

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

Project Number EP13-041

Prepared for Peet Ltd.
October 2013

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
 AVON RIDGE ESTATE, BRIGADOON

Document Control

DOC NAME	2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250				
DOC NO.	EP13-041(02)--009				
REVISION	DATE	AUTHOR		REVIEWER	
1	October 2013	Anle Tieu	AT	Chrystal King	CKK
A					
B					
C					
D					

© 2012 Emerge Associates All Rights Reserved. Copyright in the whole and every part of this document belongs to Emerge Associates and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of Emerge Associates.

Executive Summary

Peet Limited (Peet) received the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval (EPBC 2008/4250) from the Department of Sustainability, Environment, Water, Heritage and the Arts (DEWHA), now the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC or the Department) on the 8th October 2009. The approval relates to Peet's special rural-residential development (the Development) on Lots 1010 and 1022 Campersic Road, Brigadoon in Western Australian. The Development, known as Avon Ridge is located approximately 30km northeast of the Perth Central Business District is approximately 450 hectares with approximately 411 ha for Parks and Recreation reserve.

Emerge Associates (Emerge) have been appointed by Peet Limited (Peet) to prepare an annual compliance report (this report) to satisfy Condition 12 of the approval. The purpose of this report is to address Condition 12 by outlining the level of compliance with 17 conditions of the approval for the reporting period 1st October 2012 to 1st September 2013.

The report describes how all conditions have been complied with and the mechanisms to achieve compliance. Compliance has been achieved throughout the reporting period through the ongoing implementation of Protective Covenants, Notifications on Title, management plans, rehabilitation and other works as detailed in this report.

Table of Contents

1	Proposal and Proponent Details	1
1.1	Proposal Background	1
1.2	Purpose of Report	1
2	Approvals under the Environmental Protection and Biodiversity Conservation Act 1999	3
2.1	Summary of Approval Conditions	4
2.2	Compliance Details.....	14
2.2.1	Condition 1	14
2.2.2	Condition 2	14
2.2.3	Condition 3	15
2.2.4	Condition 4	16
2.2.5	Condition 5	16
2.2.6	Condition 6	17
2.2.7	Condition 7	17
2.2.8	Condition 8	17
2.2.9	Condition 9	17
2.2.10	Condition 10	18
2.2.11	Condition 11	19
2.2.12	Condition 12	19
2.2.13	Condition 13	19
2.2.14	Condition 14	19
2.2.15	Condition 15	19
2.2.16	Condition 16	19
2.2.17	Condition 17	19
3	Conclusion	20
4	References	21
5	Glossary	22

List of Tables

Table 1: Audit Table for EPBC 2008/4250 - Brigadoon	4
Table 2: Definition of Compliance status terms	13
Table 3: Areas cleared under EPBC Condition 1	14
Table 4: Areas cleared under EPBC Condition 2	15
Table 5: Compliance overview of Condition 3	15
Table 6: Compliance overview of Condition 5	17
Table 7: Summary of mechanisms from Attachment 6 used to implement Condition 9	18

Appendices

Appendix A

Biannual revegetation monitoring reports

Appendix B

Park and Recreation reserve deposited plan and certificate of Crown land title

1 Proposal and Proponent Details

PROPOSAL TITLE	Brigadoon Estate Special Rural Development, Brigadoon Western Australia
EPBC REFERENCE NUMBER	EPBC 2008/4250
PROPONENT NAME	Peet Ltd.
REPORTING PERIOD	1 st October 2012- 1 st September 2013
IMPLEMENTATION PHASE(S) DURING REPORTING PERIOD	Construction

1.1 Proposal Background

The Development is located in the locality of Brigadoon, approximately 12 kilometres north of the north of the Midland Regional Centre and 30 kilometres northeast of the Perth Central Business District (CBD). The Development consists of a special rural subdivision of 214 lots over 450 hectares, with lot sizes ranging from 1.5 hectares (ha) to 5.09 ha. The Development also includes a 411 ha area reserve for "Parks and Recreation" under the Metropolitan Region Scheme (MRS).

The site is located on the Darling Scarp and Darling Range and is bound to the north by Walyunga National Park. The site is also in close proximity to the Swan River to the west.

Peet Limited (Peet) submitted a referral pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the special rural Development of Avon Ridge estate in May 2008. The proposal was deemed to be a "controlled action" on 2nd July 2008 and was assessed by "Preliminary Documentation".

Additional information to inform the Preliminary Documentation assessment was prepared by Cardno (WA) Pty Ltd and was released for public comment in November 2008. A number of public comments were received and these were addressed in *Response to Submissions: Brigadoon Estate Special Rural Development, Brigadoon Western Australia, EPBC Reference 2008/4250* (Cardno 2009).

The Department of Environment Water Heritage and the Arts (now Department of Sustainability, Environment, Water, Population and Communities' (DSEWPaC)) issued an environmental approval for the Development in October 2009 subject to 16 conditions. In October 2011 and January 2012, variations to approval conditions were approved by DSEWPaC and the current list of 17 conditions is provided in **Table 1**.

1.2 Purpose of Report

This document has been prepared to satisfy the requirements of Condition 12 of the EPBC approval, which states:

"Within three months of every annual anniversary of commencement of the action, the person taking the action must submit to the Department a report addressing compliance with the conditions of this approval. Annual Reports must be provided until the Minister is satisfied that the proponent has complied with all conditions of the approval."

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
AVON RIDGE ESTATE, BRIGADOON

In accordance with this condition, the compliance report is to be submitted by the 5th October each year based on the commencement of construction on the 5th July 2010. On behalf of Peet, Emerge Associates (Emerge) has prepared this compliance report to demonstrate the current level of compliance with conditions of approval under the EPBC Act. The objectives of this report are to:

- Detail the actions undertaken within the Development from 1st October 2012 to 1st September 2013
- Demonstrate compliance with conditions of approval
- Identify further actions which are required to meet conditions of approval.

The compliance report covers the 2012/13 reporting period and focuses on actions undertaken within the Development during the reporting period. Previous compliance reports (Cardno 2011, Cardno 2012) provided numerous appendices to demonstrate compliance and in the interests in efficiency, this information has not been repeated, unless it is necessary to demonstrate compliance over the reporting period. This compliance report should be read in conjunction with the Approval Conditions under EPBC 2008/4250.

Details of compliance with each condition under EPBC 2008/4250 is presented in **Table 1** and the definition of compliance status terms is shown in **Table 2**.

2 Approvals under the Environmental Protection and Biodiversity Conservation Act 1999

Peet received approval from the Department of Environment, Water, Heritage and the Arts (DEWHA) pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* for the Development of 450 ha of land for residential Development at Campersic Road in Brigadoon on the 8th October 2009 (EPBC 2008/4250).

The 2009 approval was subject to 16 conditions. In October 2011 and January 2012 two separate variations to the approval conditions were approved by DSEWPaC. A summary of the changes to the approval conditions was provided in the *2012 Compliance Report for EPBC Approval Conditions* (Cardno 2012a). The current list of 17 approval conditions is provided in **Table 1**.

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

2.1 Summary of Approval Conditions

Details of compliance with each condition under decision notice EPBC 2008/4250 is presented in **Table 1** and the definition of compliance status terms is shown in **Table 2**.

Table 1: Audit Table for EPBC 2008/4250 - Brigadoon

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
1	The person taking the action must not clear more than 63 hectares of native vegetation within the project area (Attachment 1) comprising: (a) up to 30 hectares for the purpose of constructing roads; (b) up to 27 hectares of the purpose of constructing boundary firebreaks on individual lots as identified in Attachment 2 ; (c) up to 6 hectares for the purposes of constructing strategic firebreaks and dams.	Construction Environmental Management Plan (CEMP).	Audit/record keeping of CEMP.	Construction Phase	C	CEMP previously provided to the Department for approval (24 th June 2010)
2	The person taking the action must put in place measures to ensure that clearing undertaken by future landowners within the project area (Attachment 1) will not exceed 37.4 hectares of native vegetation comprising: (a) up to 31.4 hectares for the purposes of constructing house sites, infiltration areas and buffers around the house sites; and (b) up to 6 hectare for the purpose of constructing driveways.	Protective Covenants placed on each lot to restrict clearing to permitted areas and require use of Fire Management Consultant. Local Structure Plan to restrict size of Building Envelopes.	Protective Covenants placed on titles.	During development	C	Protective Covenants previously provided to the Department for approval (31 st August 2010)
3	Revegetation and Fire Management Plan The person taking the action must prepare a Revegetation and Fire Management Plan that applies to the 100 ha within the Park and Recreation Reserve and 450 ha for the subdivision (as identified at Attachment 5) including all 214 individual lots. The proponent must	Revegetation and Fire Management Plan (RFMP), approved by	Approved RFMP	Prior to construction	CLD	A revised RFMP (Cardno 2012b) is currently with DFES (formally FESA) for approval.

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
	<p>obtain written approval from FESA prior to submission to the Department for approval.</p> <p>The person taking the action must not commence clearing or construction within the project area until the Department has approved the Revegetation and Fire Management Plan in writing. Once approved this plan must be implemented. The person taking the action must ensure that the Revegetation and Fire Management Plan includes (but is not restricted to):</p>	FESA (May 2010).				Once approved by DFES, the document will be provided to DSEWPaC for approval.
	<p>a. fuel reduction measures (including cool burn measures) specifying the timing and frequency of fuel reduction measures to minimise impacts on Black Cockatoo habitat.</p>	Implement RFMP	Prescribed burn (incomplete) (19 th May 2013)	Construction and Development Phase	C	

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
	<p>b. Revegetation measure to create additional Black Cockatoo habitat across the project sites, including in Parks and Recreation Reserve, specifically:</p> <ul style="list-style-type: none"> i. revegetation for all condition classes (excluding pristine and excellent classes) and vegetation complexes (including maps) ii. mix, numbers and density of species to be planted; iii. timing of proposed planting (must be during or following the annual winter rain period and generally between 1 June and 30 November; iv. weed management measures; v. the survivorship rate of all revegetation measures must be at least 90% after three years. If after three years of the date of the planting, a survival rate of 90% of the planted trees is not achieved, all dead trees must be replaced with other Black Cockatoo habitat species within 12 months and maintained for at least an additional two years; vi annual monitoring measures within the project area undertake by an appropriate qualified and experience ecologist an must commence within 12 months of the completion of revegetation and continue for at least three year after the initial revegetation planting in any particular area (given that revegetation will be staged across the development); vii. annual monitoring measures undertaken by an appropriately qualified and experienced specialist must commence in the Parks and Recreation Reserve within 12 months of completion of revegetation and continue for at least three years after the initial revegetation planted in the Parks and Recreation Reserve for the purposes of establishing the survivorship rates and replanting efforts within the project area; 	Implement RFMP	<p>Revegetation tenders</p> <p>Revegetation biannual monitoring reports including monitoring photographs</p> <p>Documentation of site inspections</p> <p>Aerial photography</p>	Development Phase	C	

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
	viii. mapping of all potential Black Cockatoo habitat trees of 500 mm dbh or greater on individual lots and information on how these will be retained for permanent conservation.	Implement RFMP	Trees 500dbh (diameter at breast height) or greater identified by GPS coordinates and marked with flagging tape.	Construction and Development Phase.	C	
4	<p>Building Protection Zone.</p> <p>The person taking the action may thin native vegetation within the Building Protection Zone (Attachment 2) on each housing lot (Attachment 3). The total thinning within the Building Protection Zones of the 214 housing lots (Attachment 3) must not exceed 112,350 plants suitable for foraging for Black Cockatoos. The thinning process must be managed under the terms of the approved Revegetation and Fire Management Plan, and be personally supervised (pre and post thinning inspection for individual lots) by a qualified Fire Management Consultant. The person taking the action must obtain written approval from FESA of the first appointed Fire Management Consultant prior to the provision of any Building Protection Zone thinning advice. Any subsequent appointment of Fire Management Consultants will be based on that consultant having similar qualification as the initially appointed consultant.</p> <p>The Building Protection Zone must be implemented on each of the 214 housing lots in the dimensions specified in Attachment 2. The location of each Building Protection Zone and house site must be chosen in consultation with the Fire Management Consultant for the purpose of maximizing the retention of trees as specified in Condition 4.</p> <p>The person undertaking the action must ensure that all native vegetation that provides habitat for Black Cockatoos is retained outside of the Building Protection Zones within 214 housing lots. This excludes native vegetation that is specifically managed under the Revegetation and Fire management Plan.</p>	Protective Covenant and use of Fire Management Consultant (FMC) throughout the lot clearing process.	Protective Covenant and Sustainable Living Guidelines	Development Phase	C	Protective Covenants previously provided to the Department for approval (31 st August 2010)

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
5	The person taking the action must ensure that all potential breeding habitat trees for Black Cockatoos (as designated at Attachment 4 and 4A) are protected in perpetuity via a Notification on Title. The person taking the action must ensure that all other trees within the lot area (Attachment 1) with a diameter by breast height (dbh) of 500 mm or greater are retained unless: <ul style="list-style-type: none"> a. They are located within a house site; b. They are located within the Building Protection Zone; c. they are required to be removed for fire management purposes as advised by a qualified Fire Management Consultant(s). 	Notification on Title and Protective Covenants	Notification on Title and Protective Covenants	During development	C	Protective Covenants previously provided to the Department for approval (31 st August 2010)
6	The person taking the action must ensure at the 411 ha Park and Recreation reserve as highlighted in green at Attachment 5 be ceded to the WA State Government. The Department must be notified in writing once this has occurred.	Park and Recreation (P and R) reserve ceded to WA State Government	Deposited Plan and Certificate of Title for P and R reserve.		CLD	Reported in previous Compliance Report (Cardno 2012).
7	Revegetation Measures for individual lots. The person taking the action must ensure that the following the sale and settlement each individual lot owner will be offered at least 1000 seedlings suitable for foraging and breeding habitat for Black Cockatoos to be permanently planted on their purchased lot. This planting must be undertaken under the direct supervision of a Revegetation Specialist at the proponent's expense.	Protective Covenants	Protective Covenants		C	A revised RFMP (Cardno 2012b) is currently with DFES (formally FESA) for approval. Once approved by DFES, the document will be provided to DSEWPaC for approval.
	The person taking the action must ensure that any seedlings allocated for individual lots that cannot be planted because of Fire management or other reasons, must be planted in the Parks and Recreation Reserve as identified in Attachment 7 . Planting must be undertaken following the sale and settlement of the individual lots so that the planting under this condition total at least 214,000 plants on either individual lots or in the Parks and Recreation Reserve.	RFMP	Biannual revegetation monitoring reports detailing plant survival and Progress Certificates outline the number and species of seedlings planted	Ongoing through the development.	C	A revised version of the Protective Covenant is currently with the Department for approval and will

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
						apply to Stage 2 of the Development which has not yet been constructed.
	<p>The person taking the action must ensure that all purchasers of lots within the project area, prior to sale and settlement:</p> <p>a. Are aware of the existence of potential and actual breeding habitat trees on the individual lots, Notifications on Title and the requirements that these must be conserved into perpetuity and not be cleared</p> <p>b. Are aware of the Protective Covenant;</p> <p>c. Are aware of restriction relating to clearing of</p> <p style="padding-left: 20px;">i. Potential breeding habitat trees over 500 mm dbh</p> <p style="padding-left: 20px;">ii. Area within and outside of the Building Protection Zone.</p> <p>d. Are aware of the proposed revegetation measures for their individual lot by person(s) as outlined in Condition 3;</p> <p>e. Are provided with species related information on all Black Cockatoos, their presence in the area, ecology, species range and details on habitat.</p>	<p>Notification on Title</p> <p>Protective Covenant</p> <p>Sustainable Living Guidelines</p>	<p>Notification on Title Protective Covenant</p> <p>Sustainable Living Guidelines</p>	Ongoing through the development.	C	A revised version of the Protective Covenant is currently with the Department for approval and will apply to Stage 2 of the Development which has not yet been constructed.
8	The person taking the action must provide a final version of the Protective Covenant in writing to the Department for approval prior to the sale and settlement of any lot. The person taking the action must ensure that the approved Protective Covenant is in place for each of the 214 lots.	Protective Covenant.	Letter from DSEWPaC endorsing Protective Covenant.	Ongoing through the development.	C	A revised version of the Protective Covenant is currently with the Department for approval and will apply to Stage 2 of the Development which has not been constructed.
9	All elements specified in Attachment 6 must be incorporated in either the Structure Plan, approved subdivision conditions or approved Protective Covenants. These must be complied with. The Department must be notified in writing on how all the elements in Attachment 6	Incorporate all elements in the Structure Plan, Western	Structure Plan, WAPC conditions of subdivision and Protective	Ongoing through the development.	C	Mechanism to implement Attachment 6 reported in

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
	have been incorporated and complied with. If any of the elements in Attachment 6 are not incorporated, to the Department's satisfaction, the person taking the action must negotiate an outcome to the Department's satisfaction, prior to commencing construction.	Australia Planning Commission (WAPC) conditions of subdivision and Protective Covenants.	Covenants.			previous Compliance reports (Cardno 2011, Cardno 2012)
10	The person taking the action must prepare and implement a Construction Management Plan. This plan must be submitted and approved by the Department prior to any clearing taking place.	CEMP approved by DSEWPaC (24 th June 2010).	Approved CEMP.	Prior to clearing.	CLD	
	The Construction Management Plan must clearing demonstrate that: <ul style="list-style-type: none"> a. All habitat trees at Attachment 4 and 4A are to be retained in perpetuity; b. All trees to remain that are greater than 300mm dbh within the subdivision area (as at Attachment 3) and within 10 meters of an area proposed to be cleared (excluding those in the Building Protection Zone) are clearly marked and retained. c. Area of vegetation that are Black-Cockatoo habitat and not for clearance (including roadside vegetation, streamline vegetation and Public Open Space area) are clearly marked and retained; d. If clearing outside of stipulate area occurs by other contract parties, then the person taking the action must notify the Department in writing and will ensure that these areas will be revegetated to the same density (following the annual winter rain period and between 1 October – 30 November); and e. All contracted parties will undergo an induction programme prior to commencement of construction and/or clearing. This programme will include information on EPBC listed species and measure employed within the project areas to protect Black Cockatoo habitat. 	Implement Construction Environment Management Plan (CEMP).	Habitat trees GPS locations recorded, mapped and marked. Habitat trees recorded on Notifications on Title. Trees >500mm dbh GPS locations recorded, mapped and marked. Trees >300mm dbh within 10 meters of an area proposed to be cleared are marked. Completed land clearing forms and contractor	Ongoing through the development.	C	There has been no civil construction works during the reporting period. CEMP previously provided to the Department for approval (24 th June 2010)

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
			contracts. Completed induction forms.			
11	Within 30 days of commencement of construction, the person taking the action must advise the Department in writing the actual date of commencement.	Advise DSEWPaC.	Letter to DSEWPaC advising date of commencement of construction.	Prior to construction.	CLD	
12	Within three months of every annual anniversary of commencement of the action, the person taking the action must submit to the Department a report addressing compliance with the condition of this approval. Annual Reports must be provided until the Minister is satisfied that the proponent has complied with all conditions of the approval.	Compliance report demonstrating compliance and providing evidence.	Compliance reports.	Annually through the development.	C	This compliance report
13	If, at any time five years from the date of this approval, the Minister notified the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of the construction of the rural residential development at Brigadoon, Western Australia, the action must not thereafter be commenced without the written agreement of the Minister.	Commencement of construction within 5 years from date of approval.	Project has been commenced substantially within 5 years of the project's approval. See Condition 11.	Five years following granting of approval.	CLD	
14	If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans, reports or strategies referred to in these conditions, the person taking the action must submit for the Minister's approval a revised version of any such plan, report or strategy for the Minister's approval. The person taking the action must comply with any such request. The revised approved plan, report or strategy must be implemented in place of the plan, report or strategy originally approved.	Submit for Minister's approval of revised version of plan, report or strategy.	Awaiting approval of Revised RFMP, (2012) from DFES which will then be sent through to Minister. The current RFMP will remain in effect until the revised version is approved.	Ongoing through the development.	C	Awaiting approval of Revised RFMP, (2012) from DFES.

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

CONDITION	REQUIREMENT	HOW	EVIDENCE	TIMEFRAME	STATUS	INFORMATION
15	If the Minister believes that it is necessary or desirable for the better protection of threatened species and threatened ecological communities (s18 and s18A) to do so, the Minister may request that the person taking the action make specified revision to the plan, reports or strategies approved pursuant to Condition 2 and submit the revised plan, report or strategy for the Minister's approval. The person taking the action must comply with any such request. The revised approved plan, report or strategy must be implemented in place of the plan, report or strategy originally approved.	Not applicable.	Not applicable.	Ongoing through the development.	NR	
16	The person taking the action must maintain accurate records of all activities associated with or relevant to the above conditions of the approval, and make them available on request by the Department. Such document may be subject to audit by the Department and used to verify compliance with the condition of approval. Summaries of audits may be posted on the Department website. The results of audits may also be publicised through the general media.	Maintain accurate records of all activities associated with or relevant to the above conditions.	Accurate records of all activities described in this table.	Ongoing through the development.	C	
17	In order to offset the impact of clearing of Black Cockatoo habitat, before June 30 2012, the person taking the action must: a. Provide funds to the Western Australian Department of Environment and Conservation for the acquisition and management of one or more properties that contain at least 150 hectares of high quality foraging habitat for Black Cockatoos to be protected in perpetuity. The offset property must be approved in writing by the Department. b. Provide documentary evidence to the Department that funds have been provided to the Western Australian Department of Conservation as required by approval condition 17a.	Transfer of funds to DPaW for an offset site.	Letters from DSEWPaC approving variation to conditions and approving the offset site and regarding Peet's remuneration and clearance of conditions. Remittance from Peet to DSEWPaC.	Prior to 30 June 2012.	CLD	

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250

AVON RIDGE ESTATE, BRIGADOON

Table 2: Definition of Compliance status terms

COMPLIANCE STATUS TERMS	ABBREVIATION	DEFINITION	NOTES
Compliant	C	Implementation of the proposal has been carried out in accordance with the requirements of the audit element.	This term applies to audit elements with: <ul style="list-style-type: none"> • ongoing requirements that have been met during the reporting period; and • requirements with a finite period of application that have been met during the reporting period, but whose status has not yet been classified as 'completed'.
Completed	CLD	A requirement with a finite period of application has been satisfactorily completed.	This term may only be used where: <ul style="list-style-type: none"> • audit elements have a finite period of application (e.g. construction activities, development of a document) • the action has been satisfactorily completed • the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) has provided written acceptance of 'Completed' status for the audit element.
Not required at this stage	NR	The requirements of the audit element were not triggered during the reporting period.	This should be consistent with the 'Timeframe' column of the audit table.
Potentially Non-compliant	PNC	Possible or likely failure to meet the requirements of the audit element.	This term may apply where during the reporting period the proponent has identified a potential non-compliance and has not yet finalised its investigations to determine whether non-compliance has occurred.
Non-compliant	NC	Implementation of the proposal has not been carried out in accordance with the requirements of the audit element.	This term applies where the requirements of the audit element have not been met during the reporting period.

2.2 Compliance Details

2.2.1 Condition 1

Clearing is managed through the implementation of the Construction Environmental Management Plan (CEMP) (Cardno 2010) (Condition 10). Clearing is restricted to discrete areas for the purpose of constructing roads, boundary firebreaks on individual lots and strategic firebreaks.

Calculation of clearing over the 2012/13 reporting period is based on the engineering construction drawings (provided by Development Engineering Consultants) and aerial imagery (comparing June 2009 and September 2013).

Previously cleared areas within the site (June 2009) were compared with cleared areas from September 2013 to calculate the areas of clearing undertaken as part of the action. Using the engineering construction drawings, clearing was then allocated to one of the three following categories:

- Roads (including batters)
- Strategic firebreaks
- Lot firebreaks

Cleared areas shown in **Table 3** are lower than those reported in the 2012 Compliance Report (Cardno 2012). We are unsure of the methodology used by Cardno to calculate clearing.

Table 3 shows the current level of clearing, the balance of area that can be cleared and the percentage of cleared area.

Table 3: Areas cleared under EPBC Condition 1

CONDITION 1 CLEARING RESTRICTIONS	CURRENT LEVEL OF CLEARING (HA)	REMAINING CLEARING (HA)	PERCENTAGE CLEARING (%)
up to 30 hectares for the purpose of constructing roads	11.2	18.8	37.33
Up to 27 hectares of the purpose of constructing boundary firebreaks on individual lots	7.23	19.77	26.78
Up to 6 hectares for the purposes of constructing strategic firebreaks	2.1	3.9	35

Between 1st October 2012 and 1st September 2013, there has been no civil construction works within the Avon Ridge Estate.

2.2.2 Condition 2

Clearing within lots (by landowners) is managed through the Contract of Sale and Protective Covenants. Calculation of clearing over the 2012/13 reporting period is based on the engineering construction drawings (provided by Development Engineering Consultants) and aerial imagery (comparing June 2009 and September 2013).

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
AVON RIDGE ESTATE, BRIGADOON

Previously cleared areas within the site (June 2009) were compared with cleared areas from September 2013 to calculate the areas of clearing within lots. These areas were then separated into driveways and house sites based upon the location of the driveway crossover from the road reserve.

Table 4 shows the current level clearing, the balance of area that can be cleared and the percentage of allowable area currently cleared.

Table 4: Areas cleared under EPBC Condition 2

CONDITION 2 CLEARING RESTRICTIONS	CURRENT LEVEL OF CLEARING (HA)	REMAINING CLEARING (HA)	PERCENTAGE CLEARING (%)
up to 31.4 hectares for the purposes of constructing house sites and buffers around the house sites	0.9	30.5	2.9%
up to 6 hectare for the purpose of constructing driveways.	0.4	5.6	6.7%

Between the start of the development and 1st September 2013, there has been 1.3 ha cleared by individual landowners within the Avon Ridge Estate.

2.2.3 Condition 3

The current Revegetation and Fire Management Plan (RFMP) was approved by the Department of Fire and Emergency Services (FESA) in May 2010 and DEWHA in June 2010.

In August 2012, the RFMP was revised to reflect changes to the revegetation strategy and the objectives of the RFMP in response to adaptive management at Avon Ridge Estate. The revised RFMP is currently with the Department of Fire and Emergency Services (DFES) (formally FESA) for approval. Following approval from DFES, the document will be sent to DSEWPaC for approval.

An overview of for compliance of Condition 3 is shown in **Table 5** based upon the approved RFMP.

Table 5: Compliance overview of Condition 3

CONDITION 3	STATUS OF COMPLIANCE	STATUS
Preparation, approval and implementation of a RFMP	Compliant	For the purposes of compliance reporting, the existing RFMP is in effect.
<i>The person taking the action must ensure that the Revegetation and Fire Management Plan includes (but is not restricted to):</i>		
Fuel reduction measures (including cool burn measures) specifying the timing and frequency of fuel reduction measures to minimise impacts on Black Cockatoo habitat.	Compliant	The prescribed burn timeline in the RFMP are approximate and have been adjusted due to inappropriate weather conditions and timing. The 2012 prescribed burn for Autumn 2012 was conducted in Autumn 2013 (19 th May) and due to unsuitable weather conditions during the day, was not completed. The remainder of the prescribed 2013 burn is planned for Spring 2013 or Autumn 2014. Subsequently this will delay the prescribed burns as outlined in the RFMP.

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
AVON RIDGE ESTATE, BRIGADOON

<p>Revegetation measures to create additional Black Cockatoo habitat, specifically:</p> <ul style="list-style-type: none"> i. revegetation for all condition classes (excluding Pristine and Excellent), and vegetation complexes ii. mix, numbers and density of species to be planted iii. timing of proposed planting iv. weed management measures v. the survivorship rate of all revegetation measures must be at least 90% after three years vi. annual monitoring measures within the project area vii. annual monitoring measures undertaken by an appropriately qualified and experienced specialist must commence in the P and R Reserve 	Compliant	<p>Revegetation has been focused in the P&R reserve. Revegetation and weed control within the P and R Reserve has been undertaken and included a wide range of suitable Black Cockatoo habitat species as per the RFMP.</p> <p>The three year anniversary for the 90% survival rate has not yet been reached.</p> <p>Biannual monitoring reports (Appendix A) and regular inspections have been undertaken by Tranen (a qualified and experienced specialist). During the reporting period, 40,000 seedlings of 16 species have been planted.</p>
<ul style="list-style-type: none"> viii. mapping of all potential Black Cockatoo habitat trees of 500 mm dbh or greater on individual lots and information on how these will be retained for permanent conservation 	Compliant	<p>All trees of 500mm dbh or greater have been mapped and marked with white flagging tape. These trees have been included in the Protective Covenants and must be retained unless located within the house site, Building Protection Zone (BPZ) or required to be removed for fire management purposes.</p>

2.2.4 Condition 4

Thinning of the BPZ (Building Protection Zone) has been undertaken in 13 lots.

A Fire Management Consultant (FMC) is currently engaged to assist with the preparation of the BPZs and Hazard Separation Zones (HSZ) for purchasers of lots, and will continue to provide guidance to new landowners regarding acceptable vegetation modification practices prior to any lot clearing in accordance with the Protective Covenants.

The role of the FMC is to perform pre-thinning and post-thinning site checks to ensure that landowners understand what is required, and evaluate whether their clearing actions are compliant with the RFMP and Condition 4 of the approval. These site checks are documented by the FMC in a Pre-Clearing and Post-Clearing Checklist. The retention of vegetation outside of the BPZ is also monitored by the FMC for compliance with the RFMP, and documented in the Post-Clearing Checklist. Landowners are required to sign the pre-clearing checklist in acknowledgment that they understand the clearing requirements and advice provided by the FMC, and also enables them to nominate a date for a post-thinning inspection.

The Post-Clearing Checklist confirms whether clearing and vegetation modification has been undertaken in a manner that is consistent with the advice provided, including the retention of habitat trees and trees with a dbh greater than 500 mm outside the BPZ. The pre-clearing and post-clearing inspection procedures of individual lots will be continued by the FMC as the sales and construction phases of the Development progresses.

As 43 lots have been sold, the total thinning of the combined BPZs throughout the Development is not significant and on target to not exceed 112,350 plants.

2.2.5 Condition 5

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
AVON RIDGE ESTATE, BRIGADOON

Protective Covenants have been finalised and approved by DSEWPaC (31st August 2010). The proponent will satisfy Condition 5 of the approval through the application of Notifications on Titles as they are created on a stage by stage basis. An overview of for compliance of Condition 5 is shown in **Table 5**.

Table 6: Compliance overview of Condition 5

CONDITION 5	STATUS OF COMPLIANCE	STATUS
All potential breeding habitat trees protected in perpetuity via a Notification on Title.	Compliant	As the Development progresses, the Notifications on Title will apply to each newly released lot which displays potential habitat trees.
All trees with a dbh of 500mm or greater are retained unless they are: <ul style="list-style-type: none"> located within the house site located within the BPZ required to be removed for fire management purposes . 	Compliant	Protective (Restrictive) Covenants apply to all lots in the Development area. These include notification of potential and future habitat trees. No disturbance to significant trees has been recorded to date. Monitoring will continue throughout the future stages of construction.

2.2.6 Condition 6

On 5th July 2012, the P and R Reserve was ceded to the WA State Government. This action completes Condition 6. The Deposited Plan and Certificate of Crown Land Title is included in **Appendix B**.

2.2.7 Condition 7

Due to fire management requirements within lots, revegetation has been focused on the P and R reserve. To date, 106,775 plants out of a total 214,000 required under the approval have been planted in the P and R reserve. Over the 2012/13 reporting period, 40,000 seedlings were planted. Biannual revegetation monitoring reports and regular inspections have been undertaken which outline the survival rates (**Appendix A**) and Progress Certificates outline the number and species of seedlings planted.

There is a limitation on additional plantings that can be undertaken within the P and R reserve area based upon the site conditions (slope, soil condition and existing vegetation). Currently, the number of plants planted exceeds the requirement of plants based on the number of lots created (based on 1000 plants per lot). A suitable alternative to this revegetation is currently being investigated and will be discussed with the Department in the near future.

2.2.8 Condition 8

Approval of the Protective Covenants was granted by DSEWPaC in a letter dated the 31st of August 2010. The Protective Covenants will be applied to each lot as they are created on a stage by stage basis. Approval of new Protective Covenants by the Department are currently underway but are not included in this reporting period.

2.2.9 Condition 9

All elements specified in Attachment 6 of the approval have been incorporated in either the Structure Plan, conditions of subdivision approval or approved Protective Covenants. Previous compliance reports (Cardno 2011, Cardno 2012b) have provided details on how the different elements contained within Attachment 6 of the Approval were included in the above processes.

2013 COMPLIANCE REPORT FOR EPBC APPROVAL 2008/4250
AVON RIDGE ESTATE, BRIGADOON

The Structure Plan is still pending final endorsement by the WAPC. Following final endorsement of the Structure Plan, a further update will be issued to the Department outlining implementation of the components of Condition 9. **Table 7** shows mechanisms from Attachment 6 used to implement Condition 9.

Table 7: Summary of mechanisms from Attachment 6 used to implement Condition 9

MECHANISM	DOCUMENT	REFERENCE
All habitat trees identified in Attachment 4 must be conserved in perpetuity via a Memorial on Title.	Protective Covenants via Notification on Title.	Protective Covenants, Section 3.6 and Section 7.1
The restriction on building envelopes is a maximum of 10% of the gross lot area.	Structure Plan	Structure Plan, Provision 1
Requirement for protective covenants to restrict clearing, including the use of a DFES approved Fire Management Consultant must be included.	Protective Covenants	Protective Covenants, Section 2.1 and Section 3.5
Building development envelopes must not impinge on any areas identified by the Bush Forever vegetation condition classification as the following unless approved by Council: a. Areas determined to be in "pristine" condition; and b. Areas determined to be in an "excellent" condition. This includes driveways or other points of access	Structure Plan and Protective Covenants	Protective Covenants, Section 3.1 Structure Plan, Provision 5
No additional clearing for access roads or other community infrastructure within the project area unless approved by Council	Structure Plan	Clearing is limited to the areas stipulated in the WAPC Subdivisions Conditions of Approval and demonstrated in the Structure Plan.
A Construction Management Plan must be prepared and applied to all stages of development within the project area.	Condition of Subdivision	WAPC Subdivision Conditions; Condition 14
A Revegetation and Fire Management Plan must be prepared and applied to all stages of development within the project area.	Condition of Subdivision and Structure Plan	WAPC Subdivision Conditions; Condition 29 Structure Plan; Structure Plan Condition J
There should be no clearing outside the Building Protection Zone areas on the 214 lots, excluding those required for fire management purposes and approved driveway purposes.	Protective Covenants	Protective Covenants, Condition 2.1 and Condition 7.1
There should be no clearing within the Building Protection Zone after the construction of the first house on each lot.	Protective Covenants	Protective Covenants, Condition 2.8

2.2.10 Condition 10

Within individual lots, habitat trees have been clearly marked and retained. Habitat trees are included within Notifications on Title and Protective Covenants.

All trees greater than 300mm dbh have been mapped. These trees will be retained unless within a building envelope, BPZ, strategic and lot firebreaks and road areas. Trees greater than 300mm dbh and within 10m of any proposed clearing areas will be marked and retained. Protective Covenants will include the requirement to protect these trees on individual lots.

2.2.11 Condition 11

This condition has been completed and reported in the 2011 Compliance Report (Cardno 2011).

2.2.12 Condition 12

This condition is addressed through the preparation of this Compliance Report.

2.2.13 Condition 13

This condition is completed and reported in the 2011 Compliance Report (Cardno 2011).

2.2.14 Condition 14

The revised RFMP is currently being reviewed by DFES and once approved will be sent to the DSEWPaC for approval. The current RFMP will remain in effect until the revised version is approved.

2.2.15 Condition 15

No request has been received by the Minister requiring better protection for environmental features and this condition is therefore not applicable.

2.2.16 Condition 16

Peet has maintained accurate records of all activities associated with or relevant to the conditions of approval. Copies of records are available upon request.

2.2.17 Condition 17

This condition is completed and reported in the 2011 Compliance Report (Cardno 2011).

3 Conclusion

This report has been prepared to satisfy Condition 12 of the EPBC Act Approval which was granted by the Department on the 8th October 2009. The report addresses Condition 12 by outlining the level of compliance with conditions of the approval for the Development in the reporting period of September 2012 to September 2013.

A high level of compliance with the approval conditions has been demonstrated in the reporting period. This is due to the implementation of environmental management measures prescribed by the following documents and mechanisms:

- Construction Environment Management Plan (CEMP)
- Revegetation and Fire Management Plan (RFMP)
- Protective Covenants
- Notification on Titles
- Use of Fire Management Consultant (FMC).

Ongoing monitoring and evaluation of environmental management works has and continues to ensure continued compliance with approval conditions.

As outlined in this report, there are a number of compliance mechanisms which are expected to be reviewed over the next compliance reporting period (2013/14) including:

- Update of RFMP
- New version of Protective Covenants for Stage 2
- Alternatives to revegetation within the P and R reserve.

These items will be addressed separately with the Department and have not impacted upon compliance within this reporting period.

4 References

Cardno 2009. Response to Submissions: Brigadoon Estate Special Rural Development, Brigadoon Western Australia (EPBC Reference 2008/4250).

Cardno 2010. Construction Environment Management Plan. Unpublished Report prepared for Peet Limited.

Cardno 2011. Compliance Report for EPBC Approval 2009/4250, Avon Ridge, Brigadoon. Unpublished Report prepared for Peet Limited.

Cardno 2012a. 2012 Compliance Report for EPBC Approval 2009/4250, Avon Ridge, Brigadoon. Unpublished Report prepared for Peet Limited.

Cardno 2012b. Revegetation and Fire Management Plan. Unpublished Report prepared for Peet Limited.

5 Glossary

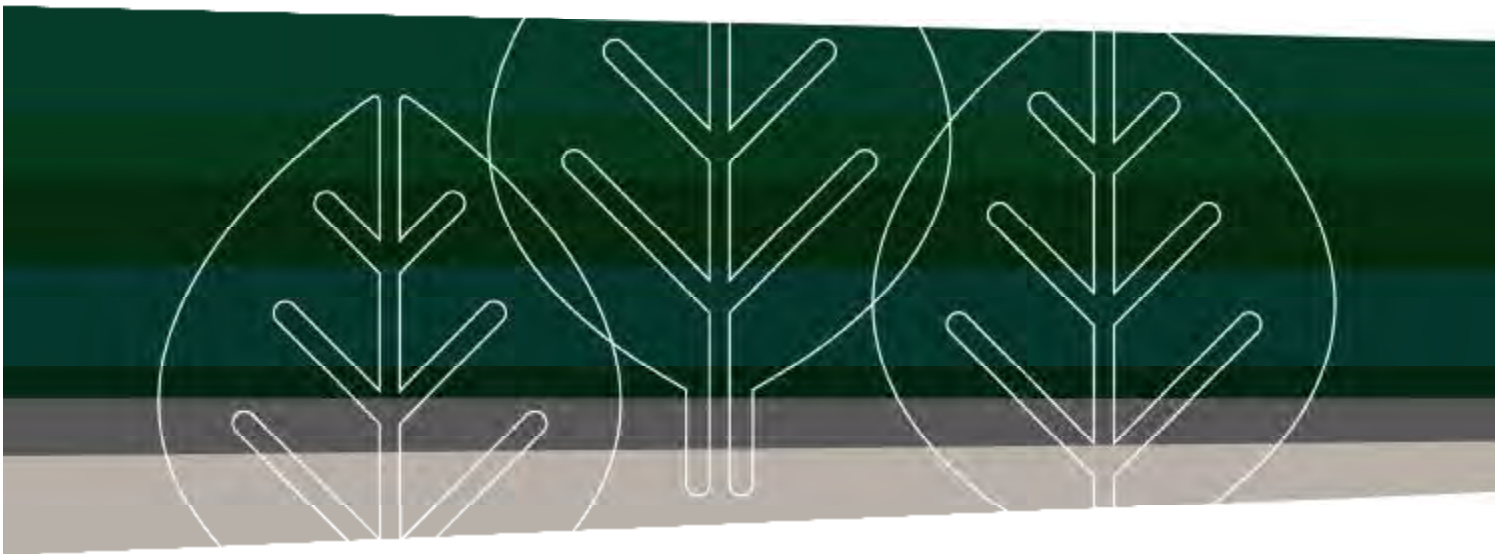
Term	Definition
Notifications on Title	are created under Section 70A of the Western Australian Transfer of Land Act 1893 to notify landowners of factors that may interfere with the use of their land. The person taking the action must put these titles in place to alert future purchasers if their lot contains habitat trees that must be retained in perpetuity and are not to be cleared in line with fire management procedures
Protection in perpetuity	means a tenure or a conservation status a notification attached to individual land titles that guarantees permanent preservation of vegetation into the future and ensures there will no clearing will be undertaken.

APPENDIX A



BIANNUAL REVEGETATION MONITORING REPORTS

revegetating
rehabilitating
restoring



V7068-006/C1 Avon Ridge Estate
Bi-annual Monitoring Report – Spring 2012
Cardno
P496-01-Rev00
November 2012

Disclaimer

This report has been prepared by Tranen Revegetation Systems solely for the benefit and use of the client.

Tranen Revegetation Systems shall assume no liability or responsibility to any third party arising out of use of or reliance upon this document by any third party.

This document may not be reproduced or copied in the whole or part without the express written consent of Tranen Revegetation Systems and the client.

Prepared for: Cardno

Prepared by: Tranen Pty Ltd
 ABN 37 054 506 446
 1/110 Jersey Street
 Jolimont WA 6014
 p: (08) 9284 1399
 f: (08) 9284 1377
email@tranen.com.au
www.tranen.com.au

Document Version Control				
Rev	Date	Description	Author	Director Review
00	20/11/12	Bi-annual report first draft	PA	DG

Table of Contents

1	Introduction	1
	1.1 EPBC Approval Conditions (Section 2b)	1
	1.2 Rehabilitation Program Objectives	1
	1.3 Project Background	2
2	Monitoring Methodology	3
3	Results.....	4
	3.1 Site 1A: Native Plant Density	4
	3.2 Site 2: Native Plant Density	4
	3.3 Remnant Vegetation.....	5
	3.4 Weeds.....	5
	3.5 Species Richness.....	6
	3.6 Plant Heights	6
	3.7 Fauna	6
	3.8 Surface Stability and Erosion.....	6
4	Discussion and recommendations	7
	4.1 Native Plant Survival.....	7
	4.2 Weeds.....	7
	4.3 Native Cover and Plant Development	7
	4.4 Fauna	8
	4.5 Surface Stability and Erosion.....	8
	4.6 Surface Preparation	8
	APPENDIX 1 AREAS LOCATION.....	9
	APPENDIX 2 OVERALL QUANTITATIVE DATA SUMMARY.....	12

1 INTRODUCTION

Tranen were engaged to carry out the revegetation work at PEET's Brigadoon Park and Recreation Reserve through Cardno in winter 2011. The tender initially awarded was for planting 30,775 seedlings in Site 1A, and again in 2012 for some 36,000 seedlings in Sites 1A (infill) and 2 (see map in Appendix 1).

1.1 EPBC Approval Conditions (Section 2b)

The revegetation measures to create additional Black Cockatoo habitat across the project site, including in the Parks and Recreation Reserve, specifically are:

- Revegetating all vegetation condition classes (excluding pristine and excellent classes) and vegetation complexes (including maps);
- Designing species mix: numbers and density to be planted;
- Timing the proposed planting (must be following the annual winter rain period and between 1 September – 30 November);
- Implementing weed management measures;
- The survivorship rate of all revegetation measures must be at least 90% after three years. If after three years of the date of the planting, a survival rate of 90% of the planted trees is not achieved, all dead trees must be replaced with other Black Cockatoo habitat species within 12 months and maintained for at least an additional two years;
- Annual monitoring measures within the project area undertaken by a appropriately qualified and experienced ecologist and must commence within 12 months of the completion of revegetation and continue for at least three years after the after the initial revegetation planting in any given area (given that revegetation will be staged across the development);
- Annual monitoring measures undertaken by a appropriately qualified and experienced specialist must commence in the Parks and Recreation Reserve within 12 months of completion of revegetation and continue for at least three years after the initial planting in the Parks and Recreation reserve for the purpose of establishing the survivorship rates and replanting efforts within the project area;
- Mapping of all potential Black Cockatoo habitat trees of 500mm dbh or greater on individual lots and information on how these will be retained for permanent conservation.

1.2 Rehabilitation Program Objectives

The main objectives are:

- Creating an offset package to replace the habitat for the threatened Carnaby's Black Cockatoo;
- Planting of 100,000 seedlings (over five years) on 100 ha of the Parks and Recreation Reserve from a list of Cockatoo foraging species;
- Monitoring and maintenance program for up to five years to ensure survival of planted seedlings to meet completion criteria set by DEWHA for the parks and Recreation Reserve.

1.3 Project Background

The 2011 initial rehabilitation program on Site 1A consisted of:

- Deep ripping (by others);
- Installation of a 1,545 m, 1.8 m high, kangaroo fence with rabbit proof skirt;
- Pre-planting weed control program of herbicide application (glyphosate and simazine) in July 2011 and manual removal of olive trees (August 2011); and
- Planting of 30,775 seedlings into rip lines between July and August 2011.

Since the initial installation the following maintenance activities have been undertaken in Site 1A:

- Fencing repair;
- Weed control maintenance: spring 2011, summer, and autumn 2012;
- Infill planting: 12,000 seedlings in August 2012; and
- Weed control maintenance: spring 2012.

The 2012 rehabilitation program on Site 2 consisted of:

- Deep ripping (by others);
- Installation of a 1,000 m, 1.8 m high, kangaroo fence with rabbit proof skirt;
- Pre-planting weed control program of herbicide application (glyphosate and simazine) in July 2012; and
- Planting of 24,000 seedlings in August 2011.

Since the initial installation the following maintenance activities have been undertaken on Site 2:

- Fencing repair;
- Weed control maintenance: spring 2012.

2 MONITORING METHODOLOGY

A total of 50 transects were installed along various rip lines throughout the project Site 1A. A transect was set up roughly every tenth rip line throughout the site to ensure even distribution and data is representative of the whole site. A total of 2,017 seedlings were counted (5% of total seedlings planted), tallying dead and alive seedlings at the same time.

In Site 2, seedling counts were carried out through random walking transect along every fifth rip lines. A total of 4,350 seedlings were counted (18% of total seedlings planted), tallying dead and alive seedlings at the same time.

Qualitative and quantitative information was gathered for each transect with the goal of assessing survival of initial planting numbers and infill planting number. Each area was photographed and general notes were taken on seedling health, dominant species, weed presence and maximum seedling height.

3 RESULTS

Monitoring data are presented in Appendix 2, with the results explained in further detail in this section.

3.1 Site 1A: Native Plant Density

The average survival rate for only the infill planted seedlings at the time of the assessment for Site 1A was 92%. If we add the 2012 infill surviving plants to the 2011 initial surviving plants, survival rate is now 114%, as the infill planting quantity was higher than the quantity lost the previous year. Density across the site is more than 1 plant/m² with no areas more than 500 m² having less than 1 plant/m² (including remnant vegetation).

Distribution of seedlings is even and consistent throughout the site.



Figure 1 Site 1A Rippled Area

3.2 Site 2: Native Plant Density

The average survival rate at the time of the assessment for Site 2 was 94%. Distribution of seedlings is even and consistent throughout the site. Seedling survival rates are high, even in areas where spring weeds have been encroaching on the rip lines. Density across the site is more than 1 plant/m² with no areas more than 500 m² having less than 1 plant/m² (including remnant vegetation).



Figure 2 Site 2 Ripped Area

3.3 Remnant Vegetation

Both sites have remnant canopy species consisting mainly of *Eucalyptus rudis*, *Eucalyptus wandoo* and *Corymbia calophylla*. There are also pockets of shrubs throughout the sites. Following repeated weed control, natural recruitment of many individuals is occurring, adding to the planting densities (see Figure 3).



Figure 3 Site 1A Natural Recruitment

3.4 Weeds

The monitoring visits have been scheduled after spring weed control in both sites.

In the open areas weed cover is now less than 10%. There were very few weeds in the rip lines themselves as they were mainly occurring between the rip lines. They

may have impacted on the young seedlings (8% mortality in Site 1A and 6% in Site 2), but are not affecting plant growth at present.

The non-open areas have not been ripped, and did not receive any weed control treatment due to access constraints and the fact they were not planted. In these areas, weed cover is between 60-70%.

Weed infestation mainly consists of annual grass species. In addition there are a number of perennial grasses including *Briza maxima* (Blowfly Grass), *Avena sp.* (Wild Oat) and *Ehrharta calycina* (Perennial Veldt Grass). There are also small outbreaks of *Arctotheca calendula* (Capeweed) between the rip lines and several *Solanum nigrum* (Black Nightshade) germinating. *Echium plantagineum* (Paterson's Curse) was also germinating in the northern end of Site 1A. All weeds have been controlled.

Weeds like *Echium plantagineum* (Paterson's curse) and *Dittrichia graveolens* (Stinkwort) will be monitored during each monthly visit and reported. A summer weed control budget has already been allocated to Site 2.

3.5 Species Richness

There were 21 species planted in Site 1A and 18 planted in Site 2, all of which were recorded within the transects.

3.6 Plant Heights

The height of the tallest seedling on each transect was noted so that in subsequent monitoring events growth rates can be determined. *Eucalyptus rudis*, *Corymbia calophylla*, *Acacia saligna* and *Calothamnus rupestris* showed the highest growth rates at present, reaching more than 2 m in Site 1A (16 months old) and 0.5 m in site 2 (4 months old).

3.7 Fauna

There was no visible evidence of predation within the fence enclosure.

3.8 Surface Stability and Erosion

There is no visible erosion within the site, and all of the rip lines appear stable. Two winter rainfalls have consolidated the rip lines creating a good growing medium.

4 DISCUSSION AND RECOMMENDATIONS

4.1 Native Plant Survival

The plant survival at present are 114% (including infill 2012) in Site 1A and 94% in Site 2, both above the EPBC conditions of 90% survival (see EPBC conditions in para 1.1). There is even distribution throughout the sites with no areas lacking in density or diversity.

At this stage no infill planting has been scheduled this winter 2013 due to the high survival rates. The next bi-annual monitoring event in autumn will establish survival rates, and determine whether remedial action is required before winter 2013 planting programme, especially in the new Site 2.

From the transect results and the survival counts, it is clear that the highest survival rates are in the more elevated locations of both sites. Survival rates are slightly lower in the areas that had outbreaks of summer weeds (e.g. Paterson's curse and stinkwort), are less opened and under canopy.

4.2 Weeds

Weeds are under control within the rip lines and there are no weeds compromising the development of the planted seedlings following spring weed control. Site 1A shows signs of summer weed germination that will need to be managed effectively to ensure these species are controlled in such a way that they do not impact on the revegetation performance.

The annual and perennial grasses will require close observation during autumn 2013 to optimize timing of weed control. Until now weeds have had little impact on plant development but this could change next year with new germination of weeds, new weed species, and weed growth.

4.3 Native Cover and Plant Development

There is consistent native cover throughout the site. Plant development is very good at this stage with excellent growth in the *Eucalyptus rudis*, *Corymbia calophylla*, *Hakea* species, and *Acacia saligna*.

In Site 1A the majority of *Eucalyptus rudis* and *Acacia saligna* were reaching heights more than 2 metres.

At present, all species planted are still represented although *Eucalyptus rudis* and *Acacia saligna* dominate in Site 1A, and *Hakea* species in Site 2, as they were planted in the highest numbers.

Tranen recommend pre-ordering seedlings before the end of 2012 if new planting is going to be carried out in 2013. Some of the previous 2011 and 2012 species should be reduced, and new ground cover and shrub species added in order to increase diversity.

4.4 Fauna

There was no visible predation of any seedlings, or gaps in the planted areas signifying removal of seedlings by fauna. Monthly site visits will ensure that any indication of fauna interference is identified quickly and dealt with appropriately.

The fence is inspected monthly, and, following fallen branches after storm events, repaired accordingly. Both gates in Site 2 were found closed at each visit, even if one of them got rammed at some stage.

The poison baiting appears to have been successful in preventing unwanted predators from accessing the revegetation area. Another campaign may be required if signs of predation are recorded in the future.

4.5 Surface Stability and Erosion

No noticeable erosion or surface stability issues were recorded.

It should be noted that the access track has been reworked; now making access greatly improved and a lot safer.



4.6 Surface Preparation

Ripping of planting areas a significant amount of time before planting allows the soils to settle, reducing air pockets in the ground and greatly increasing the likelihood of survival of the plants. It is believed this has contributed to the high survival rates experienced in both Sites 1A and 2.

Tranen recommend determining the next areas for replanting as soon as possible so the ground can be ripped well ahead of time, in spring (if clay content low) when soil is at its maximum moisture content, or early autumn (if clay content high). Some optional areas (sites 1B, 3 and 4) were identified and mapped last year (see map in Appendix 1).

Appendix 1 Areas Location

Legend

-  Proposed fence boundary
-  Ripping Area (27-June-11)



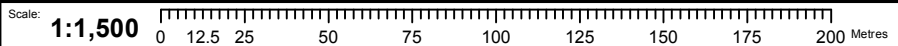
DATE	No.	ACTIVITY - REVISION DESCRIPTION	DES	DRN	CHK'D	APPD	DATE	No.	ACTIVITY - REVISION DESCRIPTION	DES	DRN	CHK'D	APPD



**CONSULTING ENGINEERS
TOWN PLANNERS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS**

Cardno Centre 2 Bagot Road
P.O. Box 155 Subiaco
Western Australia 6904

Telephone (08) 9273 3888
Facsimile (08) 9388 3831



PROJECT **Brigadoon Revegetation Management Plan**

DRAWING TITLE **FIGURE 1 : Revegetation Rip Area and Proposed Fence Line**

PRINCIPAL **PEET Limited**



Project Number **V7068** Original **A3**

Drawing Number **SK18** Revision **00**

Designed SC
Drawn MGW

Checked
Approved

Local Authority: City of Swan

This drawing has been prepared in accordance to Cardno Quality Management System. It remains the property of Cardno WA Pty. Ltd. and shall not be used without permission. The drawing shall be preliminary only and/or not for construction until signed approved.



DATE	No.	ACTIVITY - REVISION DESCRIPTION	DES	DRN	CHK'D	APP'D	DATE	No.	ACTIVITY - REVISION DESCRIPTION	DES	DRN	CHK'D	APP'D



CONSULTING ENGINEERS
TOWN PLANNERS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS

Cardno (WA) Pty Ltd/ABN 77 009 119 000
11 Harvest Terrace West Perth WA 6005 Australia
PO Box 447 West Perth WA 6872
Tel:+61 8 9273 3888 Fax:+61 8 9486 8664

Scale: **1:5,000**

PROJECT **Brigadoon Estate**

DRAWING TITLE **FIGURE 1 : Revegetation Areas to Be Ripped**

PRINCIPAL **PEET Limited**



Project Number **V7068** Original **A3**

Drawing Number **SK21** Revision **A**

Designed SB Checked

Drawn SB Approved

Local Authority: City of Swan

Sheet 1 of 1 Date 27/04/12

This drawing has been prepared in accordance to Cardno Quality Management System. It remains the property of Cardno WA Pty. Ltd. and shall not be used without permission. The drawing shall be preliminary only and/or not for construction until signed approved.

Appendix 2 Overall Quantitative Data Summary

Avon Ridge Estate - Cardno

Revegetation Status Report - November 2012

Monitoring Date: Thursday, 8 November 2012	Conducted By: Paul Audin
Site Reference: Brigadoon Site 1A	Area (ha): 12 (ripped) Slope: Flat to 1:4
Aspect: Western facing slope	Soil Type: Clay-loam Soil pH: N/A

Existing Site Conditions: Site previously ripped prior to engagement of Tranen. Kangaroo fencing with skirt installed prior to plant installation. Pre-planting and maintenance weed control carried out.



Weed Control Type: Blanket - Glyphosate and Simazine	Weed Control Date: 22 July 2011
Planting Date: 24th July to 4th August	
Weed Control Type: Spot Spray - Glyphosate	Weed Control Date: 19 to 22 October 2012
Weed Control Type: Spot Spray - Glyphosate	Weed Control Date: 7 to 13 March 2012
Weed Control Type: Spot Spray - Glyphosate	Weed Control Date: 19 July to 11 August 2012
Infill Planting Date: 11-12 July 2012	
Weed Control Type: Spot Spray - Glyphosate	Weed Control Date: 10 October to 1 November 2012

Transect No.	Alive	New	Total	Transect No.	Alive	New	Total
1	30		31	26	22	5	23
2	35		39	27	40	29	41
3	26		26	28	33	15	37
4	40		44	29	40	14	42
5	69		73	30	40	21	44
6	24		26	31	30	17	35
7	30		34	32	45	28	46
8	36		41	33	46	43	52
9	45		50	34	50	31	55
10	40		42	35	40	15	46
11	35		40	36	51	9	59
12	17	14	20	37	21	8	26
13	16	8	20	38	28	11	31
14	49	17	55	39	29		30
15	30	23	35	40	41		42
16	78	8	94	41	13		25
17	55	7	69	42	25		27
18	78	14	94	43	14		22
19	120	18	136	44	13		14
20	49	31	51	45	17		22
21	30	12	36	46	14		24
22	50	25	55	47	10		10
23	37	31	37	48	4		4
24	48	42	49	49	15		17
25	14	17	14	50	30		32
				Total	1,792	513	2,017
						Survival Rate (%)	114%

Avon Ridge Estate - Cardno

Revegetation Status Report - November 2012

Monitoring Date: Wednesday, 7 November 2012	Conducted By: Paul Audin
Site Reference: Brigadoon Site 2	Area (ha): 4.3 (ripped) Slope: Flat to 1:4
Aspect: Western facing slope	Soil Type: Clay-loam Soil pH: N/A

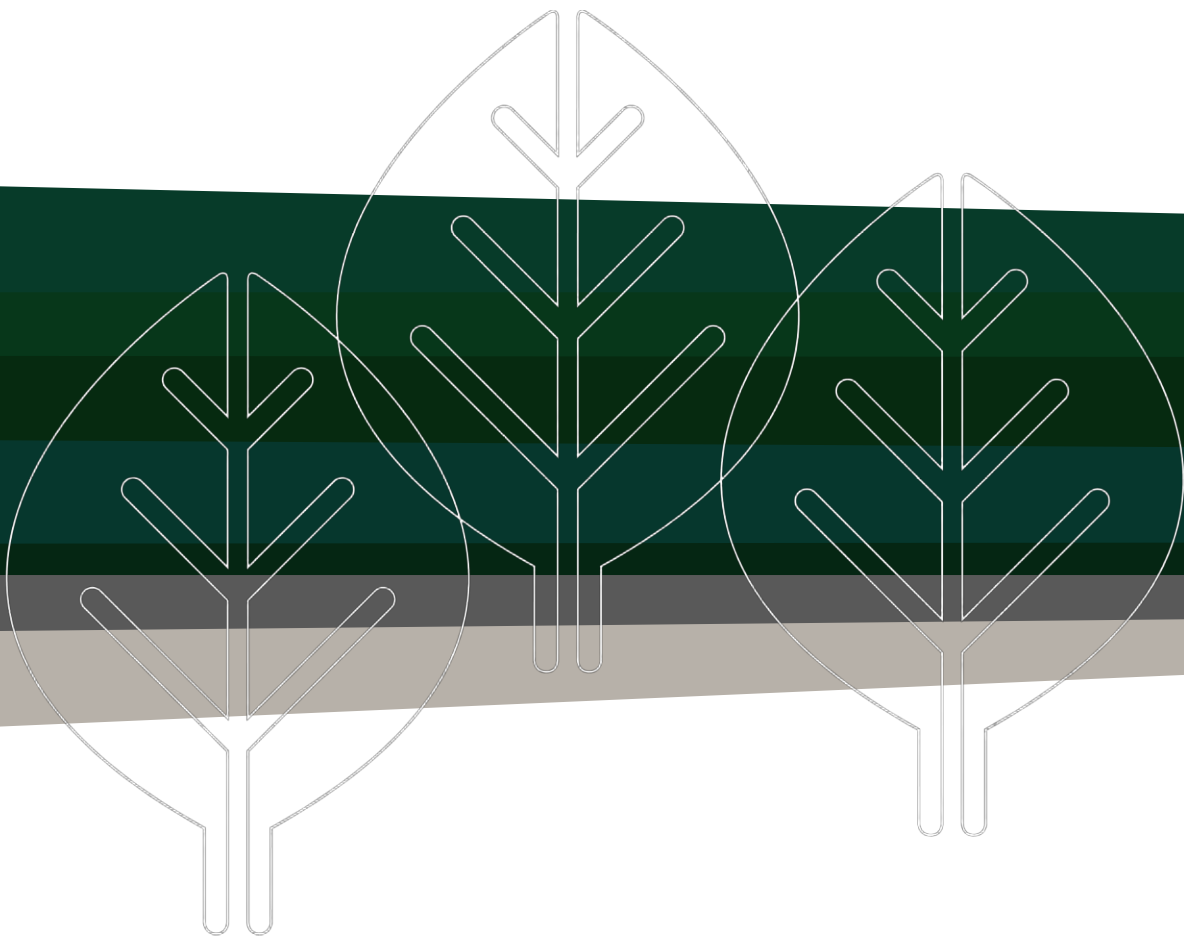
Existing Site Conditions: Site previously ripped prior to engagement of Tranen. Kangaroo fencing with skirt installed prior to plant installation. Pre-planting and maintenance weed control carried out.



Weed Control Type: Blanket - Glyphosate and Simazine	Weed Control Date: 19 July 2012
Planting Date: 3 to 4 August 2012	
Weed Control Type: Spot Spray - Glyphosate	Weed Control Date: 5 to 9 October 2012

Rip line No	Alive	Dead	Total
1	105	8	113
2	214	12	222
3	175	2	187
4	256	26	258
5	186	11	212
6	217	26	228
7	305	32	331
8	289	19	321
9	187	21	206
10	149	8	170
11	205	23	213
12	169	3	192
13	189	7	192
14	205	12	212
15	241	12	253
16	262	9	274
17	195	8	204
18	189	17	197
19	145	5	162
20	198	10	203
Total	4,081	271	4,350
Survival Rate (%)			94%

revegetating
rehabilitating
restoring



Avon Ridge Estate
Bi-annual Monitoring Report – Autumn 2013
Emerge Associates
P496-01-Rev00
August 2013

Table of Contents

1	Introduction	1
1.1	EPBC Approval Conditions (Section 2b)	1
1.2	Rehabilitation Program Objectives	1
1.3	Project Background.....	2
2	Monitoring Methodology.....	3
3	Results	4
3.1	Site 1A: Survival and Condition of Revegetation	4
3.2	Site 2: Survival and Condition of Revegetation.....	5
3.3	Remnant Vegetation	7
3.4	Weeds.....	7
3.5	Species Richness	8
3.6	Plant Heights.....	8
3.7	Fauna.....	8
3.8	Surface Stability and Erosion	9
4	Discussion and Recommendations	10
4.1	Plant Survival.....	10
4.2	Weeds.....	10
4.3	Revegetation Cover, Plant Development and Natural Recruitment	10
4.4	Fauna.....	11
4.5	Surface Stability and Erosion	11
4.6	Future Work	11
APPENDIX 1	AERIAL IMAGE OF SITES 1A AND 2 FROM 20 JUNE 2013.....	12
APPENDIX 2	RAW DATA.....	14

1 INTRODUCTION

Tranen was engaged to undertake revegetation work at PEET's Brigadoon Park and Recreation Reserve through Cardno in winter 2011. The tender initially awarded was for planting 30,775 seedlings in Site 1A, and again in 2012 for some 36,000 seedlings in Sites 1A (infill) and 2.

1.1 EPBC Approval Conditions (Section 2b)

The revegetation measures to create additional Black Cockatoo habitat across the project site, including in the Parks and Recreation Reserve, specifically are:

- Revegetating all vegetation condition classes (excluding pristine and excellent classes) and vegetation complexes;
- Designing species mix: numbers and density to be planted;
- Timing the proposed planting (must be following the annual winter rain period);
- Implementing weed management measures;
- The survivorship rate of all revegetation measures must be at least 90% after three years. If after three years of the date of the planting, a survival rate of 90% of the planted trees is not achieved, all dead trees must be replaced with other Black Cockatoo habitat species within 12 months and maintained for at least an additional two years;
- Annual monitoring measures within the project area undertaken by an appropriately qualified and experienced ecologist and must commence within 12 months of the completion of revegetation and continue for at least three years after the initial revegetation planting in any given area (given that revegetation will be staged across the development);
- Annual monitoring measures undertaken by an appropriately qualified and experienced specialist must commence in the Parks and Recreation Reserve within 12 months of completion of revegetation and continue for at least three years after the initial planting in the Parks and Recreation reserve for the purpose of establishing the survivorship rates and replanting efforts within the project area;
- Mapping of all potential Black Cockatoo habitat trees of 500 mm dbh or greater on individual lots and information on how these will be retained for permanent conservation.

1.2 Rehabilitation Program Objectives

The main objectives are:

- Creating an offset package to replace the habitat for the threatened Carnaby's Black Cockatoo;
- Planting of 100,000 seedlings (over five years) on 100 ha of the Parks and Recreation Reserve from a list of Cockatoo foraging species;
- Monitoring and maintenance program for up to five years to ensure survival of planted seedlings to meet completion criteria set by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) for the Parks and Recreation Reserve.

1.3 Project Background

The 2011 initial revegetation program on Site 1A consisted of:

- Deep ripping (not undertaken by Tranen);
- Installation of a 1,545 m long, 1.8 m high, kangaroo fence with rabbit proof skirt;
- Pre-planting weed control program of herbicide application (glyphosate and simazine) in July 2011 and manual removal of olive trees (August 2011); and
- Planting of 30,775 seedlings into rip lines between July and August 2011.

Since the initial installation the following maintenance activities have been undertaken in Site 1A:

- Fencing repair;
- Weed control maintenance:
 - spring 2011;
 - summer, autumn and spring 2012; and
- Infill planting: 12,000 seedlings in August 2012.

The 2012 revegetation program on Site 2 consisted of:

- Deep ripping (not undertaken by Tranen);
- Installation of a 1,000 m long, 1.8 m high, kangaroo fence with rabbit proof skirt;
- Pre-planting weed control program of herbicide application (glyphosate and simazine) in July 2012; and
- Planting of 24,000 seedlings in August 2012.

Since the initial installation the following maintenance activities have been undertaken on Site 2:

- Fencing repair;
- Weed control maintenance:
 - spring 2012; and
 - autumn 2013.

2 MONITORING METHODOLOGY

This report presents results from the field survey conducted on 14 May 2013 (Autumn 2013).

In 2011, a total of 50 transects was installed along various rip lines throughout the project Site 1A. A transect was set up roughly every tenth rip line throughout the site to ensure even distribution and data is representative of the whole site. Two transects could not be located during the autumn 2013 monitoring owing to missing pegs.

For transects in Site 1A, the total number of living plants was counted along each transect. Overall survival could be calculated from the original number of plants installed in 2011 and any infill planting that occurred in 2012.

In Site 2, seedling survival was determined by counting live and dead seedlings along 20 random transects located approximately along every fifth rip line, as was initiated in the November 2012 assessment. For the autumn 2013 monitoring period, 1,527 seedlings were assessed, tallying dead and alive seedlings. It was noted during the survey that dead seedlings were not always easy to observe. Hence, counts of individuals for some transects was based on the assumption of plants at regular distances apart, as observed throughout other rip lines on the site.

Qualitative and quantitative information was gathered for each transect with the goal of assessing survival of initial planting numbers and infill planting number. Information was gathered on seedling health, dominant species, species diversity, weed presence and maximum plant height.

3 RESULTS

Monitoring data are presented in Appendix 2, with the results explained in further detail in this section.

3.1 Site 1A: Survival and Condition of Revegetation

Mean survival rate across the 48 transects at Site 1A was 74% (\pm 23% standard deviation) of the original numbers planted in the transects (i.e. of numbers planted in 2011), with a minimum – maximum range of 17–154% survival. Mean survival rate of the total number of seedlings planted into the transects (i.e. 2011 seedlings + 2012 seedlings) was 60% (\pm 19%) with a range of 17–100%.

Distribution of plants is even and consistent throughout the site, though plant height differs, with areas that were very open at the time of planting (i.e. with little overstorey present) having taller plants than those areas planted beneath or close to remnant vegetation (compare Figure 1 and Figure 2).



Figure 1 Site 1A - Transect 20 growing without the influence of remnant vegetation



Figure 2 **Site 1A – Transect 5 growing beneath established trees**

3.2 Site 2: Survival and Condition of Revegetation

Mean survival rate across the 20 transects at Site 2 was estimated at 66% (\pm 13% standard deviation) of the original numbers planted in the transects in 2012, with a minimum – maximum range of 26–85% survival. This was an estimated survival rate, as transects were randomly chosen and exact numbers of plants originally planted within each surveyed ripeline was unknown.

Plant distribution was patchy within those areas exhibiting poor survival. Growth rates also appeared to differ across the site, with areas without the influence of remnant vegetation having taller plants than areas with remnant vegetation alongside or providing a canopy above the plants (compare Figure 3 and Figure 4).



Figure 3 Site 2 – Open area with fast growth rates



Figure 4 Site 2 – Revegetation area beneath canopy resulted in poor survival

3.3 Remnant Vegetation

Both sites have remnant canopy species consisting mainly of *Eucalyptus rudis*, *Eucalyptus wandoo* and *Corymbia calophylla*. There are also some areas containing shrubs throughout the sites and the native grass *Austrostipa* sp. has also recruited in significant numbers in both sites. Following repeated weed control and through the exclusion of herbivores, natural recruitment of many individuals is occurring, adding to the plant densities and diversity (Figure 5).



Figure 5 Site 1A – Natural recruitment within Site 1A

3.4 Weeds

The monitoring was timed for late autumn to allow for significant rainfall to determine the degree to which winter weeds had germinated.

In Site 1A, weed cover was generally very low in the rip lines, ranging from < 1% up to 25 % cover, with most transects showing < 1% weed cover. Transects on the western side of the site had greater weed cover than uphill areas on the eastern side of the site for some transects.

Site 2 had higher weed cover than Site 1A (range of < 1 to 80 % cover, average cover of 24 % in the rip lines).

Weed cover was dominated by annual grass species and cape weed (*Arctotheca calendula*). *Solanum nigrum* (Black Nightshade) was also identified in some areas as a weed of concern, but only in isolated patches. Weed cover will continue to be monitored and treated where it poses a risk to plant survival.

3.5 Species Richness

In Site 1A, 21 species were planted in 2011 and a further nine species planted during infill planting in 2012. Of these 30 species, 26 were observed either during the transect scoring or while walking across the site (Appendix 2).

Eighteen species were planted into Site 2, with all but *Banksia prionotes* being observed during the autumn 2013 monitoring (Appendix 2).

3.6 Plant Heights

The tallest species observed were *Acacia saligna* and *Eucalyptus rudis* reaching up to 4.5 m in height at Site 1A. This represents the growth obtained after 2 years.

At Site 2, *Eucalyptus wandoo* and *Acacia saligna* were observed at heights up to 2 m. *Corymbia calophylla* and *Hakea varia* were also observed as the tallest species on transects, both at ≤ 0.5 m tall. These heights have been achieved after 1 year of growth.

3.7 Fauna

There was little evidence of herbivory within the two sites, though what appeared to be disturbance by rabbits was evident in Site 1A.



Figure 6 Possible rabbit disturbance within Site 1A

3.8 Surface Stability and Erosion

There was no visible erosion within the site, and all of the rip lines appeared stable.

4 DISCUSSION AND RECOMMENDATIONS

4.1 Plant Survival

The survival of planted tubestock at present is 74% of original numbers at Site 1A and 66% at Site 2. These figures are below the 90% required of the EPBC conditions (see EPBC conditions in Section 1.1).

Site 1A had a relatively even distribution of plants throughout the site, whilst Site 2 had some sections with poor success and growth rate. These bare areas were planted with infill in July 2013 and will be reported on in the next monitoring report.

From the transect results and the survival counts at both sites, it is clear that the highest survival rates occur where there is less remnant vegetation. It is likely that the remnant vegetation is competing for light, water and nutrients which has reduced the survival of plants compared with open areas where competition from established vegetation is less or non-existent.

4.2 Weeds

For both sites, weeds were generally under control within the rip lines. Site 1A had higher weed cover in the western side of the site which is lower-lying and occurs beneath the canopy of remnant trees. The open sections contained very few weeds. Weed control is scheduled for winter in this site.

Site 2 had some rip lines with high weed cover (up to 80%). Following the monitoring in May 2013 for this report, weed control was organised for Site 2 during early June. As a result, weed cover was noted to be very low when the site was planted in July 2013 with infill.

Weeds will continue to be monitored during the monthly visits. It appears that the development of a thick canopy of *Acacia saligna* and *Eucalyptus rudis* at Site 1A has prevented or reduced weed cover.

4.3 Revegetation Cover, Plant Development and Natural Recruitment

Foliar cover from the planted species at Site 1A is very high in sections owing to rapid growth of *Acacia saligna* and *Eucalyptus rudis*, particularly in the open areas. Presumably, this is due to the lack of competition from established trees and shrubs. Where trees and shrubs occur near a transect, plant heights were lower and foliar cover was also reduced compared with the open sites.

At Site 1A the majority of *Eucalyptus rudis* and *Acacia saligna* were reaching heights more than 3 metres. *Eucalyptus rudis* was also recruiting in large numbers, and some shrubs were also evident as natural recruits, particularly *Banksia sessilis* and *Hibbertia* sp.

At Site 2, *Eucalyptus wandoo* and *Acacia saligna* were the tallest species observed to a maximum height of 2 m after one years' growth. The species mix was dominated by *Hakea* spp. as a result of the large numbers of this genus planted in

2012, but *Acacia saligna* and *Eucalyptus wandoo* and *Corymbia calophylla* were also dominant in areas. Less natural recruitment was observed in Site 2 compared with Site 1A, but with further weed control it is expected that natural recruitment will increase in subsequent years.

4.4 Fauna

There was little visible herbivory of any seedlings, or gaps in the planted areas signifying removal of seedlings by fauna, other than some scratchings that may have been attributed to rabbits (Figure 6). Monthly site visits will ensure that any indication of fauna interference is identified quickly and dealt with appropriately.

4.5 Surface Stability and Erosion

No noticeable erosion or surface stability issues were recorded.

It should be noted that the access track has been reworked, now making access greatly improved and a lot safer.

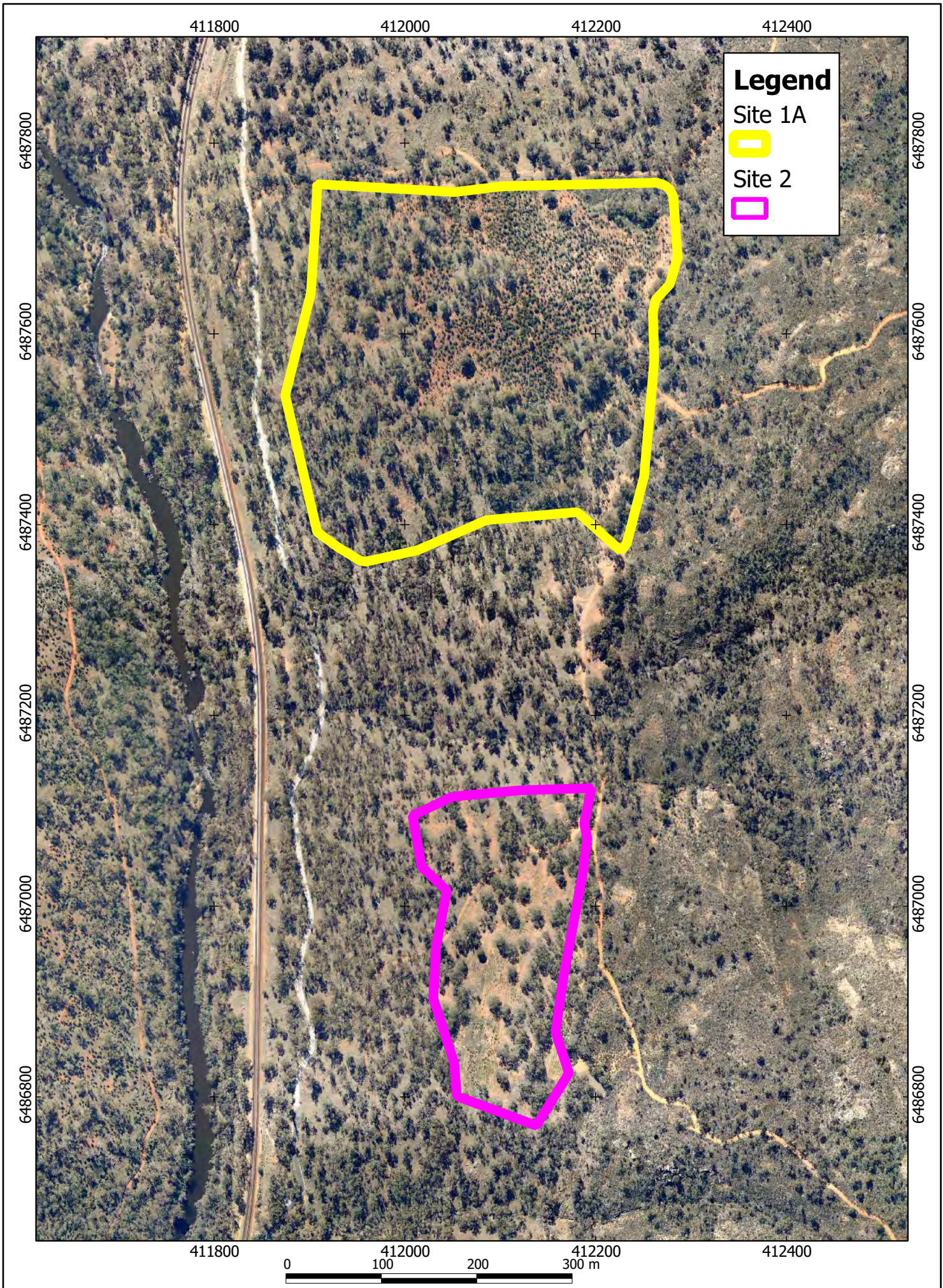
4.6 Future Work

Tranen recommends pre-ordering seedlings before the end of 2013 if new planting is to be carried out in 2014.

It is recommended that some of the previous species used in 2011 and 2012 should be reduced in quantity for future orders (such as *Acacia saligna*), and ground cover and shrub species added in order to increase diversity. While the EPBC Approval Conditions refer to planting of Black Cockatoo habitat species, it is recommended that in order to restore a Black Cockatoo habitat in perpetuity, a mix that contains local plant species within the various plant strata (overstorey, midstorey and understorey) is required. Preferably, these species would fill the various functional groups, including the disturbance specialists (such as members of the Fabaceae family), nitrogen fixers (such as *Acacia* spp.), foraging species (such as members of the Proteaceae family) and habitat trees (such as *Eucalyptus* spp.). This would provide a 'whole-of-ecosystem' approach to restoring Black Cockatoo habitat, rather than just planting foraging trees. In Tranen's opinion, this would provide a long-term benefit to Black Cockatoo conservation because it provides the ecosystem with the potential to be self-sustaining.

Given that large numbers of foraging and habitat species have already been planted over the three years of the project, Tranen recommends infill planting within all revegetation areas with herbaceous and shrub species. This is also recommended for future infill planting, should it be required, in Sites 3 and 4 and Sales Office A and B which were planted in July 2013.

Appendix 1 Aerial Image of Sites 1A and 2 from 20 June 2013



Appendix 2 Raw Data

Avon Ridge Site 1A

Transect No.	Number seedlings planted 2011	Number seedlings planted 2012	Total number planted 2011+2012	Number seedlings alive Nov 2012	% survival of original numbers (Nov 2012)	% survival of total number planted (Nov 2012)	Number seedlings alive May 2013	% survival of original numbers (May 2013)	% survival of total number planted (May 2013)	Tallest species observed May 2013	Height (m)	Weed cover (%) May 2013	Comments
1	31	0	31	30	97%	97%	20	65%	65%	<i>Acacia saligna</i>	3.0	1	
2	39	0	39	35	90%	90%	28	72%	72%	<i>Acacia saligna</i>	3.0	1	
3	26	0	26	26	100%	100%	22	85%	85%	<i>Acacia saligna</i>	1.8	1	
4	44	0	44	40	91%	91%	28	64%	64%	<i>Acacia saligna</i>	2.5	1	
5	73	0	73	69	95%	95%	55	75%	75%	<i>Acacia saligna</i>	4.0	1	
6	26	0	26	24	92%	92%	26	100%	100%	<i>Acacia saligna</i>	4.0	1	
7	34	0	34	30	88%	88%	28	82%	82%	<i>Acacia saligna</i>	4.0	1	
8	41	0	41	36	88%	88%	27	66%	66%	<i>Acacia saligna</i>	4.0	1	
9	50	0	50	45	90%	90%	33	66%	66%	<i>Acacia saligna</i>	4.0	5	
10	42	0	42	40	95%	95%	27	64%	64%	<i>Acacia saligna</i>	4.0	1	
11	40	0	40	35	88%	88%	22	55%	55%	<i>Eucalyptus rudis</i>	3.0	2	
12	20	14	34	17	85%	50%	16	80%	47%	<i>Eucalyptus rudis</i>	3.5	1	
13	20	8	28	16	80%	57%	12	60%	43%	<i>Eucalyptus rudis</i>	3.0	1	
14	55	17	72	49	89%	68%	28	51%	39%	<i>Acacia saligna</i>	3.5	1	
15	35	23	58	30	86%	52%	29	83%	50%	<i>Acacia saligna</i>	3.5	1	
16	94	8	102	78	83%	76%	72	77%	71%	<i>Eucalyptus rudis</i>	4.5	1	
17	69	7	76	55	80%	72%	44	64%	58%	<i>Acacia saligna</i>	3.5	1	
18	94	14	108	78	83%	72%	66	70%	61%	<i>Eucalyptus rudis</i>	3.5	1	
19	136	18	154	120	88%	78%	88	65%	57%	<i>Acacia saligna</i>	4.0	1	
20	51	31	82	49	96%	60%	41	80%	50%	<i>Acacia saligna</i>	4.5	1	
21	36	12	48	30	83%	63%	32	89%	67%	<i>Acacia saligna</i>	2.5	1	
22	55	25	80	50	91%	63%	40	73%	50%	<i>Acacia saligna</i>	3.5	1	
23	37	31	68	37	100%	54%	30	81%	44%	<i>Acacia saligna</i>	3.5	1	
24	49	42	91	48	98%	53%	43	88%	47%	<i>Eucalyptus rudis</i>	4.5	1	
25	14	17	31	14	100%	45%	17	121%	55%	<i>Acacia saligna</i>	4.0	1	
26	23	5	28	22	96%	79%	20	87%	71%	<i>Acacia saligna</i>	3.5	5	
27	41	29	70	40	98%	57%	63	154%	90%	<i>Acacia saligna</i>	3.0	1	
28	37	15	52	33	89%	63%	28	76%	54%	<i>Acacia saligna</i>	4.0	1	
29	42	14	56	40	95%	71%	40	95%	71%	<i>Acacia saligna</i>	4.0	2	
30	44	21	65	40	91%	62%	29	66%	45%	<i>Acacia saligna</i>	3.5	1	
31	35	17	52	30	86%	58%	20	57%	38%	<i>Acacia saligna</i>	3.0	1	
32	46	28	74	45	98%	61%	39	85%	53%	<i>Acacia saligna</i>	2.0	1	50 <i>E. rudis</i> recruits
33	52	43	95	46	88%	48%	44	85%	46%	<i>Acacia saligna</i>	2.0	1	
34	55	31	86	50	91%	58%	28	51%	33%	<i>Acacia saligna</i>	2.0	25	30 <i>E. rudis</i> recruits
35	46	15	61	40	87%	66%	58	126%	95%	<i>Acacia saligna</i>	2.0	1	10 <i>E. rudis</i> recruits
36	59	9	68	51	86%	75%	21	36%	31%	<i>Acacia saligna</i>	2.5	5	45 <i>E. rudis</i> recruits
37	26	8	34	21	81%	62%	12	46%	35%	<i>Eucalyptus rudis</i>	0.7	5	
38	31	11	42	28	90%	67%	-	-	-	-	-	-	Transect not located
39	30	0	30	29	97%	97%	29	97%	97%	<i>Acacia saligna</i>	3.5	2	
40	42	0	42	41	98%	98%	33	79%	79%	<i>Acacia saligna</i>	2.5	10	

Avon Ridge Site 1A

Original 21 spp (2011 planting):

Species	Observed during survey?
<i>Acacia lasiocarpa</i>	Y
<i>Acacia saligna</i>	Y
<i>Allocasuarina humilis</i>	Y
<i>Banksia grandis</i>	Y
<i>Banksia illicifolia</i>	Dead specimen
<i>Calothamnus hirsutus</i>	Y
<i>Calothamnus quadrifidus</i>	Y
<i>Corymbia calophylla</i>	Y
<i>Eucalyptus rudis</i>	Y
<i>Eucalyptus wandoo</i>	Y
<i>Gastrolobium calycinum</i>	Y
<i>Gompholobium tomentosum</i>	Y
<i>Hakea cyclocarpa</i>	N
<i>Hakea lissocarpha</i>	Y
<i>Hakea ruscifolia</i>	Y
<i>Hakea undulata</i>	Y
<i>Kennedia coccinea</i>	Y
<i>Kennedia prostrata</i>	Y
<i>Leptospermum erubescens</i>	Y
<i>Macrozamia redlei</i>	Y
<i>Hypocallymma robustum</i>	Y

Infill 2012 planting:

<i>Allocasuarina fraseriana</i>	Y
<i>Banksia menziesii</i>	Dead specimen
<i>Banksia prionotes</i>	N
<i>Callistemon phoeniceus</i>	Y
<i>Eucalyptus marginata</i>	Y
<i>Hakea incrassata</i>	Y
<i>Hakea prostrata</i>	Y
<i>Hakea trifurcata</i>	Y
<i>Hakea varia</i>	Y

Avon Ridge Site 2

Transect Number	Total number planted 2012	Number alive Nov 2012	% survival Nov 2012	Number alive May 2013	Number dead May 2013 (estimated)	Total number May 2013 (alive + dead)	% survival May 2013 (estimated)	Tallest spp observed May 2013	Height (m)	Weed cover (%) May 2013
1	113	105	93%	24	9	33	73%	<i>Eucalyptus wandoo</i>	1.0	1
2	222	214	96%	46	28	74	62%	<i>Eucalyptus wandoo</i>	1.8	1
3	187	175	94%	16	14	30	53%	<i>Eucalyptus wandoo</i>	1.0	2
4	258	256	99%	23	17	40	58%	<i>Eucalyptus wandoo</i>	2.0	2
5	212	186	88%	21	12	33	64%	<i>Eucalyptus wandoo</i>	2.0	25
6	228	217	95%	32	17	49	65%	<i>Acacia saligna</i>	0.7	1
7	331	305	92%	45	24	69	65%	<i>Acacia saligna</i>	0.7	1
8	321	289	90%	23	21	44	52%	<i>Acacia saligna</i>	0.6	20
9	206	187	91%	5	14	19	26%	<i>Hakea varia</i>	0.3	1
10	170	149	88%	91	39	130	70%	<i>Acacia saligna</i>	0.7	10
11	213	205	96%	89	28	117	76%	<i>Acacia saligna</i>	0.6	5
12	192	169	88%	40	12	52	77%	<i>Acacia saligna</i>	0.5	50
13	192	189	98%	33	22	55	60%	<i>Acacia saligna</i>	1.8	30
14	212	205	97%	74	30	104	71%	<i>Acacia saligna</i>	0.7	80
15	253	241	95%	38	19	57	67%	<i>Acacia saligna</i>	0.6	70
16	274	262	96%	44	10	54	81%	<i>Acacia saligna</i>	1.0	60
17	204	195	96%	139	24	163	85%	<i>Acacia saligna</i>	0.7	50
18	197	189	96%	75	14	89	84%	<i>Corymbia calophylla</i>	0.5	25
19	162	145	90%	71	25	96	74%	<i>Acacia saligna</i>	0.6	25
20	203	198	98%	136	83	219	62%	<i>Acacia saligna</i>	1.2	20

Note that transects were random, hence 2013 results cannot be compared directly against 2012 results

Avon Ridge Site 2

Original 2012 planting list:

Species	Observed?
<i>Acacia saligna</i>	Y
<i>Allocasuarina fraseriana</i>	Y
<i>Banksia grandis</i>	Y
<i>Banksia menzeisii</i>	Y
<i>Banksia prionotes</i>	N
<i>Callistemon phoeniceus</i>	Y
<i>Corymbia calophylla</i>	Y
<i>Eucalyptus marginata</i>	Y
<i>Eucalyptus wandoo</i>	Y
<i>Hakea cyclocarpa</i>	Y
<i>Hakea incrassata</i>	Y
<i>Hakea lissocarpha</i>	Y
<i>Hakea prostrata</i>	Y
<i>Hakea ruscifolia</i>	Y
<i>Hakea trifurcata</i>	Y
<i>Hakea undulata</i>	Y
<i>Hakea varia</i>	Y
<i>Hypocalymma robustum</i>	Y

APPENDIX B



PARK AND RECREATION RESERVE DEPOSITED PLAN AND CERTIFICATE OF CROWN LAND TITLE

WESTERN



AUSTRALIA

REGISTER NUMBER 8001/DP69131	
DUPLICATE EDITION N/A	DATE DUPLICATE ISSUED N/A

**RECORD OF CERTIFICATE
OF
CROWN LAND TITLE**

VOLUME **LR3161** FOLIO **276**

UNDER THE TRANSFER OF LAND ACT 1893
AND THE LAND ADMINISTRATION ACT 1997

NO DUPLICATE CREATED

The undermentioned land is Crown land in the name of the STATE of WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

B. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 8001 ON DEPOSITED PLAN 69131

**STATUS ORDER AND PRIMARY INTEREST HOLDER:
(FIRST SCHEDULE)**

STATUS ORDER/INTEREST: RESERVE WITHOUT MANAGEMENT ORDER

PRIMARY INTEREST HOLDER: STATE OF WESTERN AUSTRALIA

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)**

1. L733684 EASEMENT TO CITY OF SWAN FOR PUBLIC ACCESS PURPOSES SEE DEPOSITED PLAN 69131 REGISTERED 14.9.2011.
2. L868111 RESERVE 51076 FOR THE PURPOSE OF REGIONAL PARKS AND RECREATION REGISTERED 27.2.2012.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF CROWN LAND TITLE-----

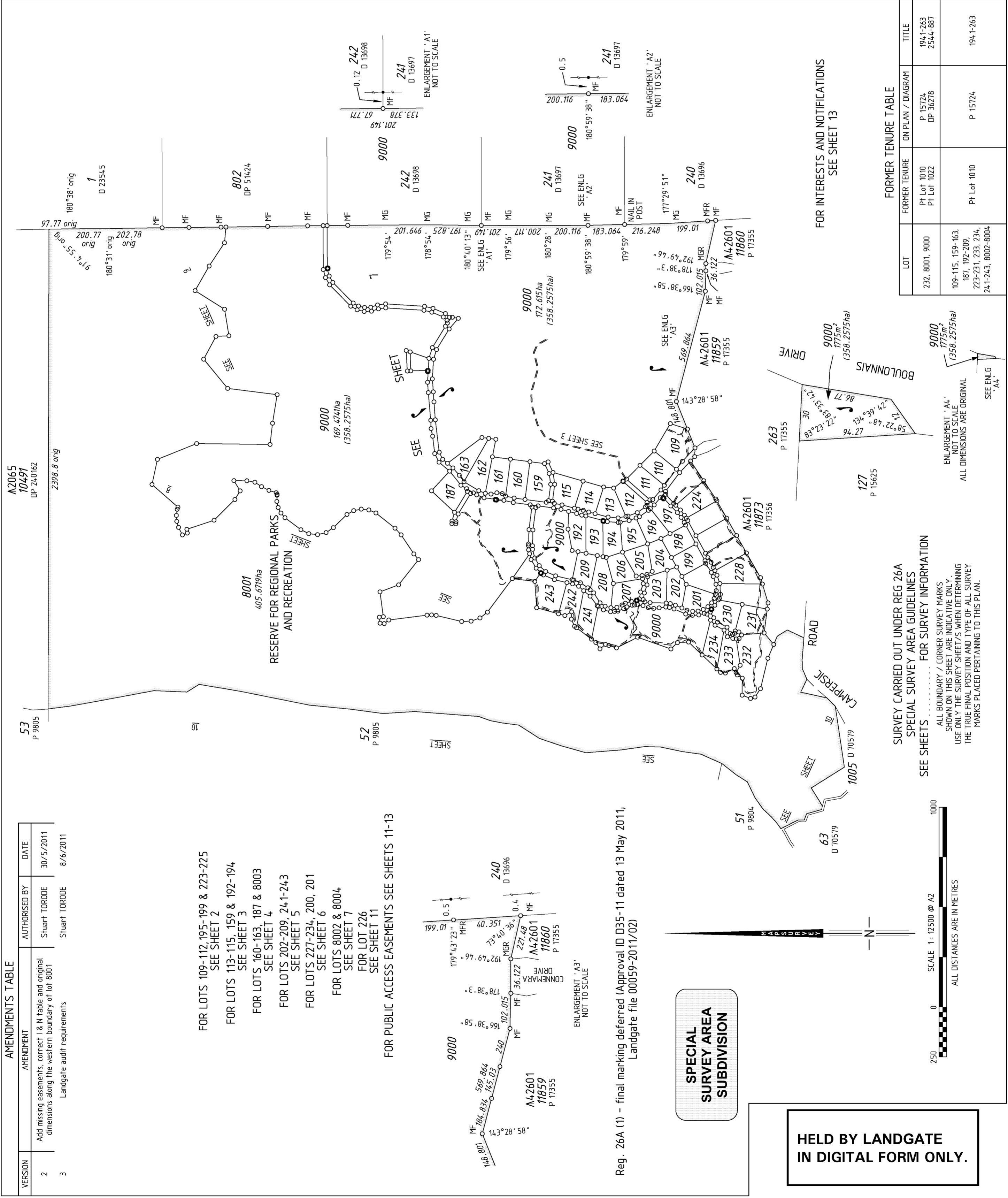
STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP69131 [SHEET 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15].
PREVIOUS TITLE: 2544-887, 1941-263.
PROPERTY STREET ADDRESS: LOT 8001 CAMPERSIC RD, BRIGADOON.
LOCAL GOVERNMENT AREA: CITY OF SWAN.
RESPONSIBLE AGENCY: DEPARTMENT OF REGIONAL DEVELOPMENT AND LANDS (SLSD).

NOTE 1: L868111 CORRESPONDENCE FILE 00769-2011-01RO

TYPE	FREEHOLD
PURPOSE	SUBDIVISION
PLAN OF	LOTS 109-115, 159-163, 187, 192-209, 223-234, 241-243, 8001-8004, 9000, ROADS, EASEMENTS AND RESTRICTIVE COVENANT
DISTRICT	SWAN
TOWNSITE	S.W.A. YES
R.D.L. FILE No.	
LOCALITY	UPPER SWAN BRIGADOON
LOCAL AUTHORITY	CITY OF SWAN
FIELD BOOK	107614, 109441
ON INDEX	SEE SWARTPLAN
SURVEYOR'S CERTIFICATE - Reg 54	Stuart L.A. TORODE 2011.06.09 08:17:17 +0800' Date
McMULLENNOLAN	PO Box 3526, Success, W.A. 6964 Telephone: (08) 6436 1599 Facsimile: (08) 6436 1500 Email: info@mapsurvey.com.au
SCALE: 1 : 12500 at A2	MAPS Ref : 92090dp-364g Stage 1 - DP6913#01.CSD
LOGGED	19-May-11
DATE	13/06/11
FEE PAID	\$2939.00
ASSESS No.	8783771
PLAN	19604-2010
APPROVED BY	WESTERN AUSTRALIAN PLANNING COMMISSION
FILE	137383
DATE	13-Sep-2011
SUBJECT TO	IN ORDER FOR DEALINGS
Partial Surrender of E475365, Secs 70A, 129BA & 136D of TLA, Secs 152, 167 & 168(1)(2) of P & D Act, Sec195 of LAA & Sec's 195 & 196 of LAA	
APPROVED	REG26A (1) (4)
DATE	14/9/2011
INSPECTOR OF PLANS & SURVEYS / AUTHORIZED LAND OFFICER	
Landgate	Western Australian Land Information Authority
DEPOSITED PLAN	69131
SHEET	1 OF 15 SHEETS
VERSION	3





Suite 4, 6 Centro Avenue
Subiaco, Western Australia 6008

t - 08 9380 4988
f - 08 9380 9636

e - info@emergeassociates.com.au
w - www.emergeassociates.com.au

