



# **KINGS FOREST**

## **STAGE 1 PROJECT APPLICATION**

### **PRECINCT 1 & 5**

### **WEED MANAGEMENT PLAN**

**JUNE 2011**

**A REPORT PREPARED FOR PROJECT 28 PTY LTD**

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# 1 INTRODUCTION

## 1.1 Background

The NSW Minister for Planning approved a Concept Plan for the proposed residential community at Kings Forest on the 19<sup>th</sup> August 2010. The approved documents included a Revised Weed Management Plan (LandPartners 2009), which proposed the principles upon which the management of weeds at the Kings Forest site would be based.

Subsequently, the Director General issued modified Environmental Assessment Requirements (DGR's) on the 22<sup>nd</sup> December 2010. James Warren & Associates (JWA) were engaged by Project 28 Pty Ltd to complete a Kings Forest Stage 1 Project Application Weed Management Plan (WMP) for Precincts 1 & 5 in accordance with requirements of 9.4 of these DGR's and Clause C2 of the modified Concept Approval.

## 1.2 Proposed Development

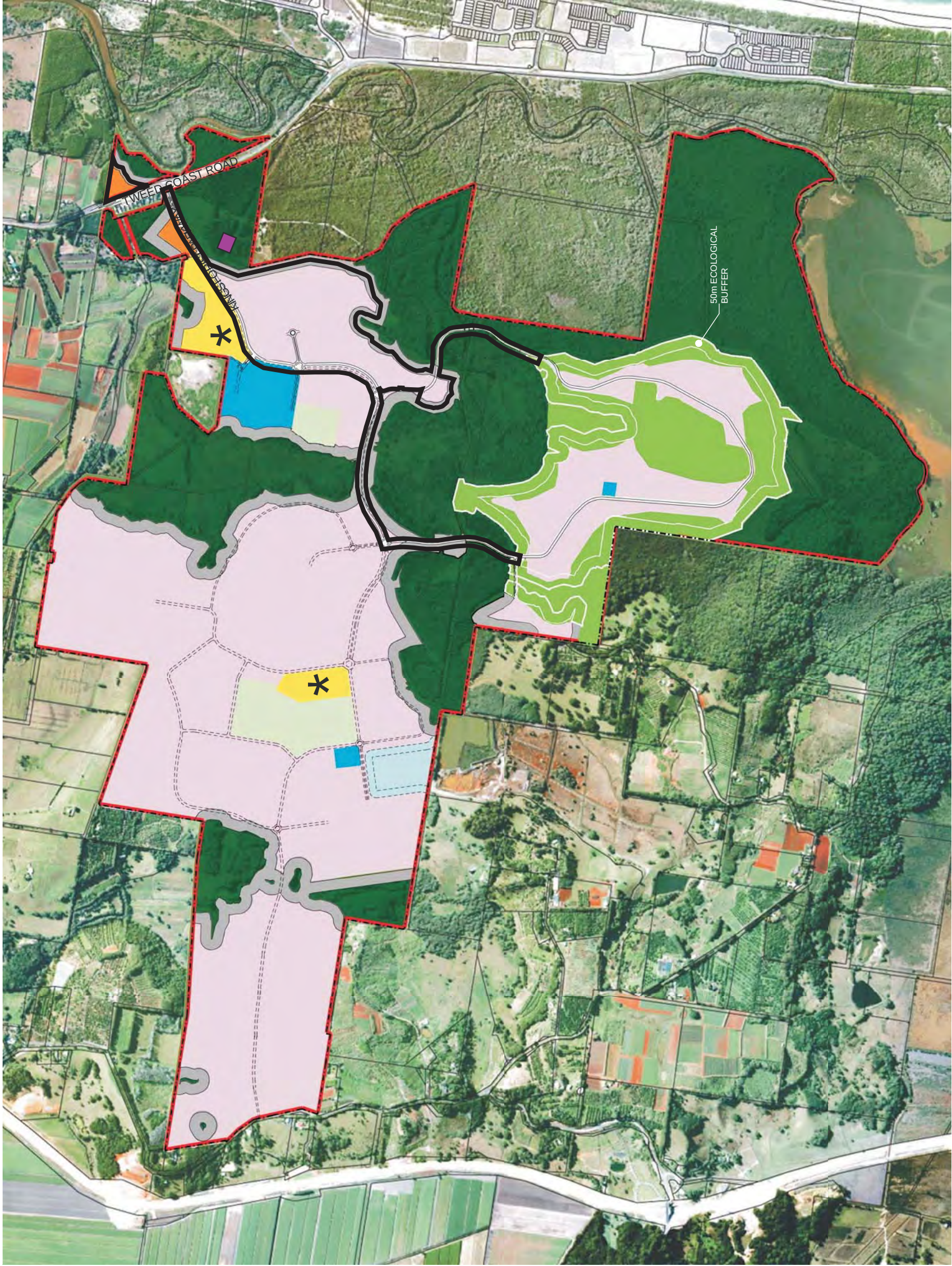
### 1.2.1 Kings Forest Stage 1 Project Application

The Kings Forest site consists of 872 hectares of land located at Cudgen between Bogangar to the south-east and Kingscliff to the north in Northern New South Wales (NSW). The concept plan for the Kings Forest site is shown in **FIGURE 1**.

The scope of the Stage 1 Project Application works is as follows:

- o Construction of the entrance road to the site and associated intersection works on Tweed Coast Road.
- o Alignment and construction details of two lanes of Kings Forest Parkway, from Tweed Coast Road via Precincts 2, 3, 4 and 5 through to the roundabout in the western part of the site from which access to the southern part of the site is to be gained.
- o Alignment and construction details for the civil works of the two proposed roads through the east-west SEPP 14 area to access the southern part of the site.
- o Rural retail development in Precinct 1 to the east of Tweed Coast Road.
- o Subdivision and construction of residential Precinct 5.
- o Bulk earthworks across the site in Precincts 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13 & 14.

The scope of works is illustrated in **FIGURE 2**.



**LEGEND**

- Town Centre / Neighbourhood Centre
- Residential
- Community Facilities / Education
- Employment Land
- Structured Open Space (Active)  
(Passive open space to council standards, location subject to urban design)
- Environmental Protection Area  
to be Dedicated to Council or NPWS
- 50m Ecological Buffer  
(Includes APZs & Roads where approved)
- \* State School Site
- Proposed Zone Substation  
(Subject to Country Energy final approval)
- Private Open Space
- Golf Course Area  
(Encompassing ecological buffers where indicated)
- Private Open Space Including Lake
- Precincts 1 & 5
- Kings Forest Boundary



SOURCE: MPS Architects  
(Ref: 2011-06-23 DA Set.pdf)  
SCALE: 1 : 20 000 @ A3  
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PROJECT  
Kings Forest Stage 1 Project Application  
Precincts 1 & 5 - Weed Management Plan  
Melaleuca Drive, Duranbah, NSW  
Shire of Tweed

**FIGURE 1**

**CONCEPT  
PLAN**

PREPARED: BW  
DATE: 24 June 2011  
FILE: N97017\_WMP\_Concept.cdr



PRECINCT 1  
RURAL RETAIL DEVELOPMENT WORKS

PRECINCT 5 SUBDIVISION WORKS

LEGEND

- Tweed Coast Road Intersection Works
- Kings Forest Parkway through to Western Precincts
- Roads through to Southern Precincts
- Bulk Earthworks
- Precincts 1 & 5
- Kings Forest Boundary



SOURCE: MPS Architects  
(Ref: 2011-06-23 DA Set.pdf)  
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Shire of Tweed

FIGURE 2

PREPARED: BW  
DATE: 24 June 2011  
FILE: N97017\_WMP\_Scope.cdr

STAGE 1  
SCOPE OF  
WORKS



### **1.2.2 Precincts 1 & 5**

This WMP has been prepared for the proposed Precincts 1 & 5 of the Kings Forest Stage 1 Project Application. Precincts 1 & 5 occur in the most north-east portion of the Kings Forest site and will be comprised of the following:

- **Precinct 1** - a rural retail development (**FIGURE 3**).
- **Precinct 5** - residential subdivision (**FIGURE 4**).

## **1.3 Aim & Objectives**

The aim of this WMP is to assist Project 28 and its contractors in the implementation of weed control strategies for Precincts 1 & 5 of the Kings Forest Stage 1 Project Application. It should be noted that the WMP only applies to land zoned as Environmental Protection and associated ecological buffers (**FIGURE 5**). As land zoned 2(c) Urban Expansion on the site is to be developed, control of any weeds in these areas is the responsibility of landowners, or where they occur on public land, the responsibility of Tweed Shire Council.

Specific objectives for the Precinct 1 & 5 WMP are to:

- Provide a weed assessment of the subject site;
- Prevent the further spread of weeds resulting from the development of Precincts 1 & 5;
- Designate work areas for attention;
- Outline specific tasks to be undertaken in each work unit;
- Provide guidelines for the removal of weed species including Slash pine seedlings;
- Provide guidelines for a maintenance programme; and
- Outline a monitoring and reporting schedule.

## **1.4 Plan Requirements**

As discussed above, this WMP has been prepared in accordance with DGR 9.4 which states:

*“Updates are to be provided, where relevant, for the various management plans for koalas, vegetation, threatened species, feral animals weeds, the buffers, and the golf course providing where relevant details on timelines for implementation of recommended works including maintenance periods and measurable performance and completion criteria. Each plan is to consider all other plans for the site to ensure that management strategies do not conflict and that each plan can be implemented without negatively impacting on the objectives of another.”*



AREA SCHEDULE:

| KINGS FOREST 2009    |                 |              |                       |              |
|----------------------|-----------------|--------------|-----------------------|--------------|
| NAME OF THE BUILDING | FLOOR AREA (M²) | CARS (100m²) | CARS REQUIRED         | CAR REQUIRED |
| BUILDING A           | 1080            | 5.5          | 5.5                   | 59.4         |
| BUILDING B           | 980             | 5.5          | 5.5                   | 57.53        |
| SUB TOTAL            |                 | 2126         | CARS REQUIRED         | 116.93       |
|                      |                 |              | CARS ACHIEVED         | 118          |
|                      |                 |              | EXCL STAFF CAR PARK   | 10           |
|                      |                 |              | EXCL BACK UP CAR PARK | 30           |



SOURCE: The Buchan Group  
(Ref: SK-001-M-colour\_39295\_69214.pdf)

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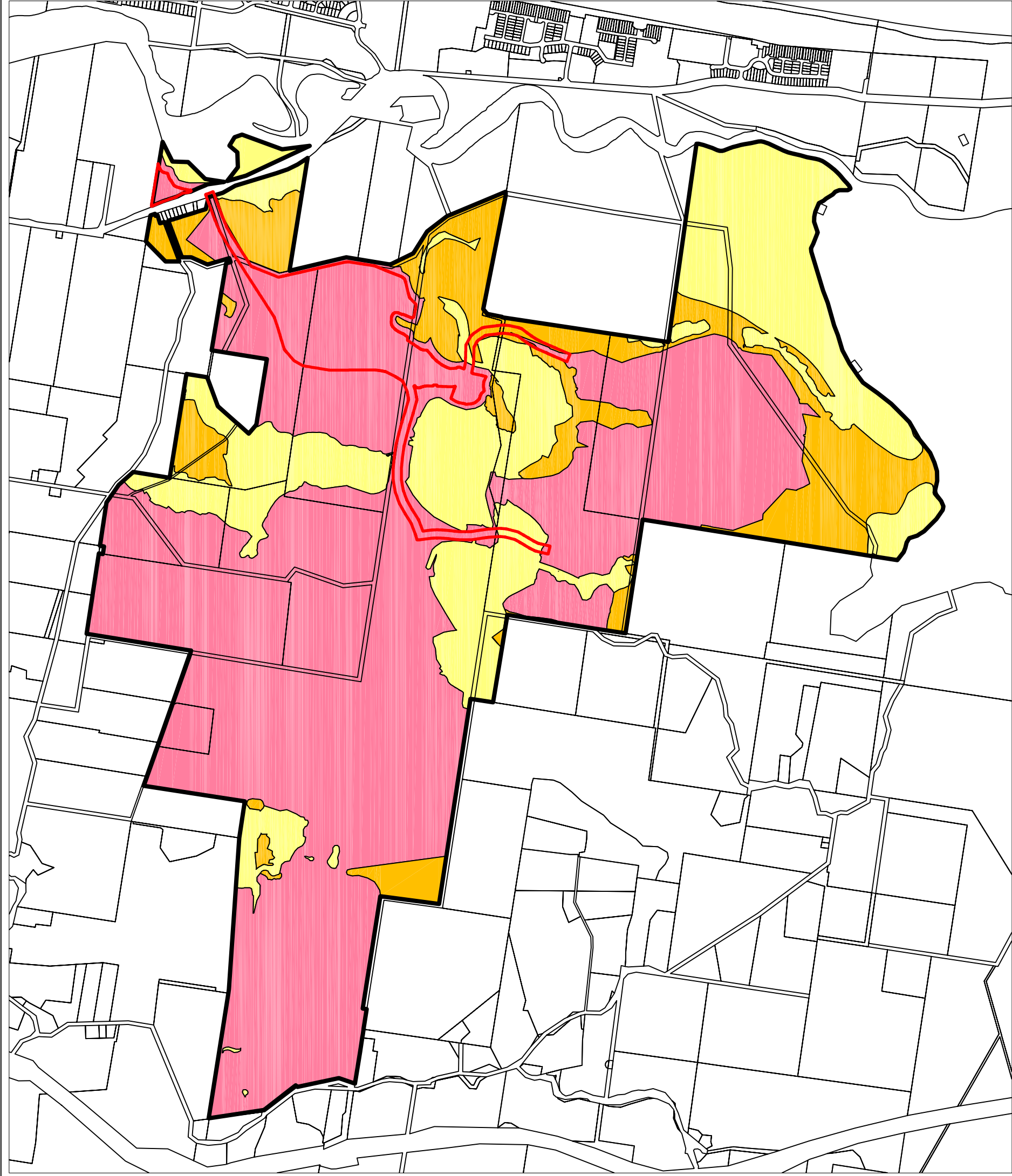
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Kings Forest Stage 1 Project Application  
Precincts 1 & 5 - Weed Management Plan  
Melaleuca Drive, Duranbah, NSW  
Shire of Tweed

**FIGURE 3**

**PRECINCT 1  
DEVELOPMENT  
LAYOUT**

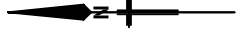
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DATE: 24 June 2011  
FILE: N97017\_WMP\_Centre.cdr





**LEGEND**

- 2c Urban Expansion
- 7a Environmental Protection - Wetlands & Littoral Rainforests
- 7l Environmental Protection - Habitat
- Precincts 1 & 5
- Kings Forest Boundary



SOURCE: Landpartners (Ref: 00001056 C7\_  
PL4D Proposed Zoning Plan 11.03.08)

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FIGURE 5

PREPARED: BW  
DATE: 18 April 2011  
FILE: N97017\_WMP\_Base.dwg

TITLE

ZONING  
PLAN



This WMP has also been prepared to comply with Clause C2 of the modified Concept Approval as follows:

**Weed Management Plan**

*“Each Weed Management Plan update is to detail ongoing weed management measures for each relevant stage.”*

## **1.5 Relationship to other Management Plans**

Additional to this WMP, the following Management Plans relevant to Precincts 1 & 5 have been prepared for the Stage 1 Project Application, and should be read in conjunction with this WMP:

- Kings Forest Stage 1 Project Application: Precinct 1 & 5 Vegetation Management Plan (Precinct 1 & 5 VMP) (JWA 2011a);
- Kings Forest Stage 1 Project Application: Precinct 1 & 5 Threatened Species Management Plan (Precinct 1 & 5 TSMP) (JWA 2011b); and
- Kings Forest Stage 1 Project Application: Precinct 1 & 5 Buffer Management Plan (Precinct 1 & 5 BMP) (JWA 2011c).

A Kings Forest Stage 1 Project Application Feral Animal Management Plan (Stage 1 FAMP) (JWA 2011d) has also been prepared for the entire Kings Forest site and is therefore relevant to Precincts 1 & 5.

Furthermore, a Kings Forest Stage 1 Project Application Koala Plan of Management (Stage 1 KPOM) (JWA 2011e) has been prepared for the entire Kings Forest site and is therefore relevant to Precincts 1 & 5.



## 2 SUMMARY OF SIGNIFICANT VALUES

### 2.1 Background

Kings Forest has been comprehensively studied. A summary of the significant values relevant to the development of Precincts 1 & 5 is provided in the following sections.

### 2.2 Endangered Ecological Communities

Three (3) Endangered Ecological Communities (EEC's)<sup>1</sup> occur within the vicinity of Precincts 1 & 5 (**FIGURE 6**):

- Swamp sclerophyll forest on coastal floodplain;
- Freshwater wetlands; and
- Subtropical coastal floodplain forest.

### 2.3 Threatened Species

#### 2.3.1 Flora

Four (4) Threatened flora species occur within the vicinity of Precincts 1 & 5 (**FIGURE 7**):

- Green-leaved rose walnut (*Endiandra muelleri* subsp. *bracteata*);
- Southern swamp orchid (*Phaius australis*);
- Stinking laurel (*Cryptocarya foetida*); and
- White laceflower (*Archidendron hendersonii*).

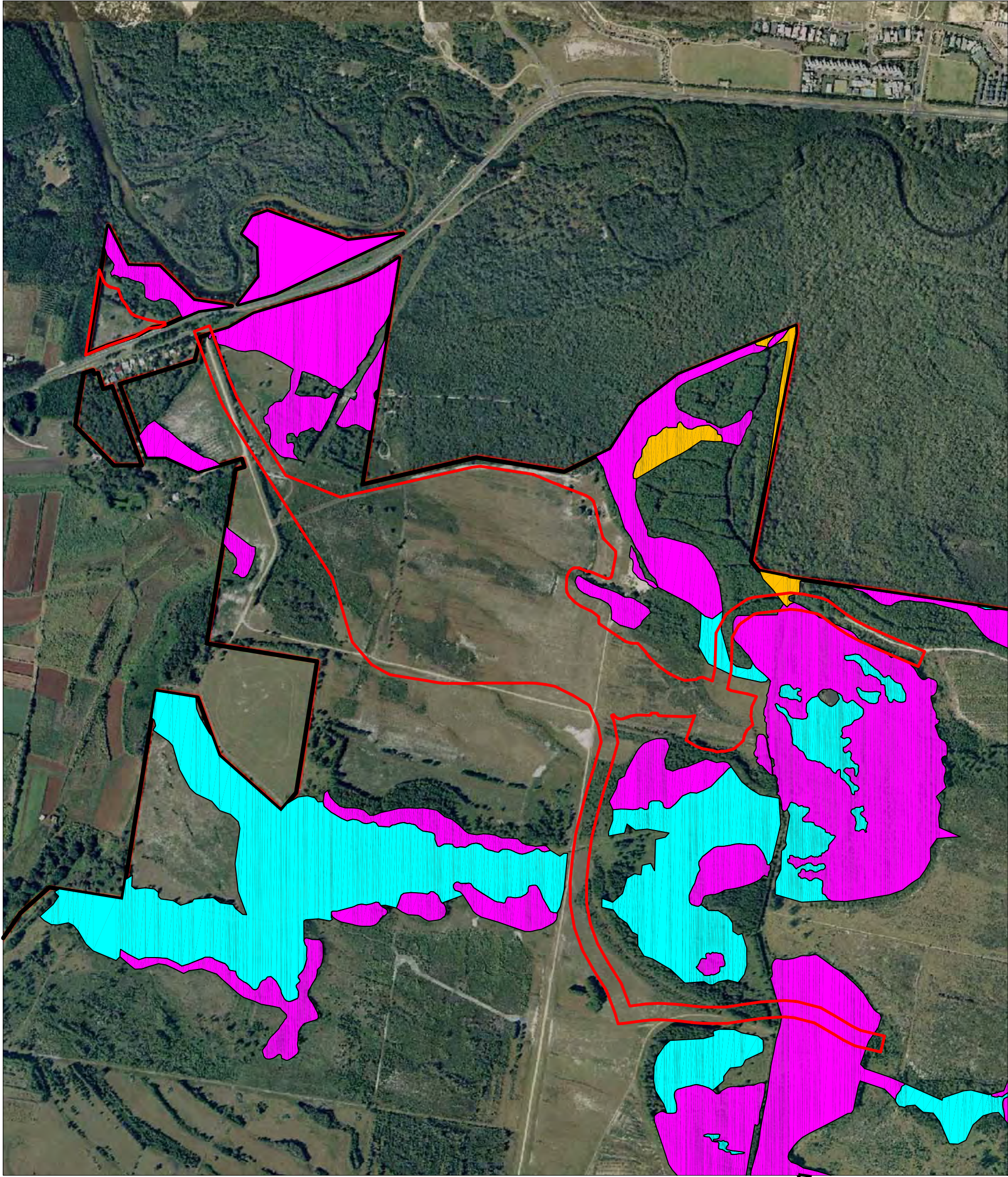
#### 2.3.2 Fauna

Thirteen (13) Threatened fauna species have been recorded (**FIGURE 8**), or are considered to be provided with potential habitat, within the vicinity of Precincts 1 & 5. These species are as follows:

- Black bittern (*Ixobrychus flavicollis*);
- Black-necked stork (*Ephippiorhynchus asiaticus*);
- Bush stone-curlew (*Burhinus grallarius*);
- Common planigale (*Planigale maculata*).
- Grass owl (*Tyto capensis*);
- Grey-headed flying fox (*Pteropus poliocephalus*);
- Koala (*Phascolarctos cinereus*).

---

<sup>1</sup> As listed within schedules of the TSC Act (1995).



LEGEND

- Freshwater Wetlands
- Subtropical Floodplain Forest
- Swamp Sclerophyll Forest on Coastal Floodplain
- Precincts 1 & 5
- Kings Forest Boundary



SOURCE: Landpartners - EEC's;  
2007 Aerial Photograph

SCALE: 1 : 10 000 @ A3

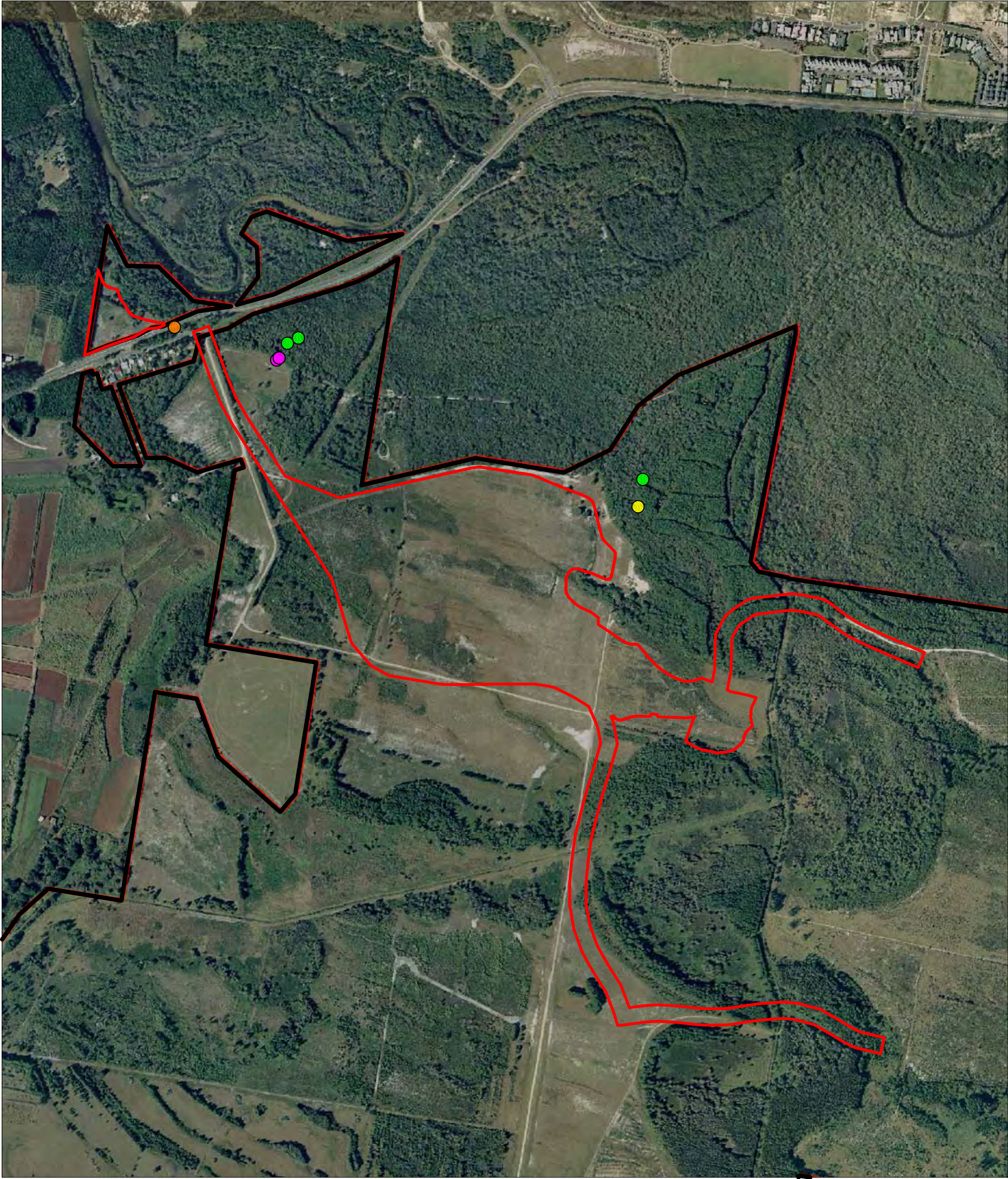
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Shire of Tweed

FIGURE 6

TITLE  
ENDANGERED  
ECOLOGICAL  
COMMUNITIES  
(EEC'S)

PREPARED: BW  
DATE: 18 April 2011  
FILE: N97017\_WMP\_Base.dwg



LEGEND

- Green leaved rose walnut
- Southern swamp orchid
- Stinking laurel
- White laceflower
- Predincts 1 & 5
- Kings Forest Boundary



SOURCE: JWA Site Investigations;  
Landpartners - AKF 2005 Vegetation Mapping

SCALE: 1 : 10 000 @ A3

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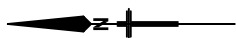
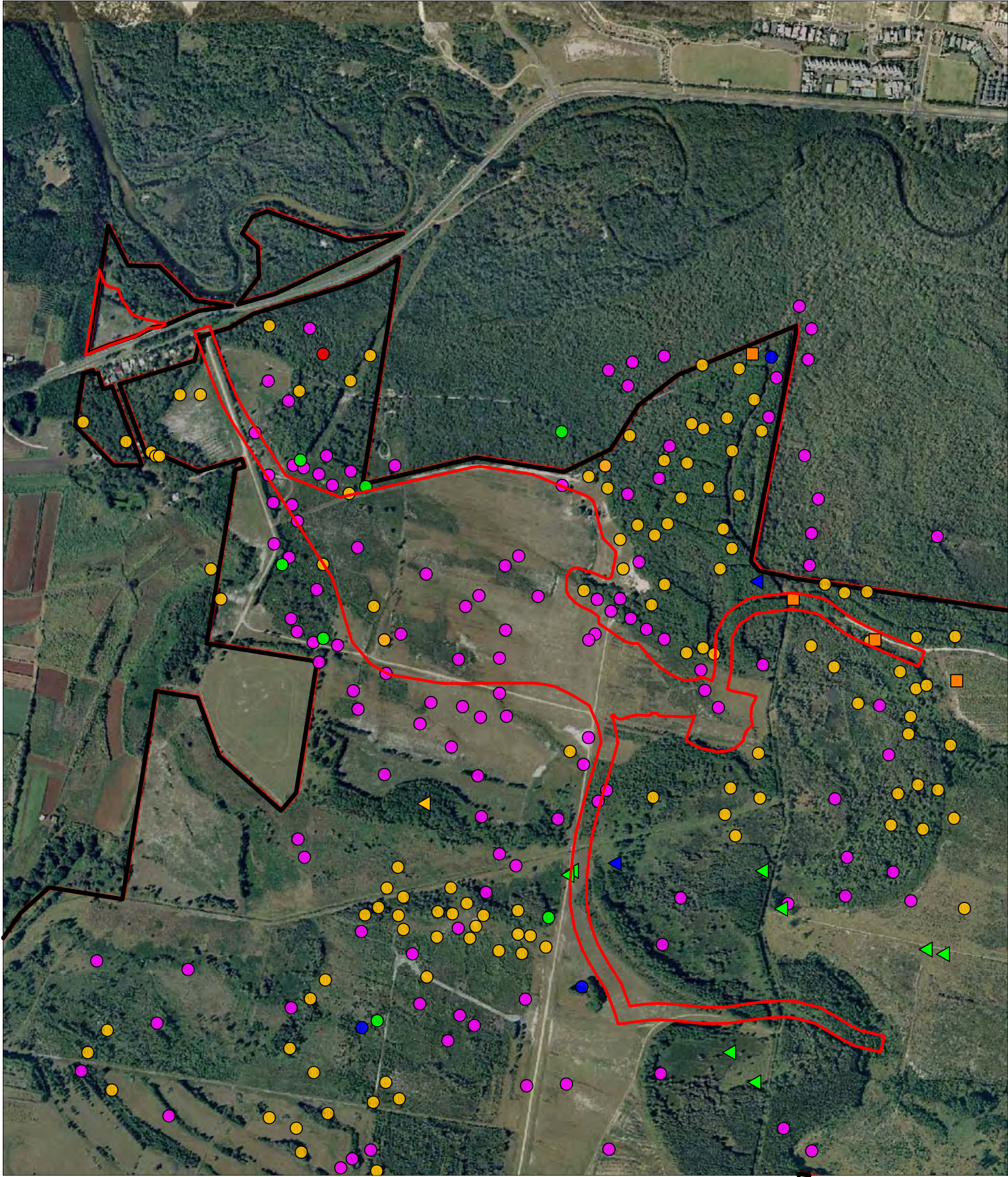
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THREATENED  
FLORA

FIGURE 7

PREPARED: BW  
DATE: 18 April 2011  
FILE: N97017\_WMP\_Base.dwg



**LEGEND**

- Wallum sedge frog
- Wallum froglet
- Black bittern
- Glossy black cockatoo
- Grass owl
- Grey-headed flying-fox
- Koala
- Masked owl
- Osprey
- Precincts 1 & 5
- Kings Forest Boundary

0 300m  
1 : 10 000

SOURCE: Landpartners - Threatened Fauna  
- Amphibians + Birds & Mammals;  
2007 Aerial Photograph  
SCALE: 1 : 10 000 @ A3  
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FIGURE 8  
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TITLE  
THREATENED  
FAUNA



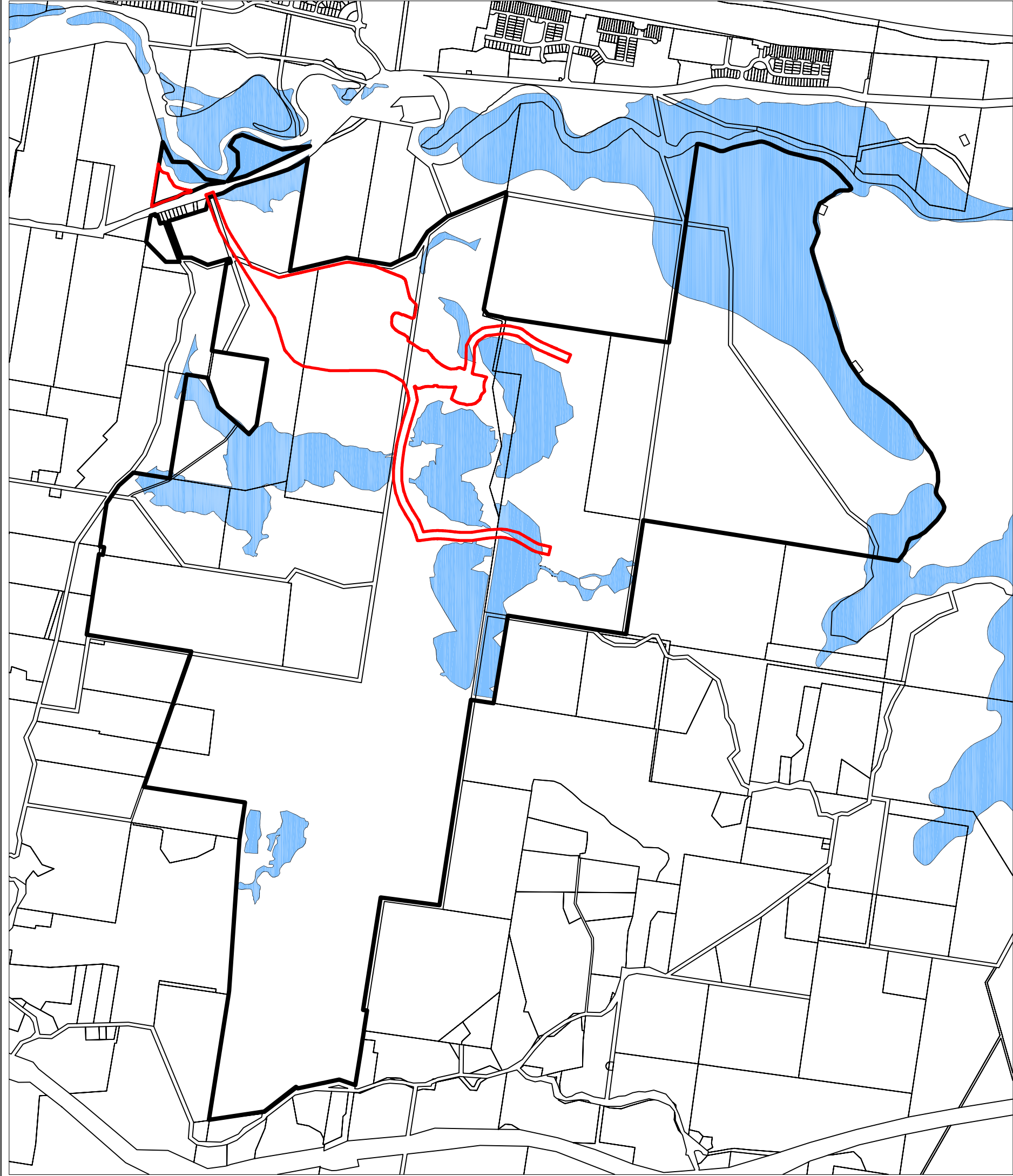
- Little bent-wing bat (*Miniopterus australis*);
- Masked owl (*Tyto novaehollandiae*);
- Rose-crowned fruit-dove (*Ptilinopus regina*);
- Wallum froglet (*Crinia tinnula*);
- Wallum sedge frog (*Litoria olongburensis*); and
- Yellow-bellied sheath-tail bat (*Saccolaimus flaviventris*).

## 2.4 SEPP 14 Wetlands

SEPP 14 – Coastal Wetlands are mapped over large areas of the Kings Forest site, including areas adjacent to Precincts 1 & 5 (**FIGURE 9**). These wetlands are protected by State Environmental Planning Policy No. 14 – Coastal Wetlands (SEPP 14).

## 2.5 Cudgen Nature Reserve

Cudgen Nature Reserve occurs immediately adjacent to the eastern and southern boundaries of the Kings Forest site (**FIGURE 10**).



**LEGEND**

- SEPP 14 Wetlands
- Precincts 1 & 5
- Kings Forest Boundary



SOURCE: Landpartners - SEPP14 Wetlands  
(Amendment 15)

SCALE: 1 : 20 000 @ A3

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FIGURE 9

SEPP No. 14  
COASTAL WETLANDS

PREPARED: BW  
DATE: 18 April 2011  
FILE: N97017\_WMP\_Base.dwg



**LEGEND**

Cudgen Nature Reserve

Precincts 1 & 5

Kings Forest Boundary

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Precincts 1 & 5 - Weed Management Plan  
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Shire of Tweed

SOURCE: NPWS 05.06.06; Leda Developments  
(Ref: 6400\_121.dwg Rect: 09.06.06)

SCALE: 1 : 40 000 @ A3

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**FIGURE 10**

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DATE: 18 April 2011  
FILE: N97017\_WMP\_Reserves.cdr

TITLE

**CUDGEN  
NATURE  
RESERVE**



### 3 WEED ASSESSMENT

#### 3.1 Introduction

Kings Forest has a long history of various land uses. Disturbance to the natural ecosystems and vegetation communities has resulted in the occurrence of a variety of exotic species.

Site surveys indicate the primary weed species on the Kings Forest site is Slash pine (*Pinus elliottii*), with large areas of recruitment originating from historical established pine plantations. Other environmental weeds of note include Camphor laurel and Lantana, Pampas grass and Bitou bush. Weed control will be completed in 'work units' designated by the site wide WMP (LandPartners 2009) which accompanied the Concept Plan Application.

Weed control primarily will consist of removal of extensive areas of weeds (e.g. slash pine seedlings) and targeted removal of individual weed plants.

#### 3.2 Weed Species

Various weed species occur on the Subject site but Slash pine is the most common. Slash pine was originally grown as a plantation, but is naturalised in some areas of the site. Opportunistic characteristics such as wind pollination and seed dispersal have enabled the species to invade native vegetation communities. Offspring range in size from 30cm to 20m.

The highly invasive vine species Madeira vine (*Anredera cordifolia*) was recorded in one area in highly degraded land in the north of the Kings Forest site. Although this is outside Precinct 5 and relatively contained, the presence of this species is of concern due to the possibility of its spread to areas of good quality vegetation on the site by mechanical means (earthworks, slashing etc).

Lantana (*Lantana camara*) occurs sporadically within native vegetation communities, particularly on the edges and along tracks.

Several stems of Glory lily (*Gloriosa superba*) occur in the far north-eastern portion of Precinct 5, and Para grass (*Brachiaria mutica*) is known to occur along the central (east-west) drain and the northern edges of SEPP 14 wetland to the South.

Pampas grass and Bitou bush also occur sparingly at the site in specific localised sites and are both Class 4 declared weeds, whereby:

*“the growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority”* (NSW Department of Primary Industries website).

It is further noted weed invasion occurring at the site is characteristic of four (4) Key Threatening Processes (KTPs) listed under the Threatened Species Conservation Act (TSC Act 1995):



1. Invasion and establishment of exotic vines and scramblers;
2. Invasion of native plant communities by Bitou bush and Boneseed;
3. Invasion of native plant communities by exotic perennial grasses; and
4. Invasion, establishment and spread of *Lantana camara*.

A complete list of the environmental weeds present on the site has been compiled (**APPENDIX 1**) and control methods assigned for each. Seven (7) of these are declared Noxious, in the Tweed Local Government Area (LGA), under the Noxious Weeds Act 1993.

### 3.3 Weed Mapping

Areas of weed invasion on the Kings Forest site were mapped by LandPartners (2009) in the Revised Weed Management Plan which accompanied the Concept Plan Application. Mapping was limited to species considered particularly invasive (and therefore a priority for control e.g. Madeira Vine, Pampas grass, Para grass), or where they occurred over a sufficient area to enable broad scale mapping (notably Slash pine and areas of exotic grass). Slash pine wildings occur over much of the site and mapping only indicated large concentrations of this species.

Mapped weed infestations in the vicinity of Precincts 1 & 5 were ground-truthed during the preparation of this WMP. Due to the large vegetated areas within Environmental Protection Zones not all areas of vegetation were investigated, and particular attention was paid to ecological buffers (i.e. edges of vegetation to be retained).

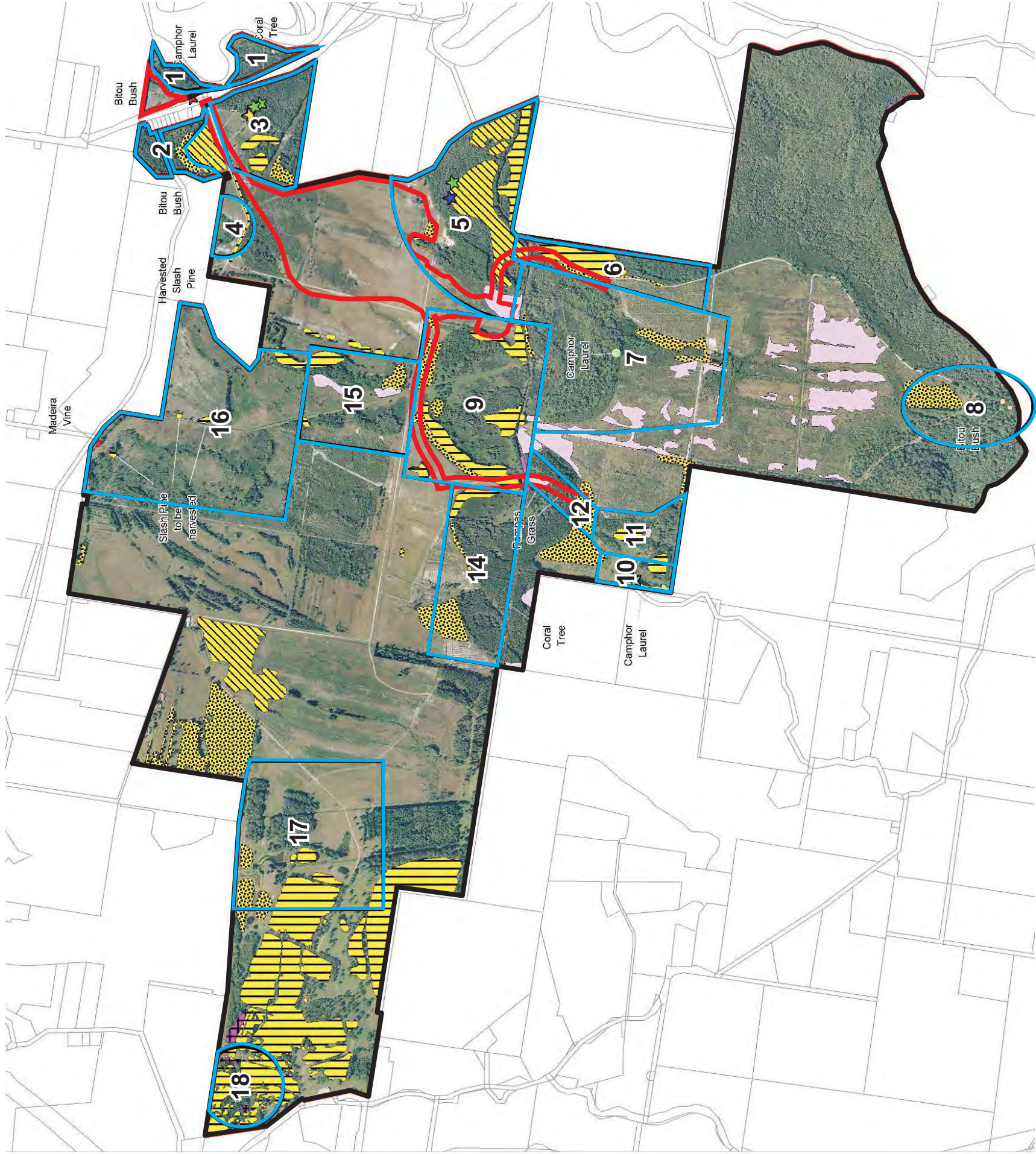
It should be noted that the occurrence of Slash Pine at the site has been mapped as areas of established mature forest (and therefore available for harvest) and Pine wildings which are to be controlled/removed.

The results of weed mapping within the vicinity of Precincts 1 & 5 are shown as **FIGURE 11**. The locations of threatened flora have also been included in the figure to provide an indication of threats to these species.

### 3.4 Spread of Weeds

As discussed above, weeds are already a problem over the Kings Forest site. The spread of weeds and weed seed can be facilitated by disturbance such as vegetation clearing, earthworks and construction activities. One objective of this WMP is to prevent the dispersal of seeds and vegetative propagules during earth works and construction activities. The following strategies are recommended to prevent the spread of weeds:

- Erosion and sediment control devices shall be installed prior to commencement of earth works within Precincts 1 & 5 in accordance with the Erosion & Sediment Control Plan (Gilbert & Sutherland 2011). This will not only prevent the movement of sediment into ecologically sensitive area but also the dispersal of weed seeds and vegetative material.



SOURCE: Landpartners Revised Weed Mgt Plan (2009) Figure 7  
SCALE: 1 : 20 000 @ A3  
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FIGURE 11  
PREPARED: BW  
DATE: 21 April 2011  
FILE: N97017\_WMP\_Weeds.cdr

TITLE  
WEED  
ASSESSMENT



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

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- Weeds and weed seed can also be dispersed by personnel, equipment and vehicles so a designated shakedown/wash area will be established for personnel, equipment and vehicles.



## 4 ACTION PLAN

### 4.1 Introduction

All weed control works proposed in this plan are only to be carried out by qualified & experienced personnel using accepted bush regeneration methodology and according to the specifications outlined in the plan for each Work Area. The proponent should appoint a preferred contractor following approval of the project, so that works can commence immediately.

It should be noted that this WMP only addresses weed removal and/or control. Any vegetation restoration works such as planting etc. are addressed in the separate Precinct 1 & 5 VMP (JWA 2011a).

### 4.2 General Prescriptions

The following general prescriptions apply to any works on the site completed as part of this Plan:

- Liaison will be required with the property owner in regard to Pine harvesting and Management. Ideally a Harvesting Plan will be produced by the property owner utilising a staged approach to mature Pine removal over the site. Areas where Pine is to be harvested are best treated as a low priority to prevent wasting time and resources in the interim.
- Baseline data is to be gathered at each weed treatment site to assist in documenting vegetation recovery in the long term (**Section 5.2**).
- Works should commence on-site once the project is approved.
- A long term program of monitoring and evaluation of treatment sites is essential.
- Weed control works are to be maintained for a minimum of five (5) years, with further revision of weed management to be completed after this period. The Pine harvesting program at the site will largely influence the necessity of future weed control, as any unharvested mature pine will continue to act as a seed source.

### 4.3 Work areas

The Revised Weed Management Plan (Landpartners 2009) identifies eighteen (18) work areas across the Kings Forest site. Work Areas 1, 3, 5, 7 and 9 are relevant to Precinct 1 & 5 Environmental Protection Zones (**FIGURE 12**).

Furthermore, portions of the Precinct 1 & 5 ecological buffers have been identified as requiring weed control during recent site assessment and occur outside of the LandPartners work areas. These are included in the following works schedules as 'Additional Work Areas'.





It should be noted that the work areas plan is specific to the weed species which are known to currently occur at the site. As weed control progresses throughout targeted areas, it is possible that new infestations of weeds (or new weed species) may be recorded over time. Recommendations to ensure that additional weed outbreaks are appropriately addressed include:

- A log of any new weed species and/or infestations is to be kept by the personnel in charge. Any new weed records are to be entered into the log with a GPS location, and the location marked with flagging tape.
- Logged records should be assessed as to their need for priority control (eg. any highly invasive or noxious species should be controlled as a high priority).
- Once prioritised, logged weed records should be allocated in work plans for specific zones. High priority species should be treated ASAP, while lower priority areas (e.g. pasture grasses) should be treated within the work unit as a whole.

#### **4.4 Works schedule**

The following works schedule summarises the works relevant to the Precinct 1 & 5 Environmental Protection zones and ecological buffers.



Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Work Area & Location                                         | Proposed Works                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>Eastern side of Tweed Coast Road                        | <ul style="list-style-type: none"> <li>➤ Removal of Lantana along edge of Paperbark communities</li> <li>➤ Spraying out small portion of Bitou bush</li> <li>➤ Spraying out large clump of Barner grass adjacent to Tweed Coast Road</li> <li>➤ Treatment of Canna lily</li> <li>➤ Removal of sparse Umbrella trees in Paperbark community</li> <li>➤ Control of small area of Glory lily in Paperbark community</li> <li>➤ Poison mature Coral tree on edge of Southern portion</li> </ul> | <p>There is a record of a single stem of the Threatened species Green-leaved rose walnut within the road reserve of Tweed Coast Road (<b>FIGURE 7</b>). However, this tree has not been located despite a number of surveys since 2006, and could not be located during recent site investigations. It is considered likely that it has been removed during roadside maintenance works.</p> <p>Further protection measures are discussed in the Precinct 1 &amp; 5 TSMP (JWA 2011b).</p> |
| 3<br>Southern side of Depot Rd, North Eastern corner of site | <ul style="list-style-type: none"> <li>➤ Lantana removal (also small patch of Bitou bush) along edge of Paperbark community</li> <li>➤ Cut back native vines (<i>Cissus antarctica</i>, <i>Mucuna gigantea</i>) within rainforest trees</li> <li>➤ Spray out Tobacco and Barner grass within windrows in paddock area</li> <li>➤ Slash out scattered pine wildings</li> </ul>                                                                                                               | <p>Two mature trees of the threatened species White lace-flower occur in this area (<b>FIGURE 7</b>). All Lantana around the bases of these trees is to be hand removed. Native vines in the canopy should also be cut back.</p> <p>Further protection measures are discussed in the Precinct 1 &amp; 5 TSMP (JWA 2011b).</p>                                                                                                                                                            |



Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Work Area & Location                                   | Proposed Works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Comments                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5<br>Mid-Eastern<br>portion of site                    | <ul style="list-style-type: none"> <li>➤ Slashing (mechanical) of immature Pines around 'finger' of vegetation which extends north towards the residential subdivision</li> <li>➤ Slashing (hand) of immature Pines in Northern portion, flanking access road</li> <li>➤ Spray out areas of exotic grasses (Setaria, Whiskey grass) along western margins</li> <li>➤ Remove planted exotics (Monstera, Happy plant) and Barner grass along access track</li> <li>➤ Treat regrowth weed species within former areas of Pine forest (since harvested) and monitor native regeneration.</li> </ul> | <p>A single specimen of the threatened species Stinking cryptocarya occurs adjacent to the access track (FIGURE 7). Weed species within the vicinity of this tree should be hand removed.</p> <p>Further protection measures are discussed in the Precinct 1 &amp; 5 TSMP (JWA 2011b).</p> |
| 7<br>SEPP 14<br>Wetlands North<br>of Cudgen<br>Paddock | <ul style="list-style-type: none"> <li>➤ Slash pine wildings to be mechanically removed around edges (particularly around 'finger' of vegetation which extends to the dam), or manually cut (chainsaw or loppers) in areas of native vegetation</li> <li>➤ Spray out dense Setaria in North western corner near mature Hoop pines</li> <li>➤ Poison mature Camphor laurels and leave in situ</li> </ul>                                                                                                                                                                                         | <p>Spraying to be completed only under calm conditions, utilising frog-friendly forms of glyphosate, and taking care to ensure herbicide does not enter wetland environments.</p>                                                                                                          |



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| Work Area & Location                            | Proposed Works                                                                                                                                                                                                                                                                                                                                        | Comments                                                                                                                                                                   |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9<br>SEPP 14<br>Wetlands North<br>of main drain | <ul style="list-style-type: none"> <li>➤ Slash Pine wildlings to be mechanically removed or manually cut (chainsaw or loppers) in areas of native vegetation</li> <li>➤ Spray out areas of dense Setaria around <i>Lepironia</i> wetland</li> </ul>                                                                                                   | Spraying to be completed only under calm conditions, utilising frog-friendly forms of glyphosate, and taking care to ensure herbicide does not enter wetland environments. |
| Additional work areas                           | <ul style="list-style-type: none"> <li>➤ Inner 30m buffer is to be established to the EPZ between Work areas 3 &amp; 5.</li> <li>➤ Slash pine wildlings to be mechanically removed around edges, or manually cut (chainsaw or loppers) in areas of native vegetation</li> <li>➤ Spray out areas of exotic grasses (Setaria, Whiskey grass)</li> </ul> |                                                                                                                                                                            |



## **4.5 Management Strategies**

### **4.5.1 Introduction**

Weed control in any vegetation rehabilitation project has two primary aims:

1. Extensive removal of exotic plant species so that the native vegetation communities can be restored by planting indigenous species; and
2. Targeted removal of exotic plant species so that native vegetation communities can be restored by promoting natural regeneration. Natural regeneration is the best way to restore a native vegetation community but can be constrained by the weedy species out competing native seedlings for limited resources such as light, nutrients and water. Controlling weeds will facilitate the natural regeneration process.

This section outlines the strategies that will be utilised to remove all exotic species from the conservation areas and ecological buffers within Precincts 1 & 5.

### **4.5.2 Primary Weeding**

Primary weed control is the initial process of weed removal through a series of targeted methods. During primary weeding the following procedures will be utilised:

- Before any broad-scale spraying commences (i.e. where appropriate) all native species within treatment areas will be located and clearly marked for retention;
- Where appropriate, primary weeding will be undertaken by hand, to prevent damage to young regrowth or seedlings;
- Careful hand weeding will occur for approximately 50 cm in diameter around the retained native species;
- Primary weeding should commence at the start of the active growing period (approximately November);
- All genetic material seeds, flowers, under ground rhizomes, will be removed and disposed of at an approved green waste facility;
- Weed material that does not contain any fertile parts will be mulched and spread on the ground;
- Utmost care must be taken when utilizing chemicals to ensure that no drift occurs outside of the treatment area.
- Spraying should not occur on windy days or within 24 hours of predicted rainfall.

### **4.5.3 Secondary Weeding**

Secondary weeding will eradicate weeds that have been overlooked or re-shoot after primary treatment. Secondary weeding should occur six (6) weeks after primary weed control and then three (3) monthly for one year and then six (6) monthly the period of the WMP (i.e. 5 years).



#### **4.5.4 Control Methods**

Weed control methods to be employed are described in **APPENDIX 2**. Additionally, specific weed control techniques appropriate to the control of each weed species found on the site are identified in **APPENDIX 3**.

As many areas of work occur around wetland environments, 'frog-friendly' forms of Glyphosate will be used at all times (e.g. Round-up Biactive®, Weedmaster Duo®). Furthermore, wherever surfactants are used, the most benign equivalent (e.g. Pulse®) will also be used. Works adjacent to wetland environments should also be completed during the drier months of the year.

Operators will adhere to the following general principles:

- Weed trees (e.g. Camphor laurel) with trunk diameters greater than 10 cm and greater than 1.3m in height will be stem injected with a herbicide appropriate to the weed being treated (typically Glyphosate). The poisoned weed tree will be left standing to provide a perch for birds (frugivorous birds, in particular, are good seed disseminators).
- Weed saplings (less than 10 cm diameter), scramblers and shrubs will be either sprayed or the 'cut, scrape and paint' technique will be employed. Herbicide appropriate to the weed being treated will be used (typically Glyphosate). All plant material severed from the stump will be cut into easily compostable segments and spread on the forest floor in such a manner to minimise vegetative regrowth from the severed plant material.

#### **4.6 Adaptive Management**

Adaptive management is an approach that involves learning from management actions, and using those lessons to improve upon the overall plan. The principles of adaptive management have been incorporated into the administration of restoration projects within a variety of governmental authorities and programs (Thom 1997). Comprehensive, long-term monitoring is a component of adaptive management as adaptive management strategies rely on the accumulation of evidence supporting decisions that demand changes in action.

An adaptive management approach involves an integrated process of firstly monitoring, then reviewing and responding to the health and conditions of the plantings, natural regeneration and the status of the weed infestation. Alteration to the design and maintenance of works required, to ensure the objectives of the WMP are achieved, are then made.

Adaptive management strategies that may be required include, but are not confined to, alteration of weed control methods or timing.

Before the implementation of any adaptive management strategy a brief report is to be provided to Project 28, DoP and the TSC detailing the proposed management actions and the predicted outcomes. These will be determined on the basis of information from the reports provided by either the Bush Regenerator or the



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Ecologists reports. The relevant agencies must then approve the adaptive management techniques in writing prior to implementation.



## 5 MONITORING AND REPORTING

### 5.1 Introduction

Ongoing monitoring of the results of weed control works is essential throughout the proposed five (5) year plan. Monitoring and reporting will ensure the continuing success of the weed control programme by making sure that weed control activities are meeting set objectives. If objectives are not being met then the appropriate adaptive management strategies will be introduced.

Monitoring and reporting can be divided into four distinct phases:

1. Baseline monitoring (prior to commencement of weed control in each Work area);
2. Monitoring of all daily weed control activities including areas treated, methods and/or chemicals used will be documented by the bush regenerator;
3. Monitoring by an Ecologist will occur at strategic times; and
4. An annual report will be compiled by the Ecologist that combines the result of the above monitoring (i.e. both Bush Regenerator and Ecologist).

### 5.2 Baseline monitoring

Baseline data is to be gathered by the Regeneration Team at each weed treatment site to assist in documenting vegetation recovery in the long term. Baseline monitoring proforma contained in **APPENDIX 4** were originally contained in the Revised Weed Management Plan (LandPartners 2009) that accompanied the Concept Application, and have been adapted from:

Wilson, P., 2003, *'Tweed Monitoring and Evaluation Project - Project Planning, Monitoring and Recording Pro-Forma Kit*, produced by Tweed Landcare Inc.

Collection of baseline data will be undertaken to gather and collate base line information of the physical characteristics, strengths and weaknesses of a project site and, based on the information gathered, to develop aims and objectives for the project site. The following data is to be recorded prior to the commencement of restoration works:

1. Native Vegetation Assessment
2. Native Fauna and Habitat Assessment
3. Identification of Threats (or Impacts)
4. Evaluation of Ecosystem Condition
5. Identification of Aims and Objectives

Examples are provided in **APPENDIX 4** with regards to the type of information to be recorded.



### 5.3 Bush Regeneration Monitoring

The Bush Regenerator will keep detailed work sheets recording:

- all work completed each day;
- site conditions;
- chemicals used;
- problems encountered;
- future works required; and
- indications of natural regeneration.

Daily work sheets are attached as **APPENDIX 5**. These records and general comments on progress will be provided to the Ecologist for consideration and inclusion in the annual monitoring reports.

### 5.4 Ecological Monitoring

Ecological Monitoring will be carried out for five (5) years by a suitably qualified ecologist. The 1st monitoring visit will be undertaken six (6) weeks after the primary weeding; then at six (6) monthly intervals for the 1<sup>st</sup> year and then annually until the completion of the plan. Monitoring and evaluation forms are attached as **APPENDIX 6**.

### 5.5 Performance Criteria

The success of the WMP will be regularly evaluated (i.e. as above). A number of criteria will indicate successful control of weeds within EPZ's and ecological buffers, including:

- Establishment of a 70% native ground cover after 2-3 years;
- Average percentage cover of 90% native ground cover at the 5th year;
- Noxious weeds are to be eradicated and environmental weeds less than 1% of the area; and
- Natural recruitment of native seedlings.

When it is determined that all performance criteria have been met, completion will have occurred.

### 5.6 Monitoring Reports

The results of the weed control monitoring visits and all information provided by the Bush Regenerator will be included in an annual Vegetation Monitoring Report to



be prepared by the ecologist and submitted to Project 28 Pty Ltd, Tweed Shire Council (TSC) and the Department of Planning (DoP).

Specifically the weed control section of the annual monitoring report will discuss the following:

- Results of the bush regeneration monitoring including any general comments from the Bush Regeneration Team Leader and all daily work record forms;
- Problems since the previous inspection (i.e. plant mortality, broken tree guards, fertiliser or mulch requirements, vandalism or broken fences);
- Any negative effects of the above problems;
- Measures taken or proposed to rectify any problems;
- The success or failure of measures implemented to rectify problems; and
- Performance against performance criteria (Section 5.5).

The relevant agencies will acknowledge the receipt of each monitoring report and provide comments as necessary.



## REFERENCES

Gilbert & Sutherland (2011) Erosion & Sediment Control Plan. Kings Forest Stage 1 Project Application. Prepared for Project 28. February 2011.

JWA (2011a) Kings Forest Stage 1 Project Application: Precinct 1 & 5 Vegetation Management Plan. James Warren and Associates. A Report for Project 28 Pty Ltd. March 2011

JWA (2011b) Kings Forest Stage 1 Project Application: Precinct 1 & 5 Threatened Species Management Plan. James Warren and Associates. A Report for Project 28 Pty Ltd. March 2011

JWA (2011c) Kings Forest Stage 1 Project Application: Precinct 1 & 5 Buffer Management Plan. James Warren and Associates. A Report for Project 28 Pty Ltd. March 2011

JWA (2011d) Kings Forest Stage 1 Project Application Feral Animal Management Plan. James Warren and Associates. A Report for Project 28 Pty Ltd. March 2011

JWA (2011e) Kings Forest Stage 1 Project Application: Koala Plan of Management James Warren and Associates. A Report for Project 28 Pty Ltd. March 2011

LandPartners (2009). Revised Weed Management Plan. Kings Forest.

Thom, R.M. (1997). System-development matrix for adaptive management of coastal ecosystem restoration projects. Ecol. Eng. 8, pp. 219-232.



## APPENDIX 1 – WEED SPECIES LIST

| Common name           | Botanical name                     |
|-----------------------|------------------------------------|
| Balloon Cotton Bush   | <i>Gomphocarpus physocarpus</i>    |
| Barner Grass          | <i>Pennisetum purpureum</i>        |
| Billygoat Weed        | <i>Ageratina houstonianum</i>      |
| Bird of Paradise      | <i>Strelitzia</i> sp.              |
| Bitou Bush            | <i>Chrysanthemoides monilifera</i> |
| Blackberry Nightshade | <i>Solanum nigrum</i>              |
| Broad-leaved Paspalum | <i>Paspalum dilatatum</i>          |
| Camphor Laurel        | <i>Cinnamomum camphora</i>         |
| Canna Lily            | <i>Canna indica</i>                |
| Castor Oil Plant      | <i>Ricinus communis</i>            |
| Cherry Guava          | <i>Psidium cattleianum</i>         |
| Chinese Burr          | <i>Triumfetta rhomboidea</i>       |
| Chinese Elm           | <i>Celtis sinensis</i>             |
| Coastal Morning Glory | <i>Ipomoea cairica</i>             |
| Cocos Palm            | <i>Syagrus romanzoffianum</i>      |
| Common Carpet Grass   | <i>Axonopus affinis</i>            |
| Coral Tree            | <i>Erythrina sykesii</i>           |
| Corky Passionfruit    | <i>Passiflora suberosa</i>         |
| Crofton Weed          | <i>Ageratina adenophora</i>        |
| Cuphea                | <i>Cuphea carthagenensis</i>       |
| Duranta               | <i>Duranta repens</i>              |
| Edible Passionfruit   | <i>Passiflora edulis</i>           |
| Exotic Clerodendron   | <i>Clerodendron</i> sp.            |
| Fireweed              | <i>Senecio madagascariensis</i>    |
| Fishbone Fern         | <i>Nephrolepis cordifolia</i>      |
| Fleabane              | <i>Conyza</i> sp.                  |
| Giant Devil's Thorn   | <i>Solanum chrysotrichum</i>       |
| Glory Lily            | <i>Gloriosa superba</i>            |
| Happy Plant           | <i>Dracaena</i> sp.                |
| Inkweed               | <i>Phytolacca octandra</i>         |



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| Common name            | Botanical name                            |
|------------------------|-------------------------------------------|
| Lantana                | <i>Lantana camara</i>                     |
| Lemon-scented Teatree  | <i>Leptospermum petersonii</i>            |
| Madeira Vine           | <i>Anredera cordifolia</i>                |
| Molasses Grass         | <i>Melinis minutiflora</i>                |
| Monstera               | <i>Monstera deliciosa</i>                 |
| Morning Glory          | <i>Ipomoea purpurea</i>                   |
| Moth Vine              | <i>Araujia sericiflora</i>                |
| Mother-in-law's Tongue | <i>Sansevieria trifasciata</i>            |
| Ochna                  | <i>Ochna serrulata</i>                    |
| Paddy's Lucerne        | <i>Sida rhombifolia</i>                   |
| Pampas Grass           | <i>Cortaderia jubata</i>                  |
| Para Grass             | <i>Brachiaria mutica</i>                  |
| Paspalum               | <i>Paspalum</i> sp.                       |
| Perennial Soybean      | <i>Neonotonia wightii</i>                 |
| Pigeon Grass           | <i>Setaria sphacelata</i>                 |
| Poor Man's Orchid      | <i>Epidendrum</i> sp.                     |
| Redhead Cotton Bush    | <i>Asclepias curassavica</i>              |
| Red Natal Grass        | <i>Melinis repens</i>                     |
| Rhodes Grass           | <i>Chloris gayana</i>                     |
| Scotch Thistle         | <i>Onopordum acanthium</i>                |
| Scrobic                | <i>Paspalum scrobiculatum</i>             |
| Slash Pine             | <i>Pinus elliottii</i>                    |
| Siratro                | <i>Macroptilium atropurpureum</i>         |
| Small-leaved Privet    | <i>Ligustrum sinense</i>                  |
| Thickhead              | <i>Crassocephalum crepidioides</i>        |
| Umbrella Tree          | <i>Schefflera actinophylla</i>            |
| Whiskey Grass          | <i>Andropogon virginicus</i>              |
| White Passionfruit     | <i>Passiflora subpeltata</i>              |
| Wild Tobacco           | <i>Solanum mauritianum</i>                |
| Winter Senna           | <i>Senna pendula</i> var. <i>glabrata</i> |



## APPENDIX 2 - WEED CONTROL METHODS

| Method                    | Technique                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bagging                   | Plants which can reproduce from plant material such as bulbs, tubers, corms, runners (stolons), underground horizontal stems (rhizomes), and plantlets formed on leaves should be bagged and removed from the site. Bagged plant material can be composted, burned or disposed in a landfill. Compost piles should be well anchored and positioned away from the flooding zone and from cattle. Compost piles should be appropriately monitored. Any burning should be undertaken away from the riparian zone and from native vegetation.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Basal Bark Treatment      | Used for saplings up to approximately 75mm in diameter. The entire surface of the stem is treated from ground level to about 300mm above the ground. Herbicide can be applied by brush or by spraying with a low pressure setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cut                       | The cut stump method must involve completely cutting the trunk or stem of the plant, at a level below the first branches or as near as practicable to ground level. Follow up maintenance (on an annual or bi-annual basis) to suppress regrowth, suckering and coppicing is essential.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Cut, Scrape & Paint       | The cut, scrape and paint method must involve completely cutting the trunk or stem of the plant, at a level below the first branches <u>or as near as practicable to ground level</u> . Herbicide must then be immediately applied to the cut surface of the cut trunk or stem. Following the cut and paint, the exposed stem or root surface is scraped till a light green coloured layer is visible. Herbicide is then immediately applied to the scraped surfaces.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Debris Management         | In the case of non-locally indigenous plants species that reproduce or regenerate vegetatively, debris should be managed in a manner to ensure complete death and should not be stacked and burned within 20 metres of remaining native vegetation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Hand Held Foliar Spraying | Foliar spraying involves spraying the foliage of the plant with an appropriate herbicide. Herbicide should be applied with a low-pressure concentrated spray stream sufficient to avoid misting and spray drift. Foliar spraying should only be used on plants that have a total height of 1.5 metres or less. In the case of deciduous plants, foliar spraying should only be undertaken when foliage is present on the target weeds and before yellowing and leaf fall commences. Foliar spraying should only be undertaken in a manner that does not cause harm to any adjacent native vegetation. Any native vegetation within one metre of the target plant must be adequately protected from direct spray, splash or drift. Foliar spraying must not occur over any water body (whether still or flowing) or in any manner which may result in direct or indirect application to a water body. Foliar spraying must only be carried out in calm conditions and must avoid spray drift. |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Method                                        | Technique                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hand Pulling                                  | Hand pulling must involve gripping and pulling the stem of the plant by hand to carefully remove the whole stem and root system from the ground. Hand pulling should only be used for plants that can be removed with minimal disturbance to the soil and existing litter or vegetative groundcover. Hand pulling is most effective when the plants to be removed are small and the soil is moist.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Herbicide Use                                 | <p>All use of herbicide involved in the carrying out of clearing activities must comply with:</p> <ul style="list-style-type: none"> <li>the directions on the attached labelling; or</li> <li>the National Registration Authority "North Coast Off-label Permit",</li> <li>or NRA permit PER3512 covering methods listed in the Appendix to Common Weeds of Northern NSW Rainforests published by the Big Scrub Rainforest Landcare Group.</li> </ul> <p>Any mixing of herbicide must be carried out at least 20 metres away from any watercourse and used herbicide containers must be disposed of in an appropriate manner. All use of herbicide must be undertaken with regard to the provisions of the <i>Protection of the Environment Operations Act 1997</i>. If a risk of pollution exists, a licence may be required from the Environment Protection Authority before work commences. Herbicide clearing methods must only be undertaken, or actively supervised, by a person or persons who have training and accreditation in the safe use and handling of chemicals. Herbicide clearing methods should only be used whilst the target plants are actively growing</p> |
| Ringbarking                                   | Ringbarking must involve the placing of a continuous sharp cut line (frill) around the entire trunk, to a depth below the sap flow zone, generally using an axe or tomahawk.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Scrape & Paint                                | The scrape/gouge & paint, method is used for vine weeds with tubers such as Madeira Vine ( <i>Anredera cordifolia</i> ). Sections of stem at least 300mm long are scraped firmly, exposing the fibres of the stem, and the scraped sections are painted with herbicide. (For Madeira Vine, 75% Glyphosate is used). The stems must not be severed. Gouging may also be used in the case of plants with fleshy tubers. Gouging is like 'eying' a potato except that a deeper well is gouged with the tip of a knife. (For Madeira Vine, the well is filled with 75% glyphosate.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Stem injection – frilling, drilling, spearing | A series of drill-holes or cuts must be made into the sapwood around the trunk below the branches of the plant. Herbicide must then be immediately injected into each hole or cut at the recommended dosage. Holes and cuts must be angled downwards into the trunk to prevent herbicide escape. Stem injection must not be undertaken immediately before or after rain. In the case of deciduous plants, stem injection must be undertaken during late summer to early autumn. Plants that have been stem injected should be left in place undisturbed for a minimum of 12 months after herbicide application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



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Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

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| Method       | Technique                                                                                                                                                                                                                                                                                                                                 |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vine Removal | Where the vines are generally prostrate on the ground, aerial parts of the vine (stems and leaves) should be rolled into heaps then cut and paint or hand pulling applied. Where the vines are hanging from trees then cut and paint or hand pulling applied. Hand pulling of Madeira vine, Cape Ivy and Climbing Cactus must be avoided. |



### APPENDIX 3 – SPECIES SPECIFIC WEED CONTROL TECHNIQUES

| Target Weed                                                | Recommended Techniques #                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Balloon Cotton Bush<br>( <i>Gomphocarpus physocarpus</i> ) | Hand-pull; spray (G 1:100 + surfactant).                                                                                                                                                                                                                                                      |
| Barner Grass<br>( <i>Pennisetum purpureum</i> )            | Overspray (G 1:100); slash back and spray regrowth.                                                                                                                                                                                                                                           |
| Billygoat Weed<br>( <i>Ageratum houstonianum</i> )         | Spray or hand-pull and spray regrowth (G 1:100 + surfactant).                                                                                                                                                                                                                                 |
| Bitou Bush<br>( <i>Chrysanthemoides monilifera</i> )       | <ul style="list-style-type: none"> <li>Hand pull young plants and hang up.</li> <li>Cut-scrape-paint at 1:1.5 glyphosate for small plants.</li> </ul> Systematic knapsack over spraying of Roundup at the rate of 1:200 with LI700 at a rate of 5ml per litre if no risk to native seedlings. |
| Blackberry Nightshade<br>( <i>Solanum nigrum</i> )         | Spray/hand-pull and spray regrowth (G 1:100 + surfactant).                                                                                                                                                                                                                                    |
| Broad-leaved Paspalum<br>( <i>Paspalum dilatatum</i> )     | Spray (G 1:100 + surfactant).                                                                                                                                                                                                                                                                 |
| Camphor Laurel<br>( <i>Cinnamomum camphora</i> )           | Seedlings: hand-pull/spray (G 1:100 + MM [1-2g/10L] + surfactant).<br>Stems: <100mm CSP (G 1:1) >100mm frill or inject @ <250mm (G 1:1 2ml/cut) >250mm diameter (G neat 2ml/cut).                                                                                                             |
| Canna Lily<br>( <i>Canna indica</i> )                      | Mattock out or Spray (G 1:100 + surfactant).                                                                                                                                                                                                                                                  |
| Carpet Grass<br>( <i>Axonopus affinis</i> )                | Spray (G 1:100 + surfactant).                                                                                                                                                                                                                                                                 |
| Castor Oil Plant<br>( <i>Ricinus communis</i> )            | Spray (G 1:100 + surfactant) or hand remove. C&P (G 1:1.5)                                                                                                                                                                                                                                    |



# Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Target Weed                                          | Recommended Techniques #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cherry Guava<br>( <i>Psidium cattleianum</i> )       | <ul style="list-style-type: none"> <li>Hand pull seedlings where possible (i.e. wet areas).</li> <li>Spray seedlings up to 50 cm tall with Glyphosate 1:50 or Glyphosate 1:50 plus Metsulfuron Methyl 1-2 g /10 l H<sub>2</sub>O.</li> <li>For plants greater than 50 cm tall and less than 5 cm basal diameter apply Access © (1:30 diesel) using basal bark method. Do not use this method within 5 m of creeks.</li> <li>For plants over 5 cm basal diameter cut and paint immediately with Access © (1:30 diesel).</li> </ul> <p>Alternate methods (off label, requires permit): cut and paint with Garlon © (1:60 diesel) or Starane © (35 ml per l diesel) or basal bark application with Garlon © (1:60 diesel) or Starane © (35 ml per l diesel).</p> |
| Chinese Burr<br>( <i>Triumfetta rhomboidea</i> )     | Spray (G 1:100 + surfactant).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Coastal Morning Glory<br>( <i>Ipomoea cairica</i> )  | <p>Roll up long runners CSP (G 1:1.5).</p> <p>Spray (G 1:100 + surfactant).</p> <p>Stem: Scrape &amp; paint (G 1:1.5).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Cocos Palm ( <i>Syagrus romanzoffianum</i> )         | <p>Seedling: hand-pull/crown seedlings</p> <p>Stem: mattock out small trees or cut at ground level below growing joint.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Coral Tree<br>( <i>Erythrina X sykesii</i> )         | Frill with glyphosate (1:1) – requires deep cuts with chainsaw/axe and a large volume of herbicide.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Corky Passionfruit<br>( <i>Passiflora suberosa</i> ) | <p>Seedling and regrowth: Spray (G 1:100+ surfactant or G 1:100 + MM 1-1.5gm/10L + surfactant).</p> <p>Stems: CS&amp;P (G 1:1.5).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Crofton Weed<br>( <i>Ageratina adenophora</i> )      | Spray: (G 1:100 or MM 1g/10L + surfactant).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Cuphea ( <i>Cuphea carthagenensis</i> )              | Spray (G 1:100 + LI700®).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Duranta ( <i>Duranta repens</i> )                    | Hand-pull seedlings or spray (G 1:100 + LI700®); cut, scrape & paint saplings (G 1:1.5); frill or spear trees (G (1:1.5). Best time for treatment early summer or when actively growing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Edible Passionfruit<br>( <i>Passiflora edulis</i> )  | <p>Handpulling, Cut Scrape and Paint with 1:1 glyphosate.</p> <p>Spraying of seedlings with 1:100 glyphosate + surfactant (note: spraying is not the most effective control as waxy leaves prevent herbicide uptake).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



# Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Target Weed                                                  | Recommended Techniques #                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fishbone Fern<br>( <i>Nephrolepis cordifolia</i> )           | Spraying of seedlings with 1:50 glyphosate + Brushoff® mix (1.5g/10L) and Protec®.                                                                                                                                                                                                                           |
| Giant Devil's Thorn<br>( <i>Solanum hispidum</i> )           | Seedling: Hand-pull / spray (G 1:100 + surfactant).<br>Stems: <100mm CSP (G 1:1.5) >100mm frill or inject (G 1:1.5 2ml/cut).                                                                                                                                                                                 |
| Glory Lily ( <i>Gloriosa superba</i> )                       | <ul style="list-style-type: none"> <li>Control prior to fruiting;</li> <li>2 sprays required;</li> <li>First in December using 1:50 glyphosate and 1 g/10 litres Brushoff® with 1% pulse.</li> <li>Second in February as above.</li> </ul> Ongoing monitoring and treatment required to achieve eradication. |
| Inkweed ( <i>Phytolacca octandra</i> )                       | Manual removal with mattock or Spray: (G 1:100 + surfactant).                                                                                                                                                                                                                                                |
| Lantana ( <i>Lantana camara</i> )                            | Hand pull/brushhook.<br>Spray: (G 1:100 + surfactant) or splatter gun (G 1:9).<br>Stem: CSP (G 1:1).                                                                                                                                                                                                         |
| Lemon-scented Teatree<br>( <i>Leptospermum petersonii</i> )  | Grub out with bulldozer                                                                                                                                                                                                                                                                                      |
| Madeira Vine<br>( <i>Anredera cordifolia</i> )               | Spray: ground infestation (G 1:50 + Pulse®).<br>Stem: scrape as much stem as possible (inner part of vine on one side only) and paint (G neat).<br>Tubers: scrape/gouge & paint (G neat). Bag any tubers or small hand-weeded vines & remove from site or compost under black plastic.                       |
| Molasses Grass<br>( <i>Melinis minutiflora</i> )             | Spray: (G 1:100 + surfactant).                                                                                                                                                                                                                                                                               |
| Monstera ( <i>Monstera deliciosa</i> )                       | Mattock out & remove from site or Overspray Spray: (G 1:100 + Brushoff® mix (1.5g/10L)                                                                                                                                                                                                                       |
| Morning Glory<br>( <i>Ipomoea purpurea</i> )                 | Roll up long runners and hang up to dry; scrape & paint (G 1:1.5); spray (G 1:100 + surfactant).                                                                                                                                                                                                             |
| Moth Vine ( <i>Araujia sericiflora</i> )                     | Spray: (G 1:100 + surfactant). Hand pull seedlings. Cut & paint (G 1:1.5) large stems.                                                                                                                                                                                                                       |
| Mother-in-law's Tongue<br>( <i>Sansevieria trifasciata</i> ) | Hand removal of all plants where possible.<br>Spray plantlets with glyph. 1:50 with Brushoff® 1.5 g/10l and Protec®.                                                                                                                                                                                         |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Target Weed                                          | Recommended Techniques #                                                                                                                                                              |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ochna ( <i>Ochna serrulata</i> )                     | Seedlings: Spray (G 1:50 + MM 1-1.5g/10L + surfactant)<br>Stems: <100mm CSP >100mm frill or inject (G 1:1.5 + MM 1g/L)].<br>Best treatment in late spring.                            |
| Paddy's Lucerne ( <i>Sida rhombifolia</i> )          | Spray: (G 1:100 + surfactant).                                                                                                                                                        |
| Pampas Grass ( <i>Cortaderia jubata</i> )            | Spray: (G 1:100 + surfactant) for plants <1m, or use a higher rate (eg. 1:77) for larger plants. Spray before flowering.                                                              |
| Para Grass ( <i>Brachiaria mutica</i> )              | Spray: (G 1:77 + surfactant) or hand remove (crown out)                                                                                                                               |
| Paspalum ( <i>Paspalum</i> sp.)                      | Spray (G 1:100 + surfactant).                                                                                                                                                         |
| Perennial Soy ( <i>Neonotonia wightii</i> )          | Cut & paint (G 1:1.5); Cut, scrape & paint (G 1:1.5); Spray (G 1:100 + surfactant).                                                                                                   |
| Pigeon Grass ( <i>Setaria</i> sp.)                   | Spray: (G 1:100 + surfactant).                                                                                                                                                        |
| Redhead Cotton Bush ( <i>Asclepias curassavica</i> ) | Hand-pull; spray (G 1:100 + surfactant).                                                                                                                                              |
| Red Natal Grass ( <i>Melinis repens</i> )            | Spray: (G 1:100 + surfactant).                                                                                                                                                        |
| Rhodes Grass ( <i>Chloris gayana</i> )               | Spray: (G 1:100 + surfactant).                                                                                                                                                        |
| Scotch Thistle ( <i>Onopordum acanthium</i> )        | Spray: (G 1:100 + surfactant).                                                                                                                                                        |
| Slash Pine ( <i>Pinus elliotii</i> )                 | Stem injection of trees with glyphosate (using axe or drill) at 1:1.5 or slash.                                                                                                       |
| Siratro ( <i>Macroptilium atropurpureum</i> )        | Spray: (G 1:50 + MM 1-2gm/10L + surfactant).<br>Stem: CSP (G 1:1).                                                                                                                    |
| Small-leaved Privet ( <i>Ligustrum sinense</i> )     | Seedlings: hand-pull or spray (G 1:50 + surfactant or G 1:50 + MM 1.5gms/10L + wetting agent or MM 1-2gms/10L + wetting agent);<br>Saplings: CS&P or C&P (1:1.5); Trees: F/I (1:1.5). |
| Umbrella Tree ( <i>Schefflera actinophylla</i> )     | Seedlings: hand-pull/spray (G 1:50 + surfactant or G 1:50 + MM 1-2gms/10L + Ag 2ml/10L)<br>Stem: <100mm CSP >100mm frill or inject (G 1:1.5). Best treatment in late spring.          |
| Whiskey Grass ( <i>Andropogon virginicus</i> )       | Spray: (G 1:100 + surfactant).                                                                                                                                                        |



Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Target Weed                                                | Recommended Techniques #                                                                                                                                                                                       |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| White Passion-fruit<br>( <i>Passiflora subpeltata</i> )    | Handpulling, Cut Scrape and Paint with 1:1 glyphosate.<br>Spraying of seedlings with 1:100 glyphosate + surfactant (note: spraying is not the most effective control as waxy leaves prevent herbicide uptake). |
| Wild Tobacco<br>( <i>Solanum mauritianum</i> )             | Spray: Hand pull/spray (G 1:100 + surfactant).<br>Stem: CSP (G 1:1).                                                                                                                                           |
| Winter Senna ( <i>Senna pendula</i> var. <i>glabrata</i> ) | Seedlings: hand-pull/spray (G 1:100 + surfactant)<br>Stem: <100mm CSP >100mm frill or inject (G 1:1.5). Best time for treatment early summer or when actively growing.                                         |



## APPENDIX 4 - BASELINE DATA PROFORMA

### Native Plant Species List

The following list details the native plant species present and their abundance within the work area:

|                                                                                                                                                                                                                                |                           |                     |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------|-----------|
| WORK AREA NUMBER:                                                                                                                                                                                                              | DATE:                     | CLIMATIC CONDITION: |           |
| VEGETATION TYPE:                                                                                                                                                                                                               |                           |                     |           |
| <input type="checkbox"/> Rainforest <input type="checkbox"/> Sclerophyll Forest <input type="checkbox"/> Wetland <input type="checkbox"/> Woodland <input type="checkbox"/> Heath <input type="checkbox"/> Riparian vegetation |                           |                     |           |
| Stratum                                                                                                                                                                                                                        | Native Plant Species Name |                     | Abundance |
|                                                                                                                                                                                                                                | Common name               | Scientific name     |           |
| Lower                                                                                                                                                                                                                          |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
| Mid                                                                                                                                                                                                                            |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |
| Upper                                                                                                                                                                                                                          |                           |                     |           |
|                                                                                                                                                                                                                                |                           |                     |           |

### Native Regeneration Scoring at Time of Assessment:

☐ Negligible ☐ Poor ☐ Moderate ☐ Good ☐ Exceptional

### Threatened plant species/endangered ecological communities list

List of threatened plant species/ Endangered Ecological Communities found at the work area:

| Species & Threatened Species Status | Number of plants | Management implications |
|-------------------------------------|------------------|-------------------------|
|                                     |                  |                         |
|                                     |                  |                         |
|                                     |                  |                         |
|                                     |                  |                         |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Endangered Ecological Community                                                          | Management implications |
|------------------------------------------------------------------------------------------|-------------------------|
| <b>Eg. Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion</b> |                         |
|                                                                                          |                         |
|                                                                                          |                         |
|                                                                                          |                         |
|                                                                                          |                         |

### **Habitat Features**

Fauna habitat features present on site:

|                                                              |                                                                                     |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Fauna observed: EXAMPLE Turkey mound present on site.</b> |                                                                                     |
| <input type="checkbox"/> Hollows in trees                    | <input type="checkbox"/> Riparian areas                                             |
| <input type="checkbox"/> Mature or overmature trees          | <input type="checkbox"/> Wet or damp areas (including soaks and springs)            |
| <input type="checkbox"/> Dead standing trees                 | <input type="checkbox"/> Leaf litter                                                |
| <input type="checkbox"/> Rocks and boulders                  | <input type="checkbox"/> Native grasses, rushes and sedges                          |
| <input type="checkbox"/> Fallen logs                         | <input type="checkbox"/> Fleshy fruited trees and shrubs ( <i>sapling present</i> ) |
| <input type="checkbox"/> Caves, mineshafts or overhangs      | <input type="checkbox"/> Nectar bearing trees and shrubs ( <i>sapling present</i> ) |
| <input type="checkbox"/> Springs                             | <input type="checkbox"/> Dense understorey shrubs                                   |
| <input type="checkbox"/> Lagoons                             | <input type="checkbox"/> Prickly understorey shrubs                                 |
| <input type="checkbox"/> Pool                                | <input type="checkbox"/> Seasonal cracks in the soil                                |
| <input type="checkbox"/> Watercourses/ Gully                 | <input type="checkbox"/> Other, please specify                                      |
| <b>Comments:</b>                                             |                                                                                     |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

### Environmental Weed Species List

|                             |                                            |                    |                     |
|-----------------------------|--------------------------------------------|--------------------|---------------------|
|                             |                                            |                    |                     |
| ZONE NUMBER:                |                                            | DATE:              | CLIMATIC CONDITION: |
| Stratum (lower, mid, upper) | Environmental weeds:<br>list of major ones | Percentage cover % |                     |
| Lower                       |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
| Mid                         |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
| Upper                       |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |
|                             |                                            |                    |                     |

### Other Threats or Impacts

| Feral Animal presence, list major one: | Area of most disturbance (Zone No) | Impact                 | Management implications |
|----------------------------------------|------------------------------------|------------------------|-------------------------|
| <i>EXAMPLE: Cane Toad</i>              | <i>Open disturbed area</i>         | <i>On native fauna</i> | <i>Monitor presence</i> |

| Possible negative impacts                                      | Impact                                               | Management implications                                                                                                                                                                                                                             |
|----------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXAMPLE<br><input checked="" type="checkbox"/> Stock intrusion | <i>On regenerating native plants</i>                 | <i>Stock intrusion is unlikely, however if evidence of significant negative impact of regenerating native vegetation is detected, then fencing of stock may be required.</i>                                                                        |
| EXAMPLE<br><input checked="" type="checkbox"/> Herbicide drift | <i>On threatened XXXX plant and on native plants</i> | <i>Use of herbicides to control weeds around the threatened plants will have to be done with utmost care and only by experienced bush regenerators. In any case weed control using herbicides must comply with current Best Management Practice</i> |



### **Environmental Restoration Issues**

➤ Weaknesses

EXAMPLE

- *Exposed, no canopy, high light.*
- *Copious weed regeneration following disturbance.*
- *Sloping site difficult to work in.*
- *XXX threatened species present in abundance; this will slow down weed control speed.*

➤ Strengths

EXAMPLE

- *Good seed source for native recruitment.*
- *Some native regeneration occurring.*

### **Restoration Objectives for Work Area**

EXAMPLE: *To undertake all enhancement plantings and the first stage weed control program by the release of the subdivision certificate, and to achieve an 80% native species canopy cover in all areas by November 2009.*



## APPENDIX 5 - DAILY WORK RECORD PROFORMA

### Work Record and Observation Pro Forma

This form is to be filled by the team leader for each workday. The team leader will need to allow 15 minutes each day to gather any relevant information from team members and to fill in this form.

|                      |       |
|----------------------|-------|
| Name of team leader: | Date: |
|----------------------|-------|

|                  |              |
|------------------|--------------|
| Vegetation type: | Site Number: |
|------------------|--------------|

|                     |
|---------------------|
| Weather conditions: |
|---------------------|

|                       |
|-----------------------|
| Specific work zone/s: |
|-----------------------|

|                      |         |                    |               |              |
|----------------------|---------|--------------------|---------------|--------------|
| Work team details:   |         |                    |               |              |
| Name                 | Zone No | Time started       | Time finished | Hours worked |
|                      |         |                    |               |              |
|                      |         |                    |               |              |
|                      |         |                    |               |              |
|                      |         |                    |               |              |
| Total no of workers: |         | Total no of hours: |               |              |

Description of work undertaken (e. *spraying, hand weeding, replanting, etc*). Mark work progress on project map on back of form:

|                               |                                 |                                 |                                                             |            |                               |                  |                    |
|-------------------------------|---------------------------------|---------------------------------|-------------------------------------------------------------|------------|-------------------------------|------------------|--------------------|
| Weed control undertaken       | Weed species                    | Material used (tools/machinery) | Chemical application (type/ratio/volume)                    | Zone No(s) | Area worked (m <sup>2</sup> ) | Number of people | Total hours worked |
| Spraying                      |                                 |                                 |                                                             |            |                               |                  |                    |
| Tree injections               |                                 |                                 |                                                             |            |                               |                  |                    |
| Cut & Paint                   |                                 |                                 |                                                             |            |                               |                  |                    |
| Hand weeding                  |                                 |                                 |                                                             |            |                               |                  |                    |
| Other, specify                |                                 |                                 |                                                             |            |                               |                  |                    |
|                               |                                 |                                 |                                                             |            |                               |                  |                    |
| Replanting undertaken         | Material used (tools/machinery) |                                 | Fertilizer, mulch, tree protection used (type/ratio/volume) | Zone No(s) | No of trees planted           | Number of people | Total hours worked |
|                               |                                 |                                 |                                                             |            |                               |                  |                    |
| Fencing undertaken            | Type of fence                   |                                 | Material used (tools/machinery)                             | Zone No(s) | Km of fence                   | Number of people | Total hours worked |
| Other work, describe activity |                                 |                                 | Material used (tools/machinery)                             | Zone No(s) | Quantity                      | Number of people | Total hours worked |
|                               |                                 |                                 |                                                             |            |                               |                  |                    |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

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### **Observations:**

New native species or native species not previously recorded in work zone (please note date and zone No):

Name and date of any native plant species in flower or fruit, sudden and abundant regeneration of a particular species, or other relevant observations

New weed species or weed species not previously recorded in work zone (please note date and zone No):

Any animal sightings, please indicate if by visual identification, calls, nests, footprints, scats, clawmarks, shed skin, diggings, smell, feeding, etc.

### **Blank project map**

Use map to indicate work undertaken for each day (eg. hatching weed control progress).

Signature: \_\_\_\_\_



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

### **Chemical Operators Data Sheet**

Location \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Operator/s \_\_\_\_\_

| Herbicide                                   | Batch No. | Dilution Rate | Total | Operator (Initials) | Equipment |
|---------------------------------------------|-----------|---------------|-------|---------------------|-----------|
| <b>Glyphosate:</b>                          |           |               |       |                     |           |
| <input type="checkbox"/> RoundupBiactive®   |           |               |       |                     |           |
| <input type="checkbox"/> Weedmaster Duo®    |           |               |       |                     |           |
|                                             |           |               |       |                     |           |
| <b>Metsulfuron Methyl:</b>                  |           |               |       |                     |           |
| <input type="checkbox"/> Brushkiller®       |           |               |       |                     |           |
| <input type="checkbox"/> Brushoff®          |           |               |       |                     |           |
|                                             |           |               |       |                     |           |
| <b>Glyphosate PLUS Metsulfuron Methyl:</b>  |           |               |       |                     |           |
| <input type="checkbox"/> RoundupBiactive®   |           |               |       |                     |           |
| <input type="checkbox"/> Weedmaster Duo®    |           |               |       |                     |           |
| <input type="checkbox"/> Brushkiller®       |           |               |       |                     |           |
|                                             |           |               |       |                     |           |
| <b>Triclopyr &amp; Picloram:</b>            |           |               |       |                     |           |
| <input type="checkbox"/> Grazon®            |           |               |       |                     |           |
| <input type="checkbox"/> Tordon T/C®        |           |               |       |                     |           |
|                                             |           |               |       |                     |           |
| <b>Marker Dye:</b>                          |           |               |       |                     |           |
| <input type="checkbox"/> White field marker |           |               |       |                     |           |
| <input type="checkbox"/> Red marker         |           |               |       |                     |           |
| <input type="checkbox"/> Other              |           |               |       |                     |           |
|                                             |           |               |       |                     |           |
| <b>Additive:</b>                            |           |               |       |                     |           |
| <input type="checkbox"/> LI 700®            |           |               |       |                     |           |
| <input type="checkbox"/> Agral®             |           |               |       |                     |           |
| <b>Other</b>                                |           |               |       |                     |           |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

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| Growing Conditions                 | Temperature                             | Weather Conditions                 | Wind / Direction                                         |
|------------------------------------|-----------------------------------------|------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Very Good | <input type="checkbox"/> Cool <20°      | <input type="checkbox"/> Showers   | <input type="checkbox"/> Strong <input type="checkbox"/> |
| <input type="checkbox"/> Good      | <input type="checkbox"/> Warm 21°-25°   | <input type="checkbox"/> Overcast  | <input type="checkbox"/> Gusty <input type="checkbox"/>  |
| <input type="checkbox"/> Poor      | <input type="checkbox"/> V/Warm 26°-30° | <input type="checkbox"/> Clear Sky | <input type="checkbox"/> Light <input type="checkbox"/>  |
| <input type="checkbox"/> Very Poor | <input type="checkbox"/> Hot >30°       | <input type="checkbox"/> Variable  | <input type="checkbox"/> Calm <input type="checkbox"/>   |

Zone/Area: \_\_\_\_\_

—

Comments: \_\_\_\_\_

—

(Signature).....



## APPENDIX 6 – MONITORING & MAINTENANCE PROFORMA

Monitoring to be undertaken prior to the compilation of each Monitoring and Evaluation Report. Use information recorded as observations in the 'Work record and observation proforma'.

|                        |       |
|------------------------|-------|
| Project name:          |       |
| Name of form compiler: | Date: |
| Climatic Condition:    |       |

|                                                                                                                           |                                                             |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Has there been any new record of native plant species on a specific work zone (or the project site) since last recording? | <input type="checkbox"/> yes<br><input type="checkbox"/> no |
| If yes, indicate in which zone and list native plant species:<br>Zone Number<br>Species<br>Management implications        |                                                             |

## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

|                                                                                                                                                                                                                                                                                                         |                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Has there been an increase in native plant species cover on a specific work zone (or the project site) since last recording?                                                                                                                                                                            | <input type="checkbox"/> yes<br><input type="checkbox"/> no |
| If yes, indicate how observation was made<br><input type="checkbox"/> Increase from original Foliage Projective Cover on permanent transects/quadrats<br><input type="checkbox"/> Increase estimated by differences from shots taken at permanent photo points<br><input type="checkbox"/> eye estimate |                                                             |
| If yes, indicate in which zone and list native plant species and % cover increase <sup>1</sup> :<br>Zone ID<br>Species<br>Previous % cover<br>Current % cover<br>Management implications                                                                                                                |                                                             |

<sup>1</sup> Allow for seasonal differences (eg. prolonged dry weather)



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

| Has there been any new record of environmental weeds species on a specific work zone (or the project site) since last recording?<br><input type="checkbox"/> yes<br><input type="checkbox"/> no |         |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------|
| If yes, indicate in which zone and list environmental weeds species:                                                                                                                            |         |                         |
| Zone Number                                                                                                                                                                                     | Species | Management implications |
|                                                                                                                                                                                                 |         |                         |
|                                                                                                                                                                                                 |         |                         |
|                                                                                                                                                                                                 |         |                         |
|                                                                                                                                                                                                 |         |                         |
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|                                                                                                                                                                                                                                                                                                         |                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Has there been a decrease in environmental weed species cover on a specific work zone (or the project site) since last recording?                                                                                                                                                                       | <input type="checkbox"/> yes<br><input type="checkbox"/> no |
| If yes, indicate how observation was made<br><input type="checkbox"/> Decrease from original Foliage Projective Cover on permanent transects/quadrats<br><input type="checkbox"/> Decrease estimated by differences from shots taken at permanent photo points<br><input type="checkbox"/> eye estimate |                                                             |
| If yes, indicate in which zone and list native plant species and % cover decrease:<br>Zone Number<br>Species<br>Previous % cover<br>Current % cover<br>Management implications                                                                                                                          |                                                             |
|                                                                                                                                                                                                                                                                                                         |                                                             |



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**If replanting has been undertaken**, please indicate:

Planting survival rate:

|                                                                      |                                                |
|----------------------------------------------------------------------|------------------------------------------------|
| In the case of planting losses or poor health what were the reasons? |                                                |
| <input type="checkbox"/> Competition from weeds or grasses           | <input type="checkbox"/> Disease               |
| <input type="checkbox"/> Lack of water                               | <input type="checkbox"/> Waterlogging/flooding |
| <input type="checkbox"/> Frost                                       | <input type="checkbox"/> Bushfire              |
| <input type="checkbox"/> Grazing pressure, specify type:             | <input type="checkbox"/> Other, specify        |

Does the surviving planted vegetation appear healthy? ☐ yes ☐ no  
If not, explain why

|                                                                                                                 |           |                         |
|-----------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
| Is the planted vegetation flowering/fruitlet? <input type="checkbox"/> yes <input type="checkbox"/> no          |           |                         |
| <b>Is native plant species regeneration occurring?</b> <input type="checkbox"/> yes <input type="checkbox"/> no |           |                         |
| If yes, list species regenerating                                                                               |           |                         |
| Species                                                                                                         | Abundance | Management implications |
|                                                                                                                 |           |                         |
|                                                                                                                 |           |                         |
|                                                                                                                 |           |                         |
|                                                                                                                 |           |                         |
|                                                                                                                 |           |                         |

Does the planted vegetation appear well maintained? ☐ yes ☐ no  
If not, explain why



### Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

List any native fauna sighted (including numbers) since last recording, please indicate if by visual identification, calls, nests, footprints, scats, clawmark, shed skin, diggings, smell, feeding, etc.

| Feral fauna sighted | Number | Indicator | Management implications |
|---------------------|--------|-----------|-------------------------|
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |

List any feral fauna sighted (including numbers) since last recording, please indicate if by visual identification, calls, nests, footprints, scats, clawmark, shed skin, diggings, smell, feeding, etc.

| Feral fauna sighted | Number | Indicator | Management implications |
|---------------------|--------|-----------|-------------------------|
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
|                     |        |           |                         |
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|                     |        |           |                         |



## Kings Forest (Stage 1) - Precinct 1 & 5 Weed Management Plan

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The following questions are important to determine whether the project objectives have been met. It is important to set up a feedback loop in order to check the project's progress. The management implications recorded in this form will be highly valuable in this regard. Please note that it is not a question of pass (yes) or failure (no), but rather an honest assessment of the project performance.

Are the **specific outputs** outlined in the Work Plan **being met**? ☐ yes ☐ no  
If not, explain why

Are the project objectives/milestones being met? ☐ yes ☐ no  
If not, indicate why

Should you reassess the project objectives/milestones? ☐ yes ☐ no  
If yes, indicate management changes

**NOTE:** Amend the Work Plan to reflect changes