



# **Vegetation Clearing Plan**

**Hunter Economic Zone**

**WIPS Management Industrial  
Development**

**Prepared for:  
WIPS Management**

**Reference 23403 – December 2007**



HARPER  
SOMERS  
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PLANNING ▸ SURVEYING ▸ ECOLOGY

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|                                                                      |                 |
|----------------------------------------------------------------------|-----------------|
| Project: Vegetation Clearing Plan for WIPS Management within the HEZ |                 |
| Client:                                                              | WIPS Management |
| Our Ref.                                                             | 23403           |
| Date:                                                                | December 2007   |
| Approved by:                                                         | S. Bishop       |
| Signature:                                                           |                 |
| Checked by:                                                          | T. Lambert      |
| Signature:                                                           |                 |

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# 1 INTRODUCTION

RPS Harper Somers O'Sullivan Pty Ltd (RPS HSO) acts on behalf of the landowners, HEZ Nominees Pty Ltd ATF the HEZ Unit Trust (HEZ Nominees), in submitting a development application to clear a portion of land for the proposed WIPS Management Industrial Development within the 'Hunter Economic Zone' (HEZ).

## 1.1 Scope and Purpose

The proposal is for vegetation clearing to occur within the site to allow establishment of the WIPS Management site. This Vegetation Clearing Plan (VCP) has been prepared to ensure that the proposed vegetation clearing of the site is undertaken and managed in such a manner that considers the following issues:

- ecological features within the site;
- the process that vegetation clearing will be undertaken;
- erosion sediment control measures that may need to be implemented during and after clearing;
- stormwater retention; and
- rehabilitation measures

# 2 ECOLOGICAL FEATURES

## Flora

Operations will involve the removal of vegetation over an area of the subject site, totalling approximately 5.2ha of vegetation, consisting of LHSGIF. Some native vegetation will be retained within a 10m vegetated buffer along the southwestern boundary, a vegetated buffer along the eastern boundary with an average width of 10m and a 5m buffer along the northern boundary. The total area of existing vegetation to be retained is approximately 0.48ha. An additional 0.18ha of the area proposed for retention is currently cleared/regenerating due to the past construction of the HEZ Spine Road. Approximately 0.74ha of the site will be dedicated to landscaping, including a detention basin approximately 0.12ha. It is expected that 36 keystone mature trees, consisting of approximately 15 hollow bearing trees will be removed. In addition to this 13 hollow bearing trees are also expected to be removed. Several mature trees, including hollow bearing trees have been proposed to be retained, within the areas set aside as buffers and protection for *G. parviflora* ssp. *parviflora*.

The southeastern retained vegetation has been set aside principally for the purpose of retaining individuals of the threatened species *Grevillea parviflora* ssp. *parviflora*.

## Fauna

A total of 239 vertebrate fauna taxa have been recorded within the HEZ Study Area to date, including 28 threatened species. The subject site occurs as a relatively small component of the wider HEZ Study Area and the fauna species known to occur on the site are considered to be typical of the habitats present.

Threatened fauna species that have been recorded in the immediate vicinity of the site (within 0.5km) include Grey-crowned Babbler, Black-chinned Honeyeater, Brown Treecreeper and Yellow-bellied Glider. Squirrel Glider and Powerful Owl have been recorded within 2km of the subject site. These species, and others for which potential habitat exists on the site, have been addressed in Appendix A – Seven-Part Tests of the Flora and Fauna Assessment.

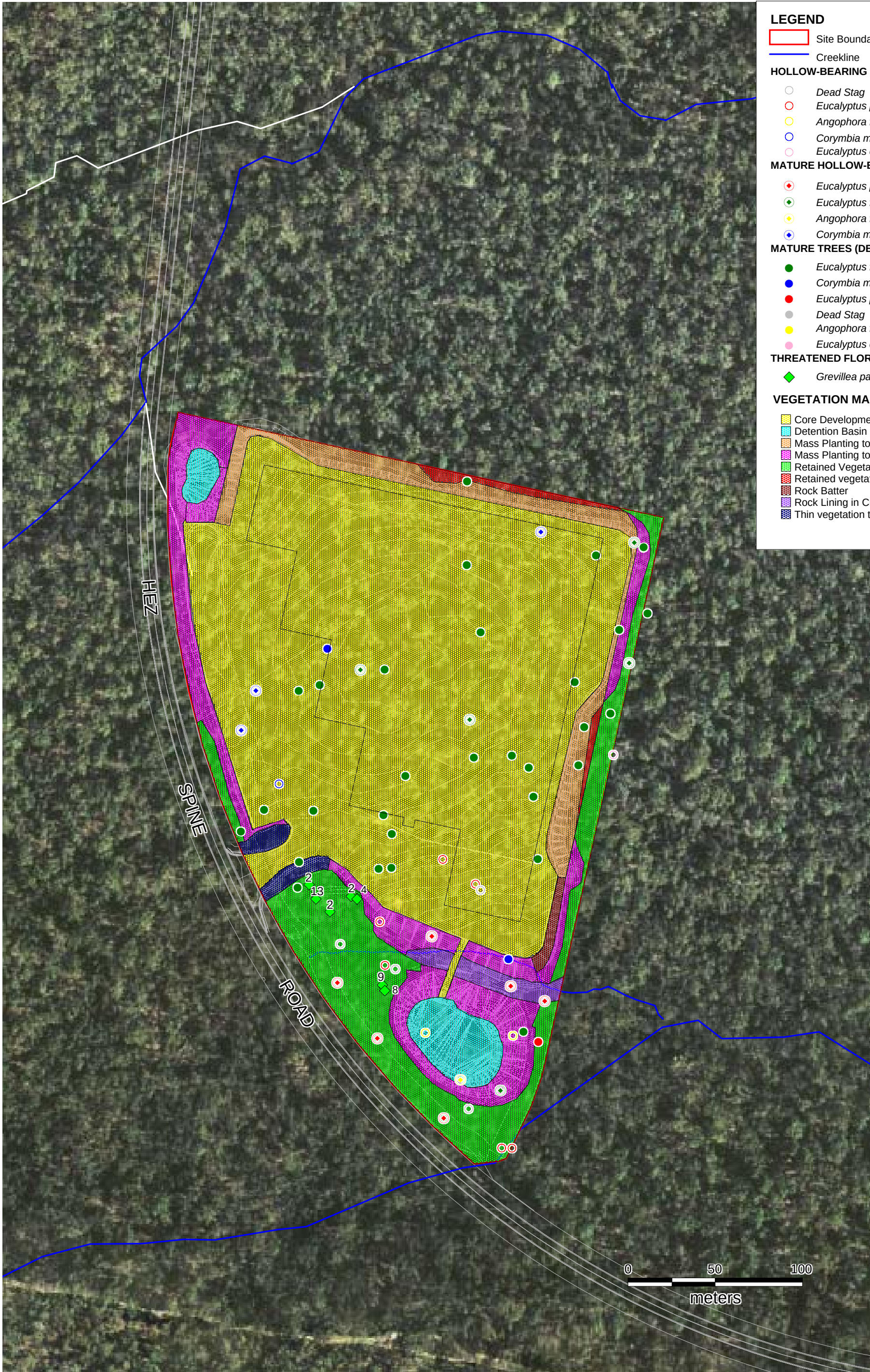
### **Habitat Attributes**

64 keystone mature trees, namely *Angophora floribunda* (Rough-barked Apple), *Eucalyptus capitellata* (Brown Stringybark), *Eucalyptus fibrosa* (Broad-leaved Ironbark), *Eucalyptus punctata* (Grey Gum), dead stag and *Corymbia maculata* (Spotted Gum) occur within the subject site. 28 trees containing hollows occur within the subject site, providing potential roosting habitat for microchiropteran bats and medium-sized arboreal mammals such as gliders.

Up to 39 keystone mature trees and 21 hollow bearing trees, containing a combined total of 40 hollows may require removal for the development of the site. Six hollow bearing trees, containing a combined total of 15 hollows will be retained within conserved vegetation. At least 34 of a total 40 individual *G. parviflora* subsp. *parviflora* plants occur within areas nominated for landscaping, and therefore to be retained.

Refer to Figure 2-1 for Vegetation management areas within the site.





LEGEND

- Site Boundary
- Creekline
- HOLLOW-BEARING TREES (DBH <50CM)**
  - Dead Stag
  - Eucalyptus punctata*
  - Angophora floribunda*
  - Corymbia maculata*
  - Eucalyptus capitellata*
- MATURE HOLLOW-BEARING TREES (DBH <50CM)**
  - Eucalyptus punctata*
  - Eucalyptus fibrosa*
  - Angophora floribunda*
  - Corymbia maculata*
- MATURE TREES (DBH >50CM)**
  - Eucalyptus fibrosa*
  - Corymbia maculata*
  - Eucalyptus punctata*
  - Dead Stag
  - Angophora floribunda*
  - Eucalyptus capitellata*
- THREATENED FLORA**
  - Grevillea parviflora ssp. parviflora*
- VEGETATION MANAGEMENT REGIME**
  - Core Development Area
  - Detention Basin Zone 1 and 2 Plantings
  - Mass Planting to Asset Protection Zone
  - Mass Planting to Boundary and Batter
  - Retained Vegetation
  - Retained vegetation through APZ
  - Rock Batter
  - Rock Lining in Creekline
  - Thin vegetation to allow for clear sight



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|                                                   |                              |
|---------------------------------------------------|------------------------------|
| PROJECT:<br><b>VEGETATION<br/>CLEARING PLAN</b>   |                              |
| CLIENT:<br><b>WIPS MANAGEMENT</b>                 |                              |
| TITLE:<br><b>VEGETATION<br/>MANAGEMENT REGIME</b> |                              |
| CONTOUR INTERVAL: N/A                             | DATUM: MGA Zone 56 (GDA 94)  |
| JOB NUMBER:<br><b>23403</b>                       | SCALE:<br>1: 2500 at A3 Size |
|                                                   | DATE:<br>20/6/2007           |
|                                                   | DRAWN:<br>T. Lambert         |

Layout Ref: H:\HEZ\MAPINFO\23403 - Waltech\Flora and Faunal  
23403 Figure 1-3 Vegetation Management Regime A-A4 200807



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FIGURE: 2-1  
PAGE: 6



### 3 VEGETATION CLEARING PLAN

Although no specific guidelines for the preparation of a VCP are detailed within the Habitat Management Strategy (HMS), a number of relevant provisions are contained within Schedules 3-5.

It is noted that Schedule 2 – ‘Habitat Conservation’ relates specifically to “habitat conservation within non-development portions of allotments”.

Specific provisions of the Habitat Management Strategy (HMS) relating to the preparation of a VCP are detailed below. The HMS should be referred to for further information regarding each of the Schedules as necessary.

#### 3.1 Habitat Conservation and Protection of Retained Habitats

In accordance with the guidelines set out in Schedule 2 the following actions are to be undertaken:

- The vegetation to be retained within the southwest corner of the site will be temporarily fenced to protect the area from construction works. Clearing of mature trees adjacent to the fenced area should be felled in a direction that will avoid impact to the retained area;
- Permanent fencing will be provided along the northern side of the southern retention area, along with exclusion boulders and screen plantings as required;
- The extremities of clearing along the proposed 5 m buffer retained vegetation zone will be marked with pink flagging tape (preferable) or pink spray paint, and machinery will be prohibited from straying outside of the marked areas. Furthermore, where possible, trees should be felled within the defined clearing corridor only, thereby minimising vegetation damage to adjacent areas by falling trees;
- Mature trees proposed for retention within the surrounding buffers will be marked with pink flagging tape (preferable) or pink spray paint;
- Soil and vegetation debris should not be stockpiled within the habitat protection zones. All personnel involved in the clearing and construction operations for the subdivision should be inducted on the significance of the conservation areas of the site prior to approval to commence clearing;
- Soil and vegetation must only be stored within defined stockpiling areas; and
- Best practice erosion and sedimentation control measures are to be installed in all appropriate drainage areas where surface runoff is likely to enter the habitat protection zone. Control devices should be periodically checked and maintained throughout the duration of the clearing and construction phases, and particularly after each period of substantial rainfall (refer to Section 4 of this report for further information on drainage and sedimentation control to be implemented).

### 3.2 Habitat Removal Considerations

In accordance with the guidelines set out in Schedule 3 the following actions are to be undertaken:

- The vegetation community to be cleared consists of “Spotted Gum / Ironbark Open Forest” (Lower Hunter Spotted Gum / Ironbark Forest); and
- Recommended times for vegetation clearing of the Spotted Gum / Ironbark Open Forest community are from October to March.

### 3.3 Animal Welfare Considerations

In accordance with the guidelines set out in Schedule 3 the following actions are to be undertaken:

- Potential habitat trees will be marked with yellow paint or yellow flagging tape;
- A two-stage approach to the clearing of trees will be undertaken. Initially all non-habitat trees will be removed first, leaving a connective stand of trees (2 to 3 trees wide) between each habitat tree (marked in yellow) and the nearest retained treed habitat (habitat protection zones);
- At least 48 hours after partial clearing, habitat trees (marked with yellow flagging tape or spray paint) can be carefully removed in the presence of a suitably qualified ecologist;
- Any fauna disturbed during clearing operations will be permitted to escape into adjacent habitat. Where fauna appear to be injured or shocked, fauna will be captured and held in appropriate circumstances and a local wildlife rescue organization contacted;
- Intact and salvageable hollows will be set aside for later use as artificial shelters for fauna or placed within the retained habitat; and
- An ecologist will be present during all clearing operations.

### 3.4 Weed Eradication and Control Program

In accordance with the guidelines set out in Schedule 5 the following actions are to be undertaken:

- Disturbed areas of the site have potential to be rapidly colonised by exotic weed species. Disturbed areas should be stabilised and regenerated as soon as possible and as discussed in Schedule 7.



## 4 SOIL AND WATER MANAGEMENT

### 4.1 Clearing and erosion control

Erosion and sediment control measures (ESCM) will be constructed to manage disturbance to the site during and after the clearing works. All work to be carried out in accordance with relevant ordinances and regulations, in particular the requirements of Landcoms 'Managing Urban Stormwater, Soils and Construction'.

Requirements for vegetation retention must be followed. The edge of clearing is to be temporarily fenced using fencing such as star picket and plain wire. All vegetation that is to be retained shall be protected during the duration of construction. No clearing of vegetation within denoted buffer areas.

Construction of required erosion control measures will be established immediately after the clearing works cease. The ESCM include swales/diversion banks located around the periphery of the site to control overland flow and drain to the main catchment, plus strategically positioned staked hay bales to retain sediment and interrupt flow velocities in the main catchment swale. The main catchment swale surrounding the entire site will drain to a sediment basin for water detention, which has been designed in accordance with the EMS requirements for water management.

Once clearing has commenced all areas that are disturbed and are not being worked on will be re-vegetated as soon as practicable. Rehabilitation will be by means of mulching and hydroseeding with endemic ground cover species. The drainage swale will be lined with *Dryarna flavius* to provide erosion protection and control water flows.

A detailed record will be kept of all erosion and sediment control on site and shall be updated on a regular basis after construction. This record should contain details on the condition of control measures, maintenance and cleaning undertaken as well as any breaches that may occur. This record can then be made available for inspection by the principle certifying authority on request.

Appropriate ESC signage will be displayed to promote the importance of maintaining sediment and erosion control measures. The sign should be located on the most prominent sediment fence or erosion control device for the duration of works.

A Water Storage Dam will be constructed to capture discharge water collected across the constructed WIPS Management site.

The following actions are to be undertaken:

- The Water Storage Dam designed in accordance with relevant ordinances and regulations;
- Revegetation and stabilisation of banks around the sediment basin will be undertaken immediately following construction;
- Water captured within the sediment basin shall be flocculated and allowed to settle before discharging or evaporating; and
- The water level and water quality should be checked after all significant rainfall events. These events are all rainfall events over 10mm in a 24 hour period;

## 5 HABITAT COMPENSATION

### 5.1 Nest box placement

Artificial nest boxes and salvaged tree hollows will be used where practical to ameliorate the loss of habitat. This will be determined by an ecologist and based on the approximate number of habitat trees and retained area. The placement of nest-boxes is a valid impact amelioration method (Menkhorst 1984; Trail & Lill 1997) provided these are installed correctly and with adequate consideration for the requirements of the target species. Details of the nest box installation are outlined below:

- **Removal and relocation** – Suitable natural hollows can be salvaged during the tree clearing operation and relocated within the retained vegetation area in the northeast of the site. This includes ground hollow logs and large rocks. Relocation must be undertaken without damaging the existing vegetation within this area and supervised by an ecologist.
- **Installation/amelioration** – Appropriate number of nest boxes to be erected as part of a development application should be determined by an ecologist and be dependent on the site characteristics and proximity to conservation zones and key wildlife corridors;
  - o Installation should occur prior to the commencement of clearance works of any habitat trees;
  - o A diverse range of nest box designs should be used to provide suitable resources for both mammals and bird species representing both the hollows to be removed and species known to occur within the locality;
  - o Nest boxes should be constructed from a durable ply material that is weather resistant;
  - o Construction of all nest boxes should use galvanised screws and appropriately waterproofed to increase durability, holes should be drilled in the base to facilitate drainage;
  - o Nest box should be positioned at a suitable height and particular attention taken to position box in a sheltered position and facing away from typically prevailing winds and rain; and
  - o Sawdust and dry leaf litter should be placed in box to provide bedding and encourage occupation.
- **Maintenance and monitoring** – location of nest box should be mapped with a detailed description of location, tree type and box type;
  - o Monitoring should be done bi-annually with records taken of native fauna occupation and removal of feral bees and pest birds including nesting material; and
  - o Replacement of damaged boxes and boxes that have been occupied by feral bees.

## **6 CONCLUSION**

This report represents a commitment by the proponent to minimise any environmental impact that may occur as a result of the proposed vegetation clearing. This VCP has been produced to ensure that the proposed vegetation clearing of the site is undertaken and managed in such a manner that considers ecological features and ensures that fuel replacement does not occur. Appropriate erosion and sediment control measures have been documented and a commitment made to their implementation before, during and after construction. A commitment has also been made to the execution of rehabilitation and revegetation works during and post construction.

## 7 BIBLIOGRAPHY

- Ecotone Ecological Consultants (*in prep*) *Habitat Management Strategy for Development of the Hunter Employment Zone*. Prepared for Cessnock City Council.
- RPS HSO - Harper Somers O'Sullivan (2007) *Flora and Fauna Assessment for Proposed WIPS Management Development within the Hunter Employment Zone (HEZ)*. Prepared for HEZ Pty Ltd. 2007.
- RPS HSO - Harper Somers O'Sullivan (2002) *Species Impact Statement for Stage 1 Road Alignment within the Hunter Employment Zone (HEZ)*. Prepared for HEZ Pty Ltd. August 2002.
- RPS HSO - Harper Somers O'Sullivan (2002). *Surveys for the threatened Grevillea parviflora subsp. parviflora within the Hunter Employment Zone and the greater Cessnock Local Government Area (Phase 1)*. Prepared for HEZ Pty Ltd. August 2002.
- RPS HSO - Harper Somers O'Sullivan (2003) *Species Impact Statement for the Link Road to the Hunter Economic Zone (HEZ)*. November 2003.
- RPS HSO – Harper Somers O'Sullivan (2004) *Species Impact Statement Hunter Economic Zone Spine Road Part Stage 1c Ch2100- Ch4275 metres*. February 2004.
- Landcom (2004). *Soils and Construction Volume 1 Managing Urban Stormwater*. 4th Edition, March 2004.
- Menkhorst (1984) Use of Nest Boxes by Forest Vertebrates in Gippsland: Acceptance, Preference and Demand *Australian Wildlife Research* 11(2) 255 – 264.