

**MT ATKINSON, TRUGANINA – PRECINCT 1  
EASTERN GREY KANGAROO MANAGEMENT  
PLAN**

**ADVERTISED  
PLAN**

**Stockland**

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## 1. EXECUTIVE SUMMARY

Stockland engaged BL&A to prepare an Eastern Grey Kangaroo (EGK) Management Plan for Precinct 1 of the Mt Atkinson development in Truganina, approximately 60.2-hectares in area (Figure 1). The land is subject to a subdivision application; development cannot start until the Department of Environment, Land, Water and Planning (DELWP) approves this Management Plan .

This Management Plan provides a long-term, adaptable strategy for the management of EGK over the life of the development at the site and has been prepared in accordance with the Department of Environment, Land, Water and Planning's (DELWP) most up-to-date draft of *Guide to preparing a kangaroo management plan for Melbourne's growth corridors* dated 25<sup>th</sup> August 2014.

The EGK is a highly-mobile species found commonly throughout Victoria. As a result of urban growth in Melbourne and the implementation of the program *Delivering Melbourne's Newest Sustainable Communities*, the species habitat range is likely to be impacted by the loss of grassland, grassy woodland and farmland. If poorly managed, development in and around EGK habitat could lead to 'landlocking' of these animals, which in turn can lead to a number of adverse consequences ranging from animal welfare issues to potential human safety concerns.

A field survey and desktop assessment found that the site to be developed currently supports farmland (grazing land) with grassland habitats for EGK and several farm dams and water troughs that provide sources of water for EGK.

The surrounding land to a distance of one kilometre from the site was also dominated by farmland and grassland habitats with some smaller areas of earthworks, planted trees, an orchard and several additional farm dams. Greigs Road and a railway line lie some 500 metres to the north and Hopkins Road lies 480 metres to the east. A deviation of Greigs Road and a private access road are soon to be constructed to provide access to Precinct 1.

EGK were recorded in the site and the broader study area in land up to one kilometre from the site during the field assessment undertaken for this Management Plan. The majority of kangaroos were observed grazing in grassland habitat in the southern half of the broader study area. Up to 25 kangaroos were observed during any one survey, with patches of planted trees and boxthorn providing in the form of shade.

The aim of this management plan is therefore to propose management strategies and implement actions to:

- Prevent EGK from being attracted to the Precinct 1 subdivision area during the construction phase; and
- Prevent harm from construction to any EGK should the species migrate into the site.

Construction will be staged in a way that avoids the creation of 'pockets' of undeveloped land between constructed stages and to allow any EGK in undeveloped land to move into surrounding areas of suitable habitat, including Mount Cottrell to the west and the Werribee River further west which provides a dispersal route into the wider region.

This report is divided into the following sections.

**Section 2** details the ecology of the EGK and describes environmental, economic and social impacts that must be taken into consideration when managing a population of EGK on the urban fringe.

**Section 3** gives a site description and discusses the observations of kangaroo in the subject site and surrounding area.

**Section 4** presents different management options for EGK and justification for the most appropriate management strategies.

This investigation was undertaken by a team from BL&A, comprising Teisha Lay (Zoologist), Curtis Doughty (Zoologist), Greg Cranston (Ecologist) and Mal Wright (Senior Ecologist & Project Manager).

## **2. EASTERN GREY KANGAROO**

### **2.1. Species biology**

#### **2.1.1. Description**

The Eastern Grey Kangaroo (EGK) has grey-brown upperparts, pale hind legs and feet and underparts that are pale grey or whitish. They have a long tail and long ears. Males are up to twice the body weight of females, with a more heavily developed chest and forearms. The species hops in upright posture with its head held high and tail curved upwards (Menkhorst and Knight 2001).

#### **2.1.2. Distribution & habitat**

The EGK is widespread throughout Victoria except in the north west of the state (Menkhorst 1995). The EGK is absent from areas of higher altitude and areas that have been extensively cleared for agricultural purposes. They favour habitats with a high biomass of grass cover, combined with cover in the form of trees and shrubs for shelter (Menkhorst 1995). The species is widely distributed and abundant in woodland and forest. The areas between forests and farmland also provide suitable habitat.

The home range of the EGK varies considerably and has been recorded from 1.2 to 4.3 square kilometres (Jarman and Taylor 1983). In their study of a pasture-forest habitat, Jaramovic and Croft (1987) calculated mean feeding ranges of 0.23 and 0.20 square kilometres for males and females respectively. Typically, the home range of the EGK includes open grassy vegetation where it feeds from late afternoon to early morning and denser wooded cover where it rests during the day (Menkhorst 1995).

The EGK is usually found in groups, which vary in size and composition. Association between age and sex classes of EGK in a group are highly variable, and animals leave or join groups frequently (Southwell 1984). Females with young at foot and large males tend to be alone more frequently than other classes. Lone males tend to move between groups to check on the breeding condition of females (Menkhorst 1995). The dominant male is determined mainly by size, and he will defend the females in his group and home range.

#### **2.1.3. Status**

Substantial numbers of kangaroos were noted by early explorers and travellers in Victoria (Robinson 1841, Barker and Caughley 1992). During the first decades of pastoral expansion (1840 to 1880) there was an apparent increase in the abundance of EGK (Bolderwood 1884, Barker and Caughley 1992). This species was vigorously persecuted as a cultural pest and with the increasingly intensive agriculture and clearing of native vegetation, the abundance of the EGK in closely settled rural areas of Victoria has declined and remnant populations are limited to areas where forest or woodland cover has been retained (Menkhorst 1995).

### **2.2. Potential risks from an Eastern Grey Kangaroo population**

Large numbers of EGK can lead to undesirable environmental, economic and social impacts or raise animal or human welfare concerns. These concerns are discussed in this section.

### **2.2.1. Environmental impacts**

Excessive grazing pressures are an issue in areas where EGK populations reach high densities. With the recognition in Victoria of the threatened status of native grassland ecosystems and their component species and reservation of land to protect native grasslands, concern has grown in recent years about the impact of excessive EGK grazing pressure on those ecosystems.

The vegetation communities and the species within them (some of which are endangered or critically endangered) may be placed at risk when grazing pressure is too intense.

### **2.2.2. Economic impacts**

The potential for collisions between EGK and vehicles and accidents derived from collision avoidance represent an economic impact to the community. Consequently, this has an economic impact on insurance costs and vehicle repair.

Kangaroo populations may also have an impact on the economic viability of rural properties due to grazing pressures. Kangaroos may compete with domestic livestock for food and water (Shepherd and Caughley 1987) and damage fences.

### **2.2.3. Kangaroo welfare**

There are differing ethical positions regarding moral obligations towards animals and this is important in understanding community attitudes towards EGK management in the wider region. Of particular importance is the extension of the concept of animal welfare to the concept of animal rights (Passmore 1980).

Under the animal rights approach, life should not be taken except where it is the only humane option in the face of overwhelming suffering (Department of Territory and Municipal Services 2010).

There is legislation on conservation and animal welfare, but the concept of animal rights is not as widely accepted by society or governments. In Victoria, all wildlife is protected under the *Wildlife Act 1975* and the *Prevention of Cruelty to Animals Act 1986*. The RSPCA is primarily responsible for welfare investigations for non-commercial animals.

### **2.2.4. Human welfare**

The main human welfare concerns include road traumas and reported attacks from EGK.

Road trauma involves injury caused to vehicle occupants from collisions with EGK and distress at seeing and feeling responsible for injuries to EGK. There are also particular issues for wildlife handlers who attend such incidents, relating to traffic danger and the euthanasia of a large injured animal (Department of Territory and Municipal Services 2010).

In cases where kangaroos are fed by humans they can be aggressive towards people who withhold food from them. Dominant male kangaroos are also known to protect their home range against humans and there have been reported attacks in some instances.

### 3. STUDY AREA AND SURVEY RESULTS

#### 3.1. Definitions

The term ‘site’ for this investigation is 60.2 hectares of private land located at Mt Atkinson, Truganina, forming Precinct 1 of the Mt Atkinson development abutting the future deviation of Greigs Road (Figure 1). The term ‘study area’ is used here to describe the surrounding land up to one kilometre from the site.

#### 3.2. Study area description

The existing Greigs Road lies some 500 metres to the north and Hopkins Road lies 480 metres to the east. A future deviation of Greigs Road will bring it in line with the northern boundary of Precinct 1. The Mount Cottrell Nature Conservation Reserve is located approximately 4.5 kilometres to the west and the Werribee River is a further 4 kilometres to the west.

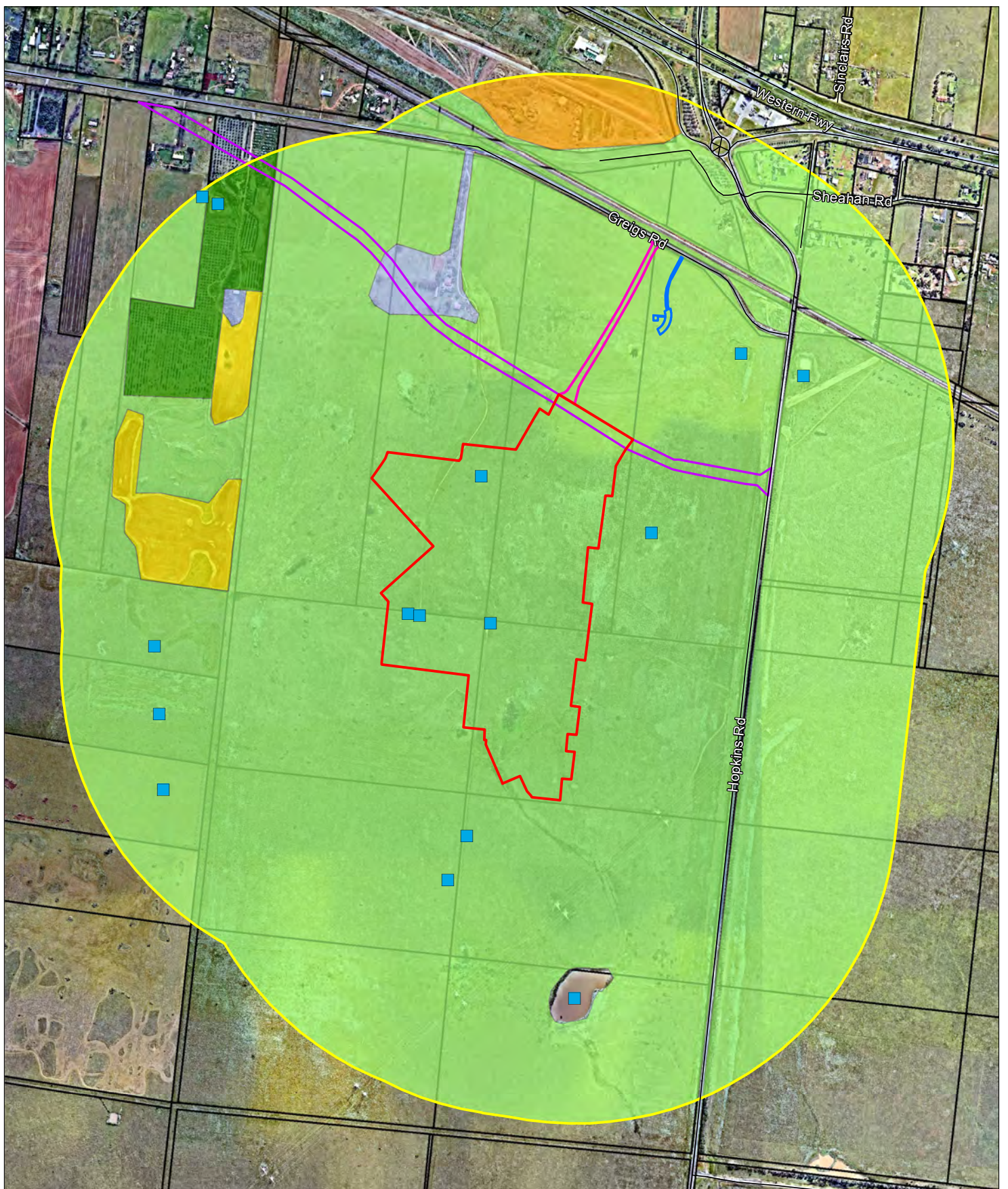
The study predominantly supported grassland habitat (grazing and cropping land) and several sources of water in the form of farm dams and water troughs; four of these sources occur in the site itself. Small areas of planted trees and an orchard also occur in the study area.

The study area comprised four different habitat types including:

- **Grassland habitats:** Grassland was widespread throughout the study area. This habitat supported a high biomass of grass which provided the EGK with all their foraging requirements. The grassland provided shelter and cover for the EGK as it was over one metre high in some places throughout this habitat. Small stands of boxthorn were present which provided shelter.
- **Water points (farm dams, water troughs) and wetlands:** Farm dams were scattered across the study area, with a large dam situated adjacent to Hopkins Road in the south. There were several stagnant water troughs located in the site which provides a permanent source of drinking water to EGK.
- **Crop and Orchard:** Along the western boundary of the study area lies a cropping paddock and an orchard. The crop may provide a food source for EGK. The orchard was considered unsuitable habitat for EGK.
- **Planted Trees:** Small areas of planted sugar gums were located in the northern half of the study area and comprised a sparse understory of Boxthorn. This habitat provided shade and shelter for the species.

The location and extent of the habitat types is shown in Figure 1.

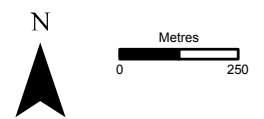




**Figure 1: Study area and EGK habitat type**

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- |                              |                     |
|------------------------------|---------------------|
| Study area                   | <b>Habitat type</b> |
| Water point                  | Crop                |
| Search area (1km buffer)     | Earthworks          |
| Sales office                 | Grassland           |
| Future Greigs Road deviation | Orchard             |
| Private access road          | Planted trees       |



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### 3.3. Eastern Grey Kangaroo in the study area

In November and December 2017, BL&A carried out an EGK field assessment of the study area. The methods and results of this survey are provided below.

#### 3.3.1. Survey methods

The surveys involved surveying the site on foot and visual searches of the broader study area up to one kilometre from the site from roadsides. The surveys were undertaken by two zoologists over four days to capture information during the DELWP-prescribed morning and evening periods as follows:

- From mid-afternoon to evening (4pm to 10pm) over two days on the 15<sup>th</sup> and 27<sup>th</sup> November 2017; and
- From dawn to daylight (6am to 10am) over two days on the 17<sup>th</sup> November and 13<sup>th</sup> December 2017.

The weather conditions at the time of the surveys were mostly fine and sunny.

The surveys included active searching of the subject site for EGK any signs that EGK have been utilising the site, such as scats, tracks and other evidence – i.e. fur on barbed wire fencing. Beyond the subject site, active searches for EGK and/or road kill were undertaken from roadsides using binoculars.

#### 3.3.2. Survey results

The majority of kangaroos were observed grazing in grassland habitat in the southern half of the study area (Figure 2) with several sightings made within the site itself. Up to 25 kangaroos were observed during any one survey. The kangaroos observed in the study area were in good health and young kangaroos were observed with adults. No roadkill was observed within the study area during the survey period.

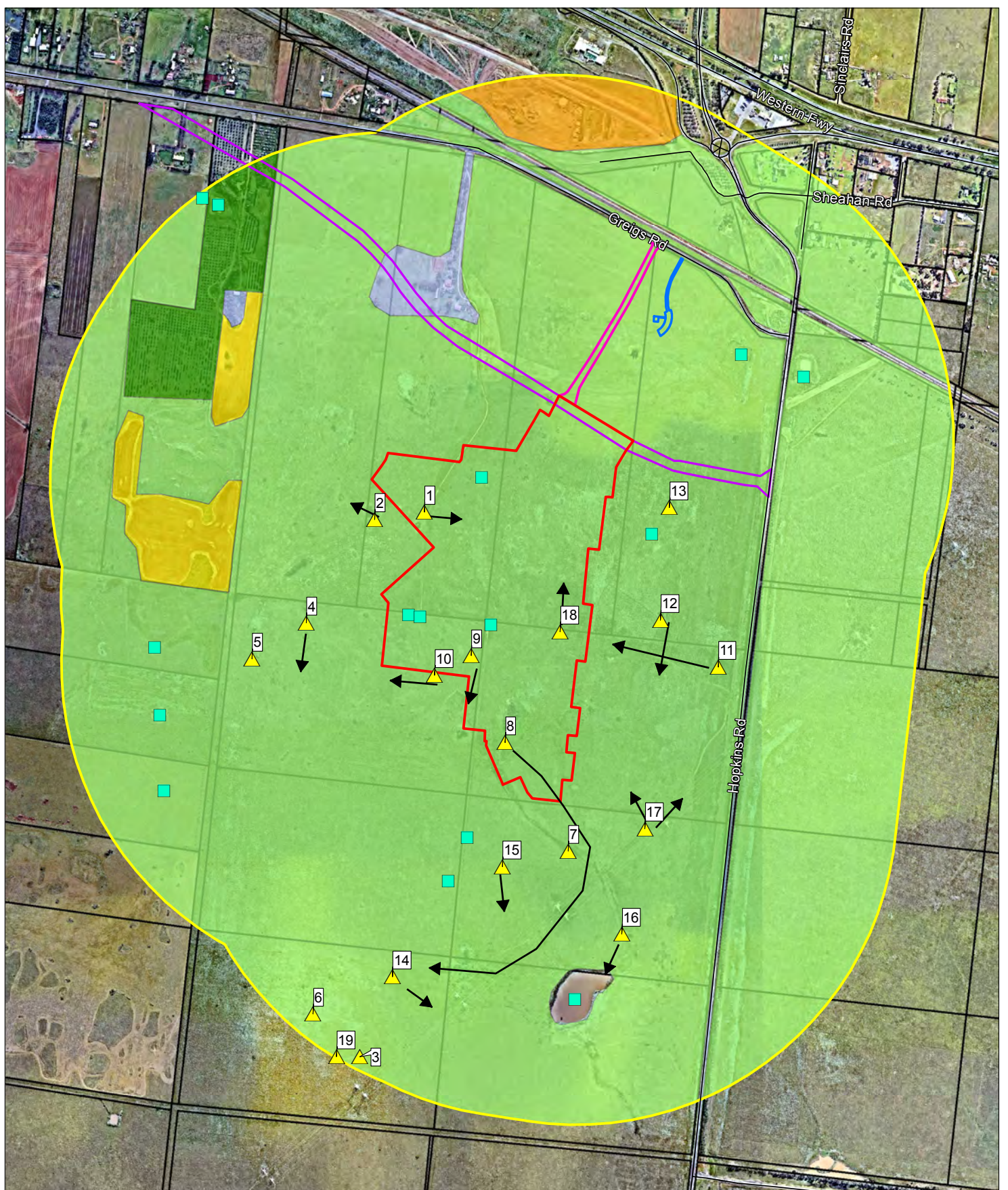
Habitats supporting the species included grassland (both high and short grass), planted trees and some small pockets of land for production. The grassland habitat provided grazing opportunities and cover within the site and surrounding habitat. Scattered farm dams and troughs held water and provided reliable water sources for the kangaroos. These water sources are indicated in Figure 1. Patches of planted trees and boxthorn provided shelter in the form of shade. Signs of tracks and scats were common throughout much of the study area.

Recorded observations of EGK made during the survey are described in Table 1.

Table 1: Survey results

Date	Observation Time	No. of EGK	Total number for survey	Map ref	Activity/Movements	Habitat	Age Structure	Health	
15/11/2017	16:45	1	13	1	Moving	Grassland	1 Adult	Good	
	19:30	9		2	Moving		Mixed		
	19:40	3		3	Moving		3 Adult males		
	20:00	1		4	Moving		1 Adult		
17/11/2017	6:00	1	17	5	Moving		1 Adult		
	6:15	6		6	Moving		3 Adults, 3 Joey at foot		
	6:17	2		7	Standing/moving		1 Adult, 1 joey at foot		
	6:20	4		8	Standing		4 Adults		
	6:38	5		9	Standing/moving		1 Adult male, 1 joey at foot, 1 joey in pouch		
	6:45	5		10	Standing/resting		1 Adult male, 4 Adult		
	6:50	4		11	Standing/resting		3 Adult, 1 joey at foot		
30/11/2017	8:09	4	25	12	Moving		3 Adult, 1 joey at foot		Good
	8:19	2		13	Moving		2 Adults		
	8:26	2		14	Moving	2 Adults			
	8:28	8		15	Moving	8 Adults			
	8:35	9		16	Moving	8 Adults, 1 Joey at Foot			
13/12/2017	6:50	11	15	17	Feeding, Resting	Mixed	Good		
	7:18	3		18	resting, Jumping	2 Adults, 1 Joey at foot			
	7:22	1		19	Resting, Feeding	1 Adult			





**Figure 2: Kangaroo records and movements in the study area**

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- |                              |                     |                  |
|------------------------------|---------------------|------------------|
| Study area                   | <b>Habitat type</b> | EGK observations |
| Search area (1km buffer)     | Crop                | EGK movements    |
| Sales office                 | Earthworks          |                  |
| Future Greigs Road deviation | Grassland           |                  |
| Private access road          | Orchard             |                  |
| Water point                  | Planted trees       |                  |



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## 4. MANAGEMENT GOALS AND ACTIVITIES

This chapter of the management plan discusses management options for EGK and a justification of the most suitable options for the site. Specific management actions that will be implemented are discussed further in the following section.

The major concern in the management of EGK is that animals may become ‘landlocked’ by urban development. If EGK become land locked or reach unsustainable numbers, it could potentially lead to animal welfare issues and economic and social impacts to the community.

### 4.1. Management Plan goals

The goals of this EGKMP are to minimise risks to animal welfare, public safety and the environment during the construction phase of the development through a staged development plan and other initial and responsive management actions.

This EGKMP is based on a consideration of the lifetime, and end-point, of the development. By the end-point of development it is expected that a sustainable population of kangaroos is likely to remain on, or adjacent to, the site.

Based on the above goals and the management options assessment presented in this chapter, the following management strategies will initially be implemented:

- Staging the development (Section 4.2.1);
- Environmental inductions (Section 4.2.2);
- Removal of water sources (Section 4.2.3);
- Monitoring (Section 4.2.4); and
- Reporting (Section 4.2.5).

This management plan is adaptive, in that the results of monitoring activities and the outcomes of management strategies will influence the management activities to be implemented. Management activities will be reviewed annually and any recommendations for change will be based on monitoring results and new information or technologies.

Adaptive management measures suggested in this plan include the following:

- Mowing and slashing grassland habitats immediately prior to construction (Section 4.3.1); and
- Exclusion fencing (Section 4.3.2).

Section 4.4 presents management tables for years one and two following acceptance of this management plan, with performance indicators to monitor the effectiveness of management activities in preventing ‘landlocking’ of EGK in the site.

The following management actions will be implemented as part of a management strategy.

### 4.2. Management strategy

#### 4.2.1. Staging the development

The primary EGK management strategy for the Precinct 1 subdivision is to stage construction in a way that avoids the creation of ‘pockets’ of undeveloped land between constructed stages or between the site and adjacent developments or major infrastructure such as roads and railways.

Precinct 1 is located on the eastern edge of the overall masterplan for the Mt Atkinson development and is separated from Hopkins Road to the east by grazing land some 480 metres in width (Appendix 1). It is understood that the Greigs Road deviation will be implemented prior to commencement of construction; Precinct 1 will occur south of this deviation.

Based on current knowledge, in all other directions Precinct 1 will be surrounded by grazing land during construction and the precinct will be staged in such a way that no development stage will be separated from surrounding land by any other stage (Appendix 2). This will allow EGK to move away from construction areas into open land described previously.

It is not considered that the concurrent construction of the Greigs Road deviation and a private access road shown in Figure 1 constitutes the same barrier to EGK movement associated with a subdivision stage. It is therefore not considered that this road construction would lead to 'landlocking' of EGK.

#### **4.2.2. Environmental induction**

All construction workers are to participate in an environmental induction in which they will be made aware of the potential presence of EGK within the construction area.

The induction will cover:

- A brief review of the rationale behind kangaroo management as outlined in Section 2.2;
- A brief review of the population survey results as outlined in Section 3.3.
- A detailed review of management and preventative actions outlined in this EGKMP and workers' roles in implementing them and what to do if they see kangaroos in the construction area.

This induction will make use of the pointers in Appendix 2 that must be printed and placed on all worksite noticeboards.

#### **4.2.3. Removal of water sources and harbour**

Farm dams present in the Precinct 1 site will be drained and filled prior to construction activities to prevent EGK from moving into the site to utilise them. Similarly, stock water troughs will be emptied and removed within Precinct 1.

*Note:* water sources in the surrounding land do not need to be drained or removed.

Boxthorn occurs in the Precinct 1 site and will require removal prior to construction to encourage EGK to move away from construction and seek shelter in the surrounding region.

#### **4.2.4. Monitoring**

##### **Construction personnel**

The site manager will undertake a daily visual inspection to determine if EGK are present within the site. If construction personnel see an EGK in the site, they must report it immediately to the site manager. The site manager must:

- Address the situation as advised in the site induction ();

- Maintain an ongoing record of any EGK sightings reported by construction personnel and the public; and
- Periodically provide data of records of EGK sightings to the proponent’s development manager.

The proponent must report the regular presence of EGK (defined in Section 4.3) to DELWP who may consider adaptive management measures for the development.

### **Ongoing population surveys**

During construction, monitoring of EGK by an ecologist is to be undertaken every six months to assess if and where EGK are residing in the site and within one kilometre surrounding it. Monitoring will be required over one morning and one afternoon/evening according to the methods utilised for the initial surveys.

#### **4.2.5. Reporting**

Reporting is the responsibility of the proponent. Every six months during the construction period, a letter report must be prepared by an ecologist, compiling all monitoring results and assessing whether management strategies are effective or if refinements are required. Matters to be addressed in each report will include, but will not be limited to the following:

- A brief description of the management prescriptions implemented and identification of any modifications made;
- The survey methods and results (including list of observers, dates and times of observations);
- All records of EGK during construction, including list of observers, dates and times of observations;
- A discussion of the results, including the following:
  - The presence or otherwise of EGK on the site;
  - Any recorded injuries or deaths of EGK resulting from construction works or from EGK moving into areas of urban development; and
  - Any recommendations for changes to management activities in response to changes circumstances, if any.

At the end of construction, a final report will be prepared which details any EGK observations on the site, management strategies undertaken and the overall success of the program.

### **4.3. Adaptive management measures**

If monitoring results and observations by construction personnel and the public show that EGK are continuing to avoid the site, no changes to this management plan will be required.

However, if EGK are found to be using the site regularly, the proponent must notify DELWP. For the purpose of this management plan, ‘regularly’ means:

- More than one EGK is observed on the site at any one time; AND
- EGKs are observed on the site in daylight hours; AND
- EGKs are observed in the above manner more than four times a month.

In consultation with the proponent, DELWP will determine if any of the following adaptive management measures need to be implemented. If EGK are regularly observed within the broader development site at a distance from construction activities and are not considered to be at risk, it may be considered that no adaptive management measures are required.

#### **4.3.1. Mowing and slashing immediately prior to construction**

Grassland habitat throughout the site may provide EGK with protection and food resources. In the event that EGK are observed sheltering in grassland in the site area, slashing of grassland habitats in each development stage *immediately* prior to earthworks or construction may be implemented to discourage EGK from these areas.

Mowing and slashing of grassland areas carries the risk of stimulating grass growth and producing young, green shoots which may actually attract EGK, therefore this management action should only be used within *one to three days* of commencement of construction.

#### **4.3.2. Exclusion fencing**

In the event that monitoring results show that EGK are approaching the construction site, the use of exclusion fencing may be considered to prevent EGK from moving into areas of disturbance in consultation with DELWP. Temporary meshed fencing approximately two metres high would restrict EGK from entering construction sites and reduce the likelihood of collision with construction vehicles.

This action could involve the modification of existing temporary mesh fencing to include a wide mesh mat at the bottom of the fence stretched to one metre across the ground.

Alternatively, exclusion fencing for kangaroos should:

- Be chain-link (cyclone) fencing or deer mesh (also known as K wire);
- Not be ring-lock-style fencing (which is an entanglement hazard);
- Be high-tensile, heavy galvanised wire;
- Be at least 1.9 m high (deer mesh is produced in this size);
- Have no barbs or loose/open wires; and
- Be completely free of holes and gaps in, and under, the fence to stop kangaroos from entering the construction area, and to stop them being injured trying to escape.

Monitoring should be undertaken one day prior and one day after the installation of any fence, with the fence being left partly open until monitoring confirms EGK are no longer present in the fenced area.

#### **4.4. Management action tables and performance indicators**

The management activities and performance indicators that will be required to manage EGK successfully are presented in Table 2.



Table 2: Management actions and performance indicators

Management Option	Management Action	Report reference	Timing	Performance Indicator	Responsible Person	Completed (Yes/No)	Month and Year Completed
<b>Initial Management Strategy</b>							
Staging of development	Staging of the development will ensure EGK can move into surrounding land to prevent 'land-locking'	Section 4.2.1	Planning phase	Staging of development undertaken according to development plan in Appendix 2	Proponent		
Environmental Induction	All construction workers to undertake an environmental induction where they will be made aware of the potential for EGK to be present in the wider region and procedures for dealing with EGK if observed on site	Section 4.2.2	Pre-construction	Environmental induction completed by all construction workers All construction workers to maintain speeds of 40 km/hr or less.	Proponent		
Removing water sources and harbor	Any farm dams to be filled in and water troughs emptied and removed to prevent EGK being attracted to the area during times when water is scarce Harbor such as African Boxthorn to be removed	Section 4.2.3	At commencement of construction	Dams filled in and harbor removed	Proponent		
Monitoring	Monitoring to be undertaken in the site and within one kilometre surrounding it. Monitoring will include one morning search and one late afternoon search	Section 4.2.4	Once every six months during construction	Monitoring of any EGK in the site or the surrounding area	Ecologist/ Proponent		
	Any observations of EGK by construction personnel and members of the public conveyed to the proponent; DELWP notified of any regular use of the site by EGK		Ongoing during construction	DELWP notified of regular use of the site by EGK	Construction contractor/ Proponent		
Reporting	Preparation of a letter report every six months during construction detailing monitoring activities and any observations of EGK or injuries to EGK and any changes to management activities required based on monitoring results	Section 4.2.5	Once every six months during construction	Reports prepared and delivered to DELWP	Proponent		
	Final report at the end of construction that assesses the success of management activities		End of construction	Final report prepared and delivered to DELWP	Proponent		
<b>Adaptive Management Measures</b>							
Mowing and Slashing Grassland	Mowing and slashing of grassland areas to encourage EGK to move from the area where staged works are planned.	Section 4.3.1	One to three days prior to construction or installation of exclusion fences	EGK moving of their own accord out of areas that have been mowed/slashed	Proponent		
Exclusion fencing	Install temporary meshed fencing approximately 2 metres high to restrict EGK from entering construction sites if instructed by DELWP	Section 4.3.2	If monitoring results show that EGK are at risk of being harmed by construction works	No EGK injured or killed by construction works following installation	Proponent		

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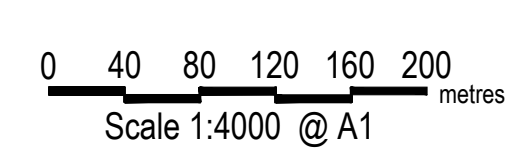
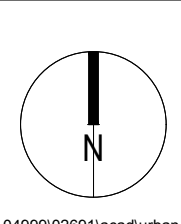
## Appendix 1: Context Plan – Mt Atkinson





- LEGEND:**
- OVERALL SITE BOUNDARY
  - PRECINCT 1 BOUNDARY
  - TITLE BOUNDARY
  - ARTERIAL ROAD
  - CONNECTOR ROAD
  - GREEN LINK
  - 400M ACCESS TO LOCAL PARKS
  - 400M ACCESS TO ACTIVE OPEN SPACE
  - ▲ WALKABLE CATCHMENT BOUNDARY (via FUS)

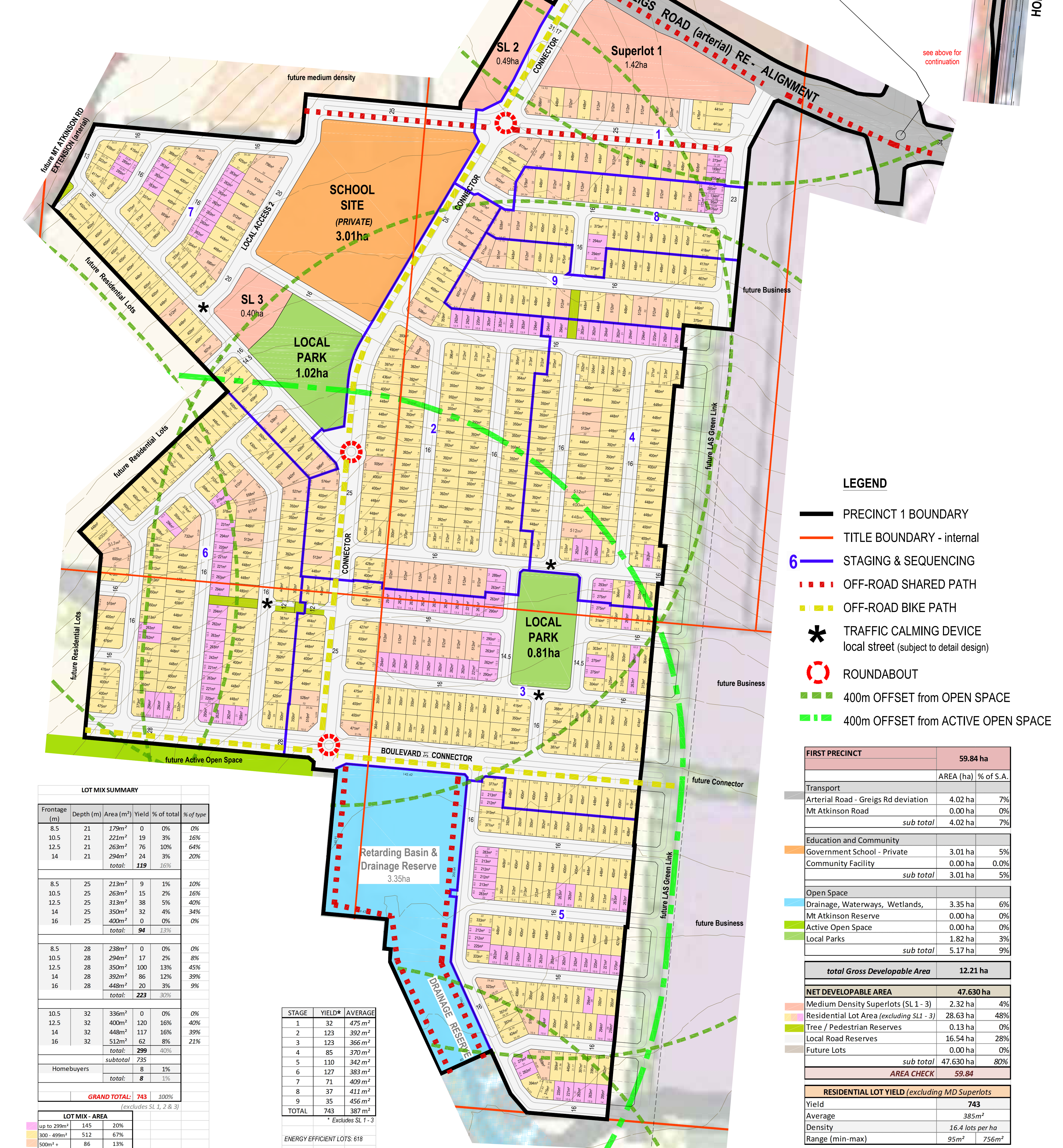
Rev C: 23/01/2018 - Inclusion of PSP TC Image





## Appendix 2: Precinct 1 staging plan





- LEGEND**
- PRECINCT 1 BOUNDARY
  - TITLE BOUNDARY - internal
  - STAGING & SEQUENCING
  - OFF-ROAD SHARED PATH
  - OFF-ROAD BIKE PATH
  - \* TRAFFIC CALMING DEVICE  
local street (subject to detail design)
  - ROUNDABOUT
  - 400m OFFSET from OPEN SPACE
  - 400m OFFSET from ACTIVE OPEN SPACE

FIRST PRECINCT		59.84 ha
		AREA (ha) % of S.A.
<b>Transport</b>		
Arterial Road - Greigs Rd deviation	4.02 ha	7%
Mt Atkinson Road	0.00 ha	0%
<b>sub total</b>	<b>4.02 ha</b>	<b>7%</b>
<b>Education and Community</b>		
Government School - Private	3.01 ha	5%
Community Facility	0.00 ha	0.0%
<b>sub total</b>	<b>3.01 ha</b>	<b>5%</b>
<b>Open Space</b>		
Drainage, Waterways, Wetlands, Mt Atkinson Reserve	3.35 ha	6%
Active Open Space	0.00 ha	0%
Local Parks	1.82 ha	3%
<b>sub total</b>	<b>5.17 ha</b>	<b>9%</b>
<b>total Gross Developable Area</b>	<b>12.21 ha</b>	
<b>NET DEVELOPABLE AREA</b>		
Medium Density Superlots (SL 1 - 3)	2.32 ha	4%
Residential Lot Area (excluding SL1 - 3)	28.63 ha	48%
Tree / Pedestrian Reserves	0.13 ha	0%
Local Road Reserves	16.54 ha	28%
Future Lots	0.00 ha	0%
<b>sub total</b>	<b>47.630 ha</b>	<b>80%</b>
<b>AREA CHECK</b>	<b>59.84</b>	
<b>RESIDENTIAL LOT YIELD (excluding MD Superlots)</b>		
Yield	<b>743</b>	
Average	385m <sup>2</sup>	
Density	16.4 lots per ha	
Range (min-max)	95m <sup>2</sup> 756m <sup>2</sup>	

**LOT MIX SUMMARY**

Frontage (m)	Depth (m)	Area (m <sup>2</sup> )	Yield	% of total	% of type
8.5	21	179m <sup>2</sup>	0	0%	0%
10.5	21	221m <sup>2</sup>	19	3%	16%
12.5	21	263m <sup>2</sup>	76	10%	64%
14	21	294m <sup>2</sup>	24	3%	20%
<b>total:</b>		<b>119</b>	<b>16%</b>		
8.5	25	213m <sup>2</sup>	9	1%	10%
10.5	25	263m <sup>2</sup>	15	2%	16%
12.5	25	313m <sup>2</sup>	38	5%	40%
14	25	350m <sup>2</sup>	32	4%	34%
16	25	400m <sup>2</sup>	0	0%	0%
<b>total:</b>		<b>94</b>	<b>13%</b>		
8.5	28	238m <sup>2</sup>	0	0%	0%
10.5	28	294m <sup>2</sup>	17	2%	8%
12.5	28	350m <sup>2</sup>	100	13%	45%
14	28	392m <sup>2</sup>	86	12%	39%
16	28	448m <sup>2</sup>	20	3%	9%
<b>total:</b>		<b>223</b>	<b>30%</b>		
10.5	32	336m <sup>2</sup>	0	0%	0%
12.5	32	400m <sup>2</sup>	120	16%	40%
14	32	448m <sup>2</sup>	117	16%	39%
16	32	512m <sup>2</sup>	62	8%	21%
<b>total:</b>		<b>299</b>	<b>40%</b>		
<b>subtotal</b>		<b>735</b>			
Homebuyers		8	1%		
<b>total:</b>		<b>8</b>	<b>1%</b>		
<b>GRAND TOTAL:</b>		<b>743</b>	<b>100%</b>		

*(excludes SL 1, 2 & 3)*

LOT MIX - AREA	
up to 299m <sup>2</sup>	145 20%
300 - 499m <sup>2</sup>	512 67%
500m <sup>2</sup> +	86 13%
<b>743</b>	<b>100%</b>

STAGE	YIELD*	AVERAGE
1	32	475 m <sup>2</sup>
2	123	392 m <sup>2</sup>
3	123	366 m <sup>2</sup>
4	85	370 m <sup>2</sup>
5	110	342 m <sup>2</sup>
6	127	383 m <sup>2</sup>
7	71	409 m <sup>2</sup>
8	37	411 m <sup>2</sup>
9	35	456 m <sup>2</sup>
<b>TOTAL</b>	<b>743</b>	<b>387 m<sup>2</sup></b>

\* Excludes SL 1 - 3

ENERGY EFFICIENT LOTS: 618



### Appendix 3: Notice to workers

# If you see a kangaroo in the construction area...

- Let the kangaroo leave of its own accord
- Don't herd the kangaroo – it is an offence under the *Wildlife Act 1975*; it can stress and confuse the kangaroo and make it behave erratically, resulting in the kangaroo and people being injured
- Try to identify where the kangaroo entered the construction area (temporarily widening the entry point might encourage the kangaroo to leave through it); if the kangaroo leaves, securely close off the entry point as soon as possible
- Report seeing the kangaroo to the Site Manager
- The Site Manager must keep a record of all observations and periodically report sightings to the Development Project Manager
- If regular sightings occur, the Development Project Manager must notify the Department of Environment, Land, Water and Planning on 136 186
- If there are things attracting kangaroos (such as grassed areas, shade, water sources) in the construction area, contact the Development Project Manager to have these removed under an approved or amended Management Plan
- If a kangaroo is injured, or will not leave of its own accord, contact one of these agencies for advice:
  - Help for Wildlife (0417 360 687)
  - Wildlife Victoria (1300 094 535)
  - BADGAR emergency 24-hour wildlife rescue centre (1300 223 427)
- If a kangaroo is injured or killed in a construction area covered by a Kangaroo Management Plan, the Department of Environment, Land, Water and Planning must be notified as soon as possible on 136 186

**Note:** All persons must obey standard construction area speed limits