proposed Amelioration Measures

The majority of potential Koala habitat on the Subject site will be retained. A total of 30.76 hectares of suitable Koala habitat (72.2% of available habitat) is proposed to be retained. This bushland will be retained within Environmental Protection Areas as well as Open Space areas throughout the development envelope.

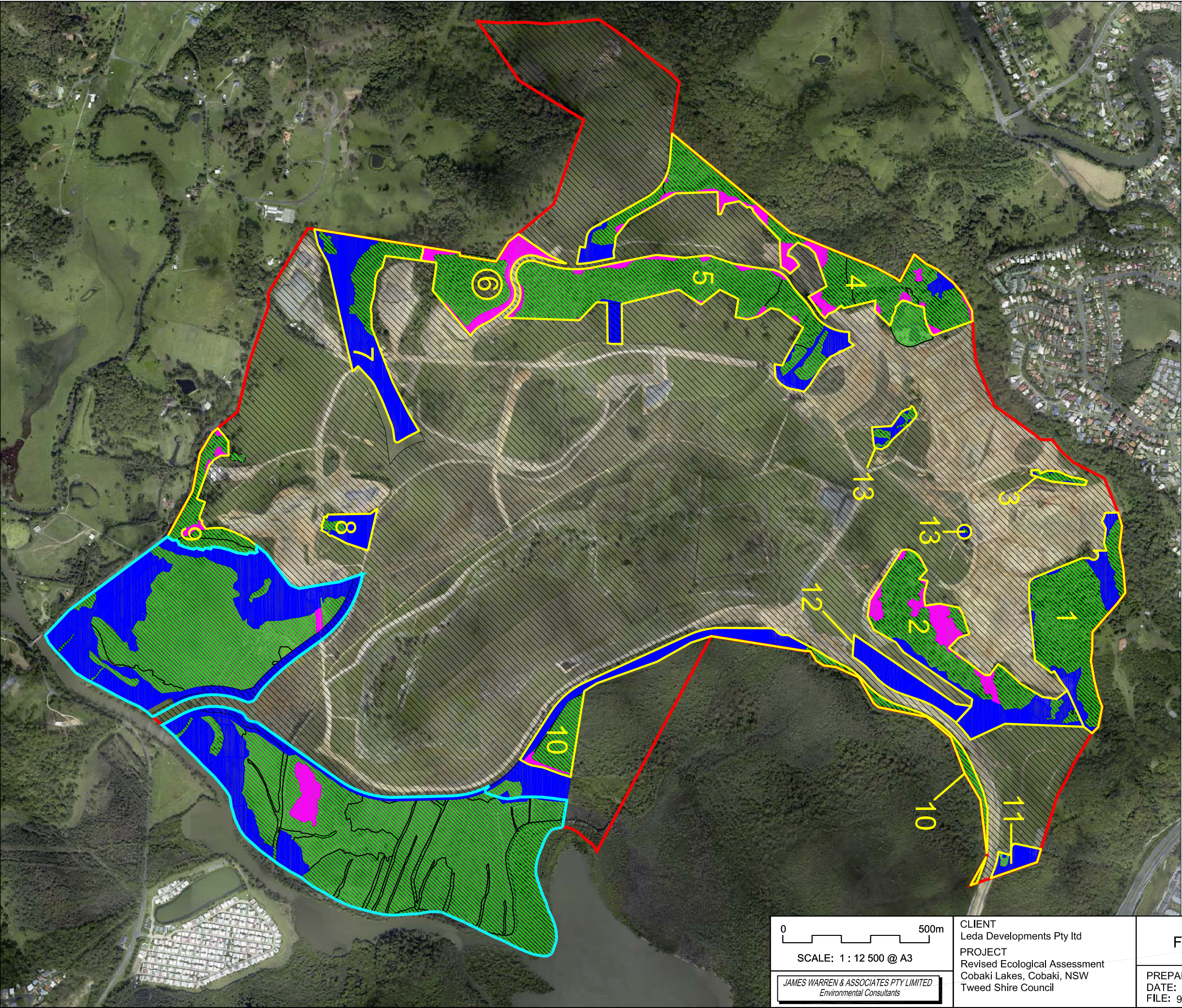
Additionally, 60.76ha of revegetation/regeneration works on the Subject site (**FIGURE 22**) will increase the area of available habitat in the long-term and provide vegetated linkages through the landscape.

4.2.6 *Threatened species and their habitats*

4.2.6.1 Introduction

Several species of flora and fauna listed as threatened species under the *Threatened Species Conservation Act* (1995), as well as several Endangered Ecological Communities, occur on the Cobaki lakes site or are considered possible or likely occurrences. Loss of habitat for Threatened species and losses of EEC's have been calculated as the possible maximum loss based on the concept plan. However, there may be opportunities to retain Threatened species and/or their habitat, and EEC's within the proposed development footprint and this will be the subject of a detailed assessment at the Development Application stage.

7-part tests have also been completed for all Threatened flora and fauna species as well as Endangered Ecological Communities in accordance with the *Threatened Species Conservation Amendment Act 2002*. These 7-part tests are provided in a separate Revised Assessment of Significance report (JWA 2013c).



LEGEND

- Proposed Revegetation Areas
- Proposed Natural Regeneration Areas
- Retained Vegetation
- Proposed Development Areas
- Rehabilitation & Management Precincts
- Salt Marsh Rehabilitation Area
- Site Outline

SOURCE:
Regen/Reveg - James Warren & Associates Pty Ltd
Impact Area - Design Forum Architects
(Ref: DA 01.01 E Master Plan.dwg)
Aerial - Michel Group Services (Ref: 6400-197.dwg)
- photo taken March 2010

0 500m
SCALE: 1 : 12 500 @ A3

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FIGURE 22

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TITLE
REGENERATION
& REVEGETATION
AREAS

4.2.6.2 Threatened flora

Eight (8) listed flora species have been recorded on the Subject site. Threatened flora recorded includes the following species:

- White yiel yiel (*Grevillea hilliana*) - Endangered (TSC Act 1995);
- Scented acronychia (*Acronychia littoralis*) - Endangered (TSC Act 1995 & EPBC Act 1999);
- Fine-leaved tuckeroo (*Lepiderema pulchella*) - Vulnerable (TSC Act 1995);
- Spiny gardenia (*Randia moorei*) - Endangered (TSC Act 1995 & EPBC Act 1999);
- Marblewood (*Acacia bakeri*) - Vulnerable (TSC Act 1995);
- Brush cassia (*Cassia brewsteri* var. *marksiana*) - Endangered (TSC Act 1995);
- Coolamon (*Syzygium moorei*) - Vulnerable (TSC Act 1995, EPBCA 1999); and
- Green-leaved rose walnut (*Endiandra muelleri* subsp. *bracteata*) - Endangered (TSC Act 1995).

The locations of these species are shown in **FIGURES 23, 23a, 23b & 23c**.

An additional five (5) Threatened species have been recorded during surveys on adjacent land, including:

- White lace flower (*Archidendron hendersonii*) - Vulnerable (TSC Act 1995);
- Stinking cryptocarya (*Cryptocarya foetida*) - Vulnerable (TSC Act 1995 & EPBC Act 1999);
- Pink nodding orchid (*Geodorum densiflorum*) - Endangered (TSC Act 1995);
- Rough-shelled bush-nut (*Macadamia tetraphylla*) - Vulnerable (TSC Act 1995 & EPBC Act 1999); and
- Swamp orchid (*Phaius australis*) - Endangered (TSC Act 1995 & EPBC Act 1999).

The known locations of Threatened flora species adjacent to the Subject site are shown in **FIGURE 24**.

Suitable habitat for Threatened flora to be removed from the Subject site occurs within existing 2(c) zoned land (i.e. Urban Expansion), land proposed to be rezoned as 2(c), or land that may otherwise be cleared in accordance with existing use rights.

A summary of impacts on the habitat for each species recorded on and adjacent to the Subject site is provided in **TABLE 5**.

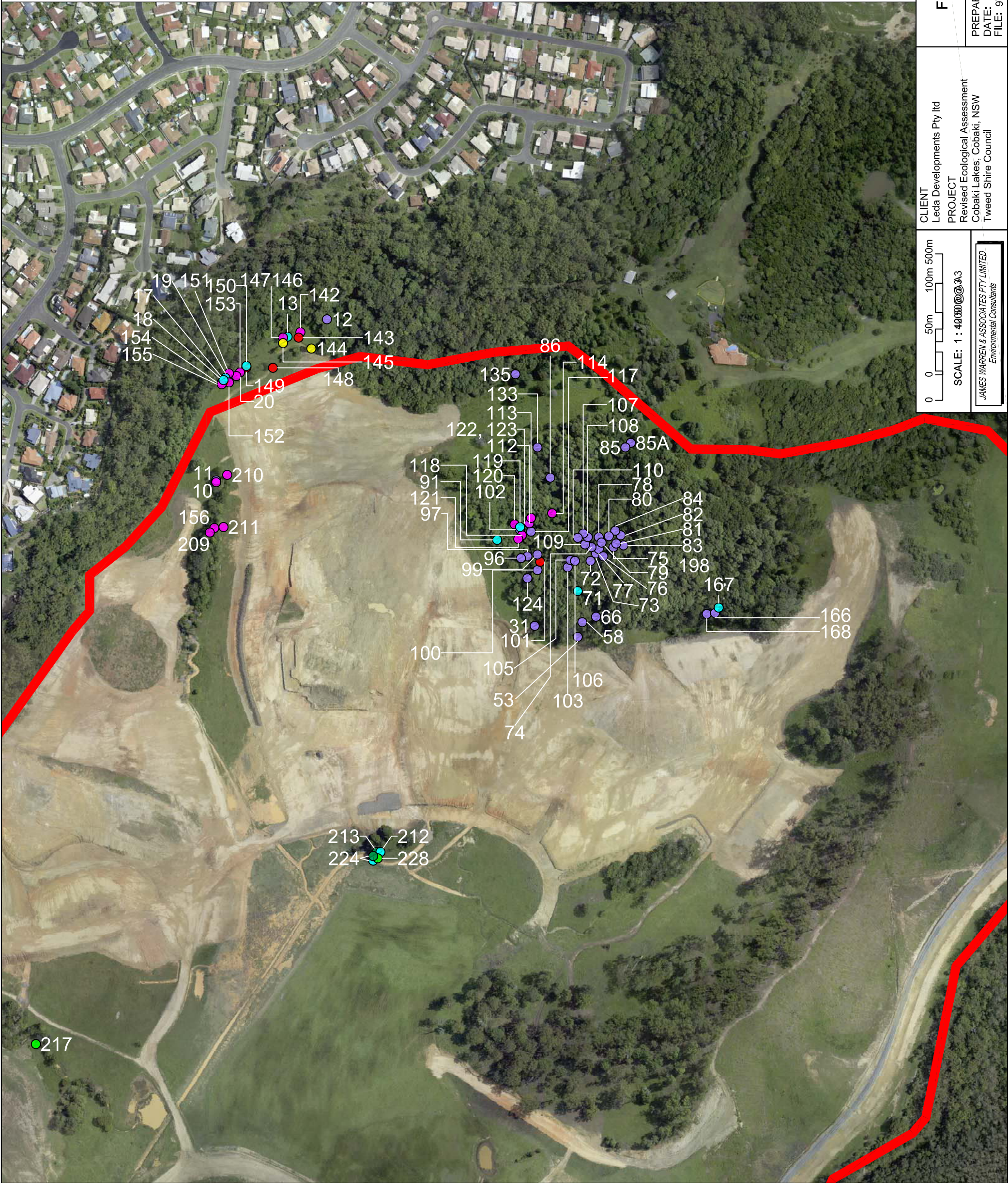


LEGEND

- Marblewood (*Acacia bakeri*)
- Fine-leaved tuckeroo (*Lepiderema pulchella*)
- Spiny gardenia (*Randia moorei*)
- Y'iel yiel (*Grevillea hilliana*)
- Coolamon (*Syzygium moorei*)
- Brush cassia (*Cassia brewsteri* var. *marksiana*)
- Scented acronychia (*Acronychia littoralis*)
- Green-leaved rose walnut (*Endiandra muelleri* subsp. *bracteata*)
- Site Outline

SOURCE:
Flora - James Warren & Associates Pty Ltd
June/July 2004, July 2006, July/Sept 2007 & Feb 2008
Aerial - Michel Group Services (Ref: 6400-197.dwg)
- photo taken March 2010

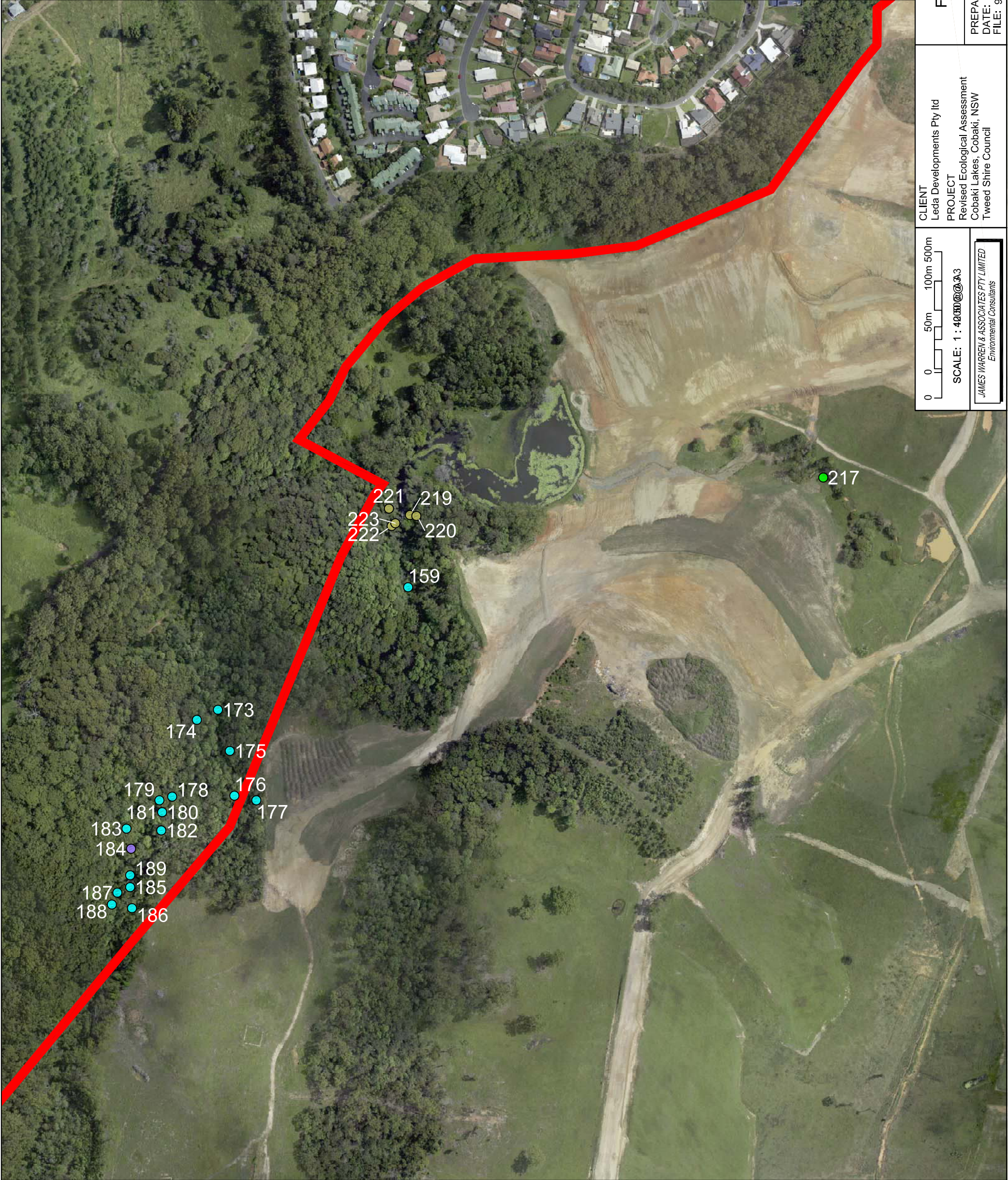
| | | | |
|--|--|--|---|
| TITLE | | LOCATION OF THREATENED FLORA | |
| CLIENT Leda Developments Pty Ltd | | FIGURE 23 | PREPARED: BW DATE: 30 June 2010 FILE: 97038_EA_Base.dwg |
| PROJECT Revised Ecological Assessment Cobaki Lakes, Cobaki, NSW Tweed Shire Council | | | |
| 0 500m | | SCALE: 1 : 12 500 @ A3 | |
| | | JAMES WARREN & ASSOCIATES PTY LIMITED Environmental Consultants | |



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| | | | | |
|--|--|--|--|--|
| <div>0050m100m500m</div> <div>SCALE: 1 : 4000 @ A3</div> <div><div>JAMES WARREN & ASSOCIATES PTY LIMITED</div><div>Environmental Consultants</div></div> | | <div>CLIENT</div> <div>Leda Developments Pty Ltd</div> <div>PROJECT</div> <div>Revised Ecological Assessment</div> <div>Cobaki Lakes, Cobaki, NSW</div> <div>Tweed Shire Council</div> | <div>FIGURE 23B</div> | <div>TITLE</div> <div>LOCATION OF THREATENED FLORA</div> |
| | | | <div>PREPARED: BW</div> <div>DATE: 30 June 2010</div> <div>FILE: 97038_EA_Base.dwg</div> | |



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- photo taken March 2010

0050m100m500m

SCALE: 1 : 4000 @ A3

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FIGURE 23C
PREPARED: BW
DATE: 30 June 2010
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TITLE
LOCATION OF
THREATENED
FLORA