

## Appendix L

# Preliminary Biodiversity Assessment

# BIODIVERSITY CONSTRAINTS ASSESSMENT REPORT

-Bettergrow Pty Ltd-  
Organics Facility Expansion  
Ravensworth



Prepared By:



OCTOBER 2018

## PEAK LAND MANAGEMENT

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**-Bushfire-**

**-Ecological-**

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Cover Photo: View of subject site.

## CONTENTS

<b>AUTHOR DETAILS.....</b>	<b>5</b>
<b>1.0 INTRODUCTION AND BACKGROUND .....</b>	<b>8</b>
<b>2.0 PLANNING INSTRUMENTS.....</b>	<b>9</b>
2.1 FEDERAL .....	9
2.2 STATE.....	9
2.3 LOCAL .....	19
<b>3.0 SITE ASSESSMENT .....</b>	<b>20</b>
3.1 DISTURBANCE HISTORY.....	20
3.2 CONNECTIVITY.....	20
3.3 WATER COURSES.....	20
3.4 SOILS, GEOLOGY AND TOPOGRAPHY .....	20
<b>4.0 FAUNA AND HABITAT SURVEY .....</b>	<b>21</b>
4.1: METHODOLOGY LIMITATIONS.....	21
4.2: SURVEY RESULTS.....	21
<b>5.0 FLORA SURVEY RECONNAISSANCE RESULTS.....</b>	<b>23</b>
5.1: METHODOLOGY AND LIMITATIONS.....	23
5.2: RESULTS .....	23
<b>6.0 CONCLUSION AND RECOMMENDATIONS .....</b>	<b>24</b>
<b>7.0 REFERENCES .....</b>	<b>25</b>
<b>APPENDIX 1: FAUNA SURVEY RESULTS .....</b>	<b>28</b>
<b>APPENDIX 2: THREATENED FLORA &amp; FAUNA SPECIES SEARCH RESULT (OVER A 100 SQUARE KILOMETRE AREA – NSW &amp; NATIONAL EPBC SPECIES – FROM BIONET).....</b>	<b>29</b>
<b>APPENDIX 3: SELECTED PHOTOS OF SITE.....</b>	<b>34</b>
<b>APPENDIX 4: EPBC ACT PROTECTED MATTERS SEARCH.....</b>	<b>41</b>

## TABLE OF FIGURES

Figure 1: Project regional location (from RPS). North to top of all figures unless otherwise shown. .... 10

Figure 2: Project local location (from RPS). .... 11

Figure 3: Proposed site plan layout (from RPS, dated 5.11.18)..... 12

Figure 4: Biodiversity Values Map –site not listed (from [www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap](http://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap)) ..... 13

Figure 5: Topographic map of site (from NSW Lands Department) ..... 14

Figure 6: Vegetation and creeks over subject site (from NSW Lands Department)..... 15

Table 1: Area clearing thresholds (from BC Act 2016) ..... 16

Table 2: Summary of BC Act triggers applicable to the subject site ..... 18

### Document History

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Biodiversity Constraints Assessment Report	7.11.18	1	Shaun Smith, RPS Australia East
Biodiversity Constraints Assessment Report	12.11.18	2	Shaun Smith, RPS Australia East

## AUTHOR DETAILS

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**PEAK LAND MANAGEMENT** is an independent company specialising in providing quality consulting services in natural resource/land management including bush fire assessment. The company is a consultant member of the NSW Ecological Association, and accredited BAM Assessor and abides by both the NSW Ecological Association & NSW Office of Environment and Heritage professional code of conduct and ethics. PEAK LAND MANAGEMENT is licenced with Office of Environment and Heritage for survey and collection of threatened flora (SL 100640).

Some examples of the type of work PEAK LAND MANAGEMENT PTY LTD undertakes includes Review of Environmental Factors, Flora & Fauna Surveys/ Ecological Assessments, Bushland/Vegetation Management Plans, and Bush Fire Assessment Reports.

**Mr Ted Smith** is the Director of **PEAK LAND MANAGEMENT PTY LTD**. Ted has a Bachelor of Science Degree with Honours majoring in Physical Geography from the University of New South Wales, and a Graduate Diploma in Design for Bushfire Prone Areas from the University of Western Sydney. He is a qualified & experienced Ecologist being a Certified Practising Ecological Consultant Ecologist (under the NSW Ecological Association -006); Certified Bushfire Practitioner (FPA Aust-17671), and accredited Biodiversity Assessment Method (BAM) Assessor with Office of Environment and Heritage (BAAS 17076).

Ted Smith was the author of this work, and conducted all fieldwork.



## TERMS AND ABBREVIATIONS

Abbreviation	Meaning
APZ	Asset Protection Zone
AS3959-2009	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BC Act	<i>Biodiversity Conservation Act 2016</i>
BAR	Biodiversity Assessment Report –biodiversity development assessment report prepared by an accredited person
BCAR	Biodiversity Conservation Assessment Report
BDAR	Biodiversity Development Assessment Report
BSAR	Biodiversity Stewardship Site Assessment Report
BTA	Bushfire Threat Assessment
Defendable Space	An area within the asset protection zone that provides an environment in which a person can undertake property protection after the passage of a bush fire with some level of safety.
Ecological community	An assemblage of species occupying a particular area.
Ecosystem credit species	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development.
EEC	Endangered Ecological Community
EPA Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
FDI	Fire Danger Index
Ha	Hectare
Habitat	(a) an area periodically or occasionally occupied by a species or ecological community, and (b) the biotic and abiotic components of an area.
IPA	Inner Protection Area
Key threatening process	A threatening process listed in Schedule 4 of the Biodiversity Conservation Act 2016.
LEP	Local Environment Plan
LGA	Local Government Area
LLS Act	<i>Local Land Services Amendment Act 2016</i>
Native Vegetation	Native vegetation means any of the following types of plants native to New South Wales: (a) trees (including any sapling or shrub or any scrub), (b) understorey plants, (c) groundcover (being any type of herbaceous vegetation),

Abbreviation	Meaning
	(d) plants occurring in a wetland.
Native Vegetation clearing	Clearing native vegetation means any one or more of the following: (a) cutting down, felling, uprooting, thinning or otherwise removing native vegetation, (b) killing, destroying, poisoning, ringbarking or burning native vegetation.
Native vegetation regulatory map	A native vegetation regulatory map prepared and published under Division 2 of the LLS Act 2016.
OEH	NSW Office of Environment and Heritage
OPA	Outer Protection Area
PBP 2006	Planning for Bushfire Protection 2006
PCT	Plant Community Type
Preferred Koala Feed Trees	Tree species used preferentially as forage for Koalas. In the context of the Port Stephens CKPoM these species are; Swamp Mahogany <i>Eucalyptus robusta</i> , Parramatta Red Gum <i>Eucalyptus parramattensis</i> and Forest Red Gum <i>Eucalyptus tereticornis</i> .
Protected Animal	Any of the following that are native to Australia or that periodically or occasionally migrate to Australia (including their eggs and young): amphibians—frogs or other members of the class amphibia. birds—birds of any species. mammals—mammals of any species (including aquatic or amphibious mammals but not including dingoes). reptiles—snakes, lizards, crocodiles, tortoises, turtles or other members of the class reptilia.
Protected plant	a) a plant that is of a threatened species, or b) a plant that is part of a threatened ecological community, or c) a protected plant (as listed in Schedule 6 of the BCA 2016).
RoTAP	Rare or Threatened Australian Plant
RF Act	<i>Rural Fires Act 1997</i>
RF Regulation	Rural Fires Regulation
Subject site	The entire extent of the land holdings associated with the MHE. Includes vegetation and land that is not being developed, but may have indirect impacts upon it.
Threatening process	A process that threatens, or that may threaten, the survival or evolutionary development of species or ecological communities
VIS	NSW Vegetation Information System
VMP	Vegetation Management Plan



## 1.0 INTRODUCTION AND BACKGROUND

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PEAK LAND MANAGEMENT PTY LTD has been engaged by RPS Australia East Pty Ltd (RPS) on behalf of Bettergrow Pty Ltd to prepare a Biodiversity Constraints Assessment Report for a proposed expansion of an existing composting and nutrient recycling facility over land located at Ravensworth No. 2 mine and is formally described as Lot 10 DP1204457 at 74 Lemington Road, Ravensworth, NSW (referred to hereafter as “subject site”).

The site is located approximately 20 kilometres (km) north of the township of Singleton, New South Wales (NSW), (refer **Figure 1**) within the Singleton Council Local Government Area (LGA).

Figures 1-4 show the subject site location, topographic map, vegetation assessment, site plan and Appendix 1 shows photos of the subject site.

The report has been prepared with reference to the Biodiversity Conservation Act 2016 (BC Act), which is applicable for Singleton LGA. The Department of Planning SEARs advice has requested a Biodiversity assessment be prepared for the site to support the DA.

This report is a preliminary biodiversity assessment constraints assessment only. As the site is disturbed (including existing access road), being over fill from a mine site, with no natural vegetation remaining over the site, no impact on natural vegetation, waterways or any offsite impacts, it is not considered that further biodiversity assessment is required.

## **2.0 PLANNING INSTRUMENTS**

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### **2.1 FEDERAL**

#### *Environment Protection and Biodiversity Conservation Act 1999*

This Act is related to actions which may have a detrimental impact on matters of National Environmental Significance (NES). This includes:

- Nationally Threatened Species (including koala) and Ecological Communities,
- Listed Migratory Species which may be relevant to this site
- Declared world heritage sites
- Ramsar Wetlands
- Nuclear actions
- Actions in a Commonwealth marine area.

For the purposes of this Act this report should be used by Council to allow an Assessment of whether the site requires approval from Department of Environment. It is an offence to carry out an action that will or is likely to have a significant impact on one of the above NES matters without first obtaining an approval from the Commonwealth Environment Minister except where an exemption in the EPBC Act applies. A Bionet database search which includes listed locally recorded federal threatened species has been produced (Appendix 3).

The site is not a Declared World Heritage Site, Ramsar Wetland, has no Federal listed Critically Endangered Ecological Community present, and Nuclear Actions/Actions in a Commonwealth marine area are not relevant. There is very limited habitat present for some listed EPBC threatened species, which are only over the proposed wetlands protected area and unaffected by the proposal. The proposal in the consultant's opinion conforms to the *EP&BC Act 1999* and does not need referring to Federal Department of Environment.

### **2.2 STATE**

#### *Environmental Planning and Assessment Act 1979*

Austlii state:- *“Under Section 55AA of the EP& A Act - Application of Part 7 of Biodiversity Conservation Act 2016 and Part 7A of Fisheries Management Act 1994.*

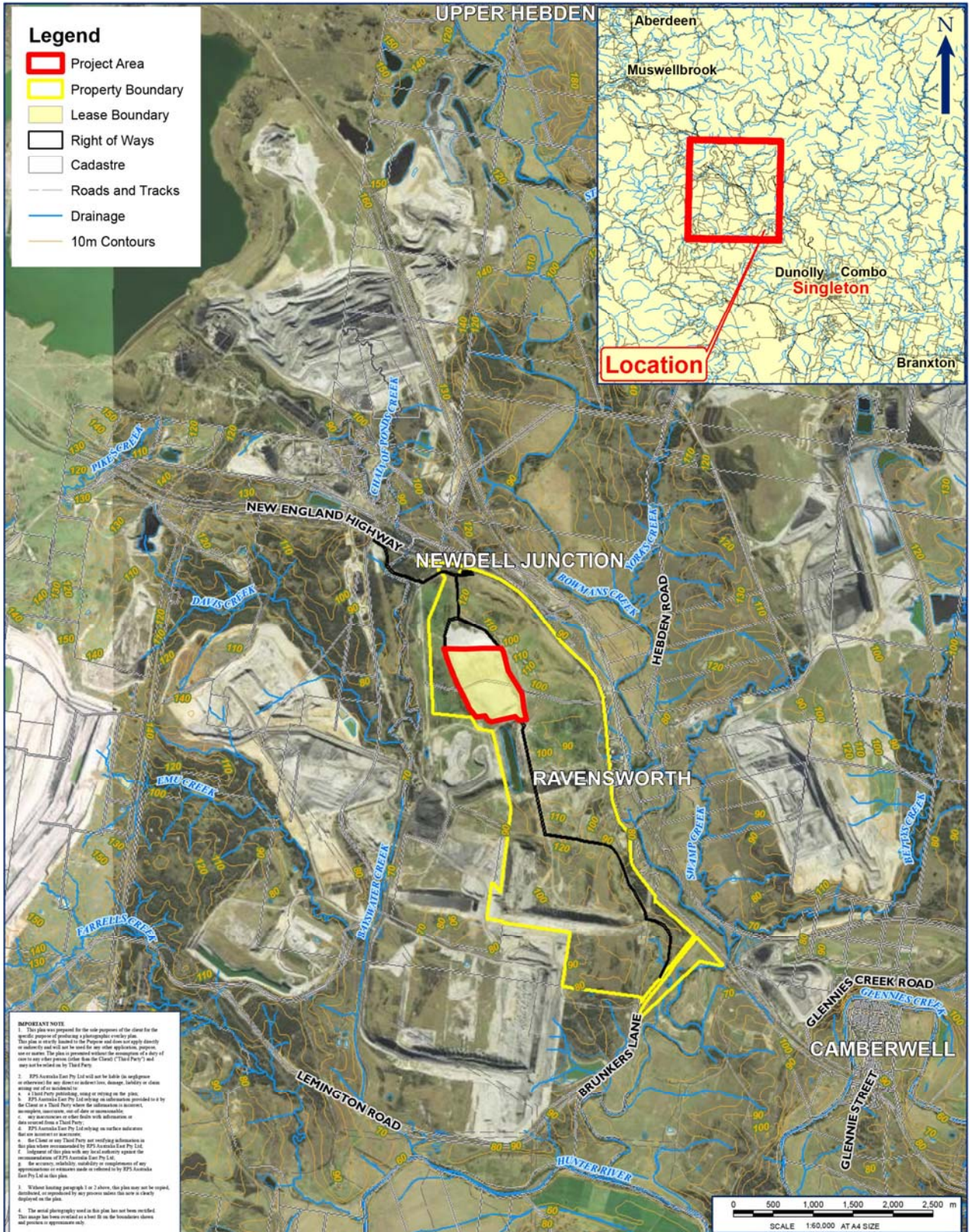
*This Act has effect subject to the provisions of Part 7 of the Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 that relate to the operation of this Act in connection with the terrestrial and aquatic environment”.*

*Note. Those Acts contain additional requirements with respect to assessments, consents and approvals under this Act.*

The *BC Act 2016* has been addressed within this report, and therefore the relevant biodiversity sections of the *EP& A Act 1979* have been addressed also.



Figure 1: Project regional location (from RPS). North to top of all figures unless otherwise shown.



Path: J:\JOBS\141K\141357 Ravensworth\10 - Drafting\Arcgis Map Documents\Planning\141357 Figure 1 Project Location B A4P 20181003.mxd

NSW\_A4\_Portal\_2018\_Rev 8 - Produced\W\Warwood\10 Dec\22062018



Figure 2: Project local location (from RPS).

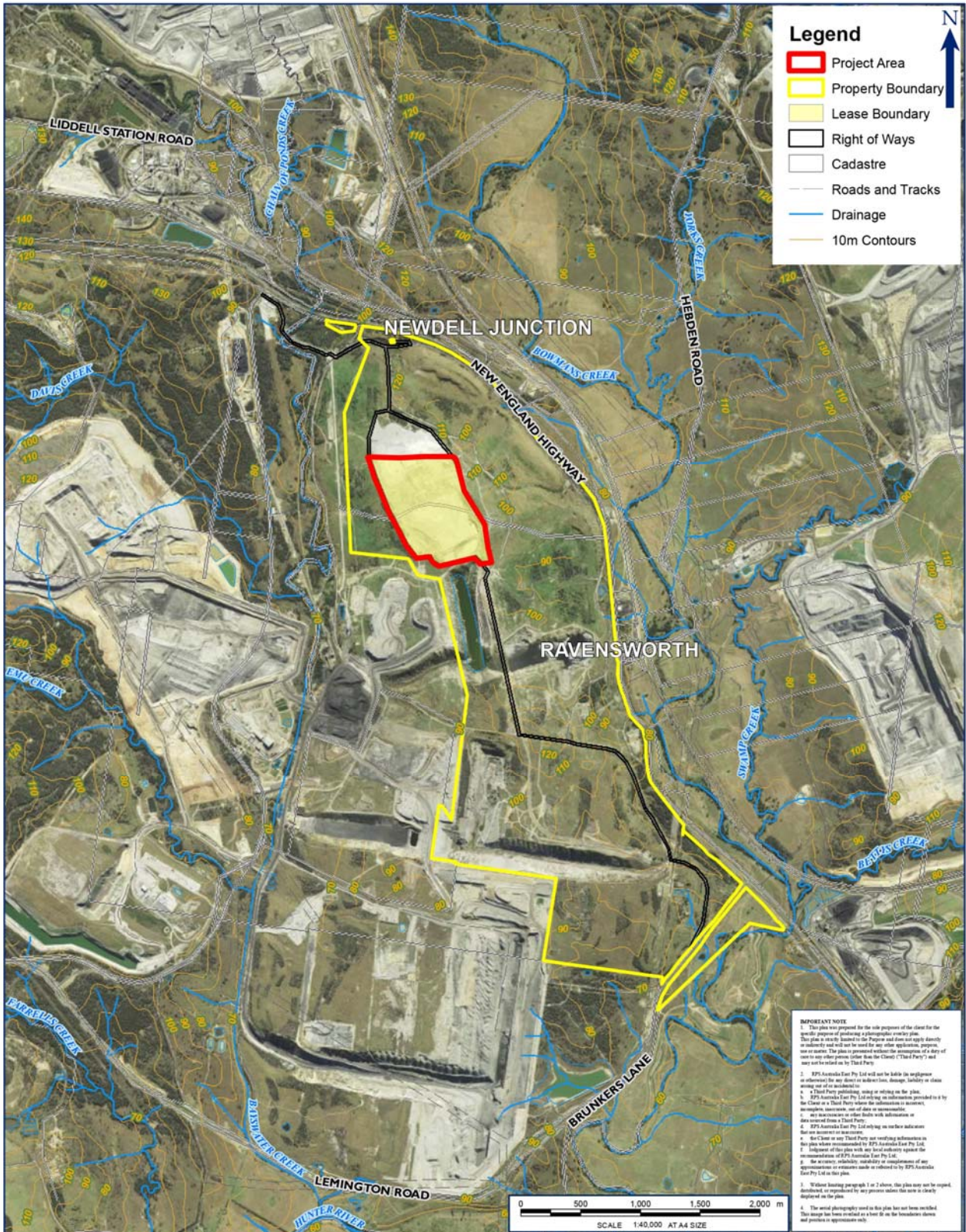


FIGURE 2: PROJECT SITE (LOCAL CONTEXT)

LOCATION: RAVENSWORTH	DATUM: GDA94
JOB NO.: PR 141357	PROJECTION: MGA Zone 56
PURPOSE: PLANNING	Data Sources: RPS, Client
Technician: Natalie Wood	Date: 3/10/2016
Land and Property 2015	

CLIENT: BETTERGROW	RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762) Unit 2A, 45 Fitzroy Street, Carrington, NSW, Australia, 2294 PO Box 120, Carrington, NSW, 2294 T: 02 4940 4200 F: 02 4940 4299 www.rpsgroup.com.au	<b>RPS</b>
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Path: J:\JOBS\141K\141357 Ravensworth\10 - Drafting\Arcgis Map Documents\Planning\141357 Figure 2 Project Site B A4P 20181003.mxd  
NEW\_AA\_Patrick 2018 Rev: B Produced: 22/08/2018



Figure 3: Proposed site plan layout (from RPS, dated 5.11.18).

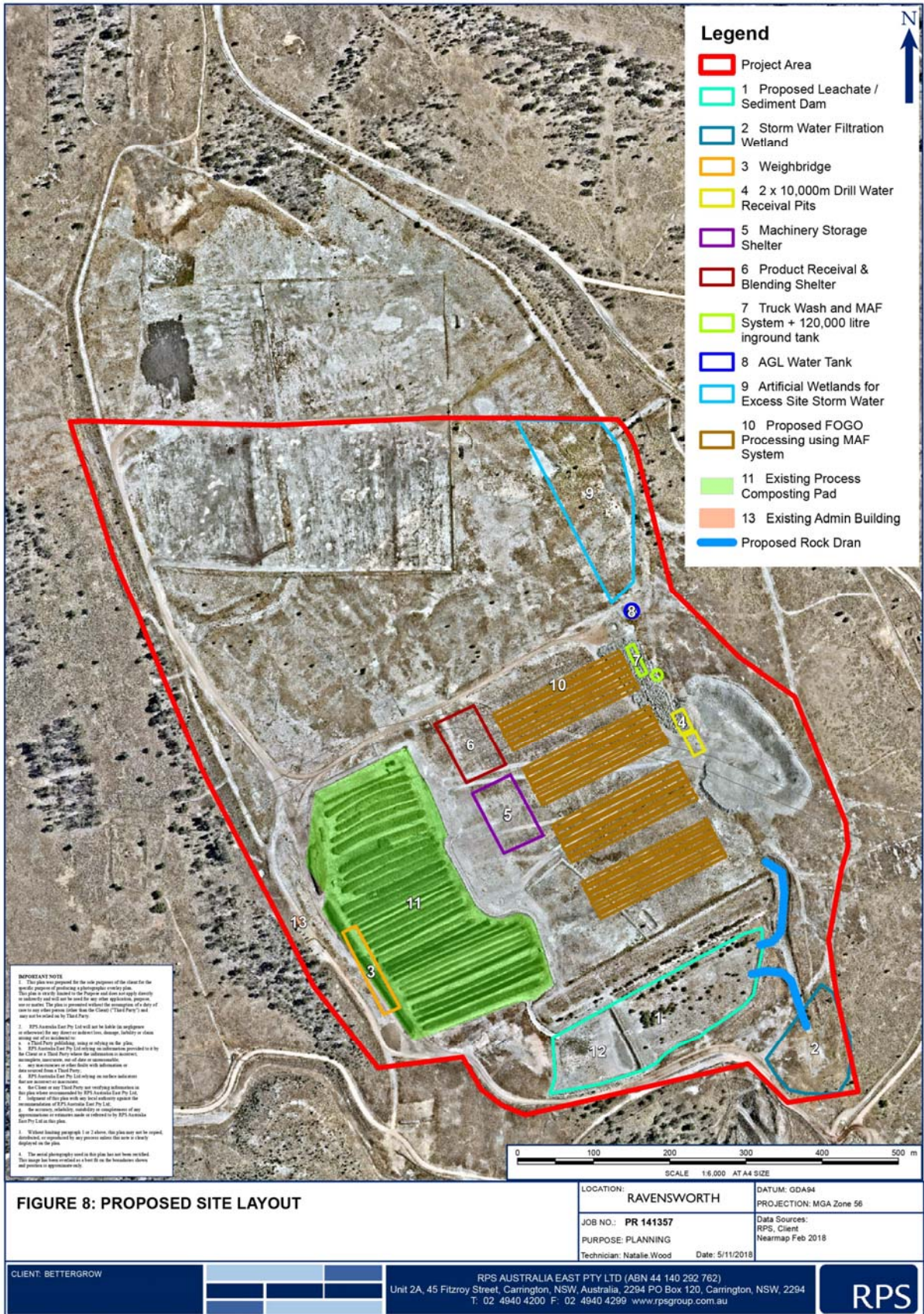




Figure 4: Biodiversity Values Map –site not listed (from [www.lmhc.nsw.gov.au/Maps/index.html?viewer=BVMap](http://www.lmhc.nsw.gov.au/Maps/index.html?viewer=BVMap))



Figure 5: Topographic map of site (from NSW Lands Department)

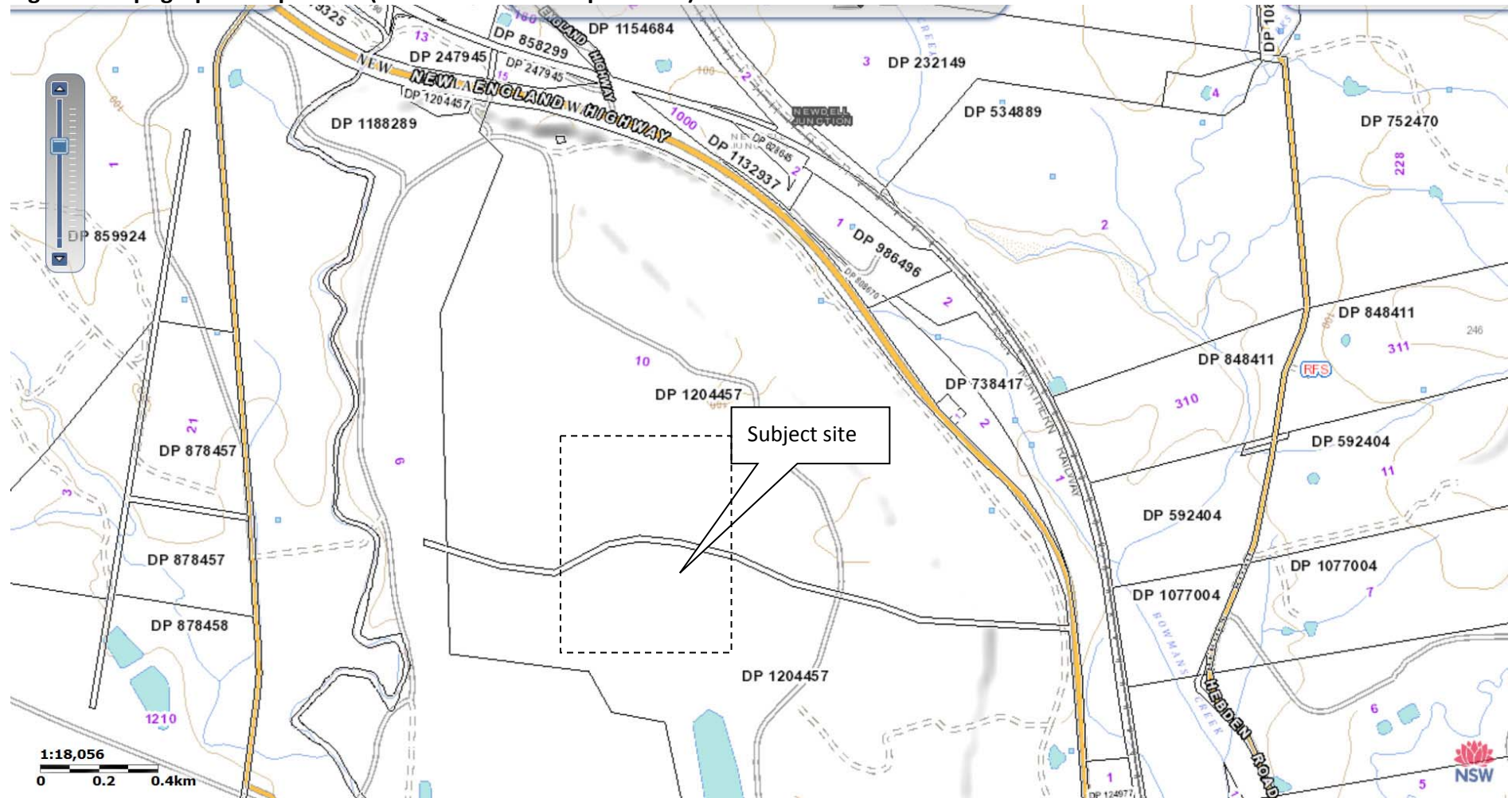
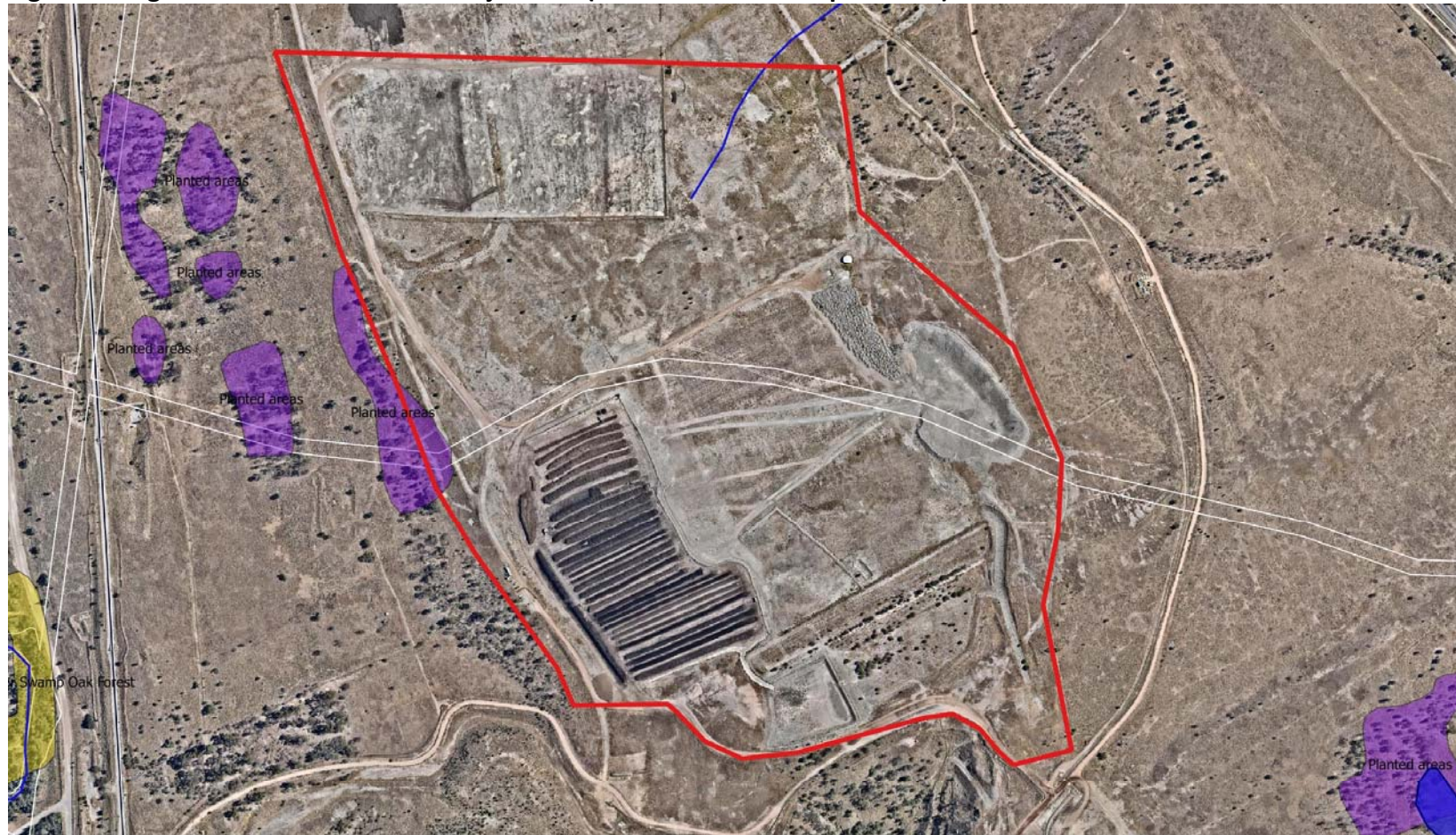




Figure 6: Vegetation and creeks over subject site (from NSW Lands Department)



Legend

- Subject site hunter\_CMA\_VISmap\_2295
- Dams
- Creeks
- Central Hunter Swamp Oak Forest
- Planted areas

0 100 200 300 400 m

North



Imagery from nearmap, 7th Feb 2018  
Projection: GDA 94/MGA zone 56



Note: Cadastre & GPS may be subject to innaccuracy



**Biodiversity Conservation Act 2016.**

*The BC Act 2016 repeals the Threatened Species Conservation Act 1995 (NSW), the Native Vegetation Conservation Act, Nature Conservation Trust Act 2001 (NSW) and parts of the National Parks and Wildlife Act 1974 (NSW).*

The BC Act establishes a new regulatory framework for assessing and offsetting biodiversity impacts on proposed developments. Where development consent is granted, the authority may impose as a condition of consent an obligation to retire a number and type of biodiversity credits determined under the new Biodiversity Assessment Method (**BAM**).

The purpose of the Act (from Austlii, Aug,2017) relevant to this Biodiversity Assessment Report is:

*The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.*

OEH state: - *“The test of significance detailed in section 7.3 of the Biodiversity Conservation Act 2016 must be used to determine whether a local development is likely to significantly affect threatened species.*

*Proponents will need to supply evidence relating to the triggers for the Biodiversity Offsets Scheme (BOS) Threshold and the test of significance when submitting their application to the consent authority.*

**Area clearing threshold**

*The area threshold varies depending on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).*

*The area threshold applies to all proposed native vegetation clearing associated with a development proposal – for example in the case of a subdivision; all future clearing across the lots subject to the subdivision, must be considered”.*

**Table 1: Area clearing thresholds (from BC Act 2016)**

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

In this case as no clearing of native vegetation proposed, the BC Act 2016 is not triggered /is under the clearing threshold.

## Biodiversity Values Map (BV Map)

OEH 2018 ([www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap](http://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap)) state: - “The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the Biodiversity Conservation Regulation 2017. The Biodiversity Offsets Scheme applies to all local developments, major projects or the clearing of native vegetation where the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 applies. Any of these will require entry into the Biodiversity Offsets Scheme if they occur on land mapped on the Biodiversity Values Map. Exempt and complying development or private native forestry are not subject to the Biodiversity Offsets Scheme”.

The subject site is not mapped on the Biodiversity Values Map (Fig. 5), and therefore this proposal does not trigger the BC Act full BDAR assessment (Table 2) under this criteria.

## 5 Part Test

Under the *Biodiversity Conservation Act 2016 (Sect 7.3)*, a 5 Part Test is undertaken to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

Under the *Biodiversity Conservation Act 2016* Part 4 development work will require a 5 Part Test for any clearing of native vegetation, impacts over threatened flora/fauna species and Endangered Ecological Communities.

The “Five Part Test of Significance” **was not** required in this instance as no impact over any native vegetation, or fauna habitat is proposed. The only area where some fauna were recorded is over the wetlands proposed for retention over the north-west of the site, and no impact (or in fact a positive impact from greater water availability & vegetation allowed to regenerate in this area) is proposed.

There is therefore no assessed significant impact over any threatened species, Endangered Ecological Communities or Endangered Populations.

Additionally there is no direct, or indirect impact over other relevant ecological factors with no threatened species observations, or habitat for threatened species affected by the proposal, no Endangered Ecological Communities, no hollow bearing habitat trees, and no other habitat features such as caves, hollow logs, connectivity, water bodies/creeks, and no native vegetation clearing proposed for the development.

Off site indirect impacts are managed by provision of water sediment holding dams for sediment and nutrient control, leachate dams, and most stormwater flowing south off site into leachate dams, and then into a man made void dam. No direct flow into any creek lines proposed, which in this area are disturbed anyway from extensive surrounding mines, agriculture and clearing.

**Table 2: Summary of BC Act triggers applicable to the subject site**

Land zone & Development type (under EP& A Act)	Minimum lot size associated with the property	Applicable threshold for clearing, above which the BAM and offsets scheme apply	Biodiversity Values mapped over site?	Proposed clearing (Ha)	5 Part Test Assessment of significance required?	Full BDAR required
• RU1	40 Ha	1ha or more	No	0 Ha	No	No*

\*See reasoning above under 5 Part Test results. No significant impact on any threatened species, Endangered Ecological Community or critical habitat was found.

### **Local Land Services Amendment Act 2016 (NSW) (LLS Act)**

*The amendments to the LLS Act have resulted in a change to the criteria for native vegetation clearing. A Native Vegetation Regulatory Map (**Regulatory Map**) will identify three different land categories for clearing on rural land. The Regulatory Map will not apply to urban land, national parks or state forestry land.*

*Land clearing on urban land will require development consent under Part 4 of the EPA Act and a new State Environmental Planning Policy (**SEPP**) and Development Control Plan (**DCP**) will apply. The new SEPP and DCP also replace the current Tree Preservation Orders.*

The development proposal is subject to development consent under Part 4 of the EP&A Act and therefore the LLS Act does not apply to the proposal.

### **Water Management Act, 2000 – Riparian Management**

This Act is administered by the Office of Water and controls works along rivers and foreshore areas of streams or drainage lines. One mapped creek line falls within the subject site (Fig. 7), which is not directly affected by the current proposal, and appears to now not exist as mine spoil from previous approvals has buried it.

### **SEPP 44: Koala Habitat Protection**

Austlii state:

*“This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:*

- (a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and*
- (b) by encouraging the identification of areas of core koala habitat, and*
- (c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.*

In this Policy:

*“core koala habitat” means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.*

*“guidelines” means the guidelines, as in force from time to time, made for the purposes of this Policy by the Director.*

*“potential koala habitat” means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component”.*

This SEPP applies across NSW to land which is greater than 1 hectare in extent, including adjoining land in the same ownership whether or not the proposal applies to the whole or only part of the land, and is not a National Park or Forestry Reserve. Therefore this SEPP applies, and will be addressed here.

No native vegetation including koala feed trees are present over the site, or affected by the proposal, and therefore the subject site is not considered potential Koala habitat.

It is considered that the proposed works conform to this SEPP, and that no further SEPP 44 koala studies are considered warranted or required under this SEPP.

## **2.3 LOCAL**

The relevant local government is Singleton Shire Council. Environmental reporting is required on land where any development, and particularly any native vegetation removal, is proposed, which this report addresses. This is not applicable however as the development will be assessed by DoP.

### **2.3.1 DRAFT LOCAL ENVIRONMENTAL PLANNING INSTRUMENTS**

No other draft planning instruments have been identified.

### **3.0 SITE ASSESSMENT**

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#### **3.1 DISTURBANCE HISTORY**

The development site has a variety of disturbance processes occurring including:

- Past clearing of all native vegetation over the site;
- Weeds including exotic grasses over part of the subject site, being >50% cover in those areas with no native vegetation shrub/over or mid storey present and assessed as cleared land in those applicable areas as shown in Figure 5;
- Feral animals– not sighted but almost certainly foxes, rats/mice, cats and domestic dogs present.

#### **3.2 CONNECTIVITY**

No wildlife corridor connectivity present.

#### **3.3 WATER COURSES**

No water courses are affected directly by this proposal. A water course is present over the north-western part of the site where artificial wetlands are proposed to be constructed (Fig 4 & 7).

#### **3.4 SOILS, GEOLOGY AND TOPOGRAPHY**

Completely disturbed mine spoil from coal mine activities and ash from coal fired power generation stations.

## **4.0 FAUNA AND HABITAT SURVEY**

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### **4.1: METHODOLOGY LIMITATIONS**

A threatened species fauna survey was conducted on the day for birds (voice- recorded where necessary for identification, and visual by binoculars), amphibians (voice, recorded where necessary for identification), mammals (visual, scats, tree scratch marks, burrows, footprints), and reptiles (visual). No trapping, hair sampling, spotlighting, anabat or nocturnal owl call recording occurred due to not being required under BC Act 2016. All scats were analysed. All hollow bearing habitat trees & other ecological features over the subject site were GPS mapped & inspected where feasible. A list of fauna species recorded is shown in Appendix 2.

In addition to on site fauna survey, habitat assessment, and research using Bionet records, and other records where available, have been used to determine possible occurrence of threatened species. If suitable habitat is present, and Wildlife Atlas- Bionet records occur in the local area, an assumption has been made that potential threatened fauna species listed in Appendix 3 Bionet search may occur.

Several factors limit the ability of surveys such as this ecological investigation to fully determine the occurrence of all species of fauna which may utilise the subject site. Surveys undertaken over a short time period, in this case a period of a 2 hours, are unlikely to document the full inventory of fauna species which may occur in the study area.

In the case of highly mobile fauna such as birds and bats, species may utilise the site only temporarily as a component of their larger foraging range, or may occur in the study area or locality during particular periods of the year, such as their seasonal migratory path.

As there are no requirements for fauna survey under the BC Act 2016, only records of those fauna recorded during the survey, including any threatened species recorded during the survey are shown (Appendix 2), and habitat assessment described.

### **4.2: SURVEY RESULTS**

Survey was undertaken on the 17<sup>th</sup> October, 2018. Weather was mild, being around 24<sup>o</sup>C. Survey was conducted mid morning to early afternoon. Survey was conducted during clear weather, moderate humidity, and a low wind. It had rained the preceding week and a thunderstorm occurred later in the afternoon.

A limited number of birds and other fauna were recorded over or near the subject site. In this case no threatened species were recorded. The survey covered lands over and around the proposed development footprint.

In summary:

- The site has no native vegetation, and little habitat present for any threatened flora or fauna presence;

- No threatened fauna species were recorded, with only common birds and animals seen (Appendix 2).
- No hollow bearing logs, trees, or caves recorded over the site.
- Ephemeral ponds/shallow standing water over smaller depressions occurred over parts of the site from recent rains, which had some local & migratory waterbirds present including ducks over more permanent deep water dams, and waders over small ephemeral ponds such as Red Capped Plover (see photos Appendix 1). Some of these areas are proposed for retention within the wetlands area over the north-western part of the site.
- Little habitat remains over the site, and is limited to these transient waders, waterbirds, and possibly micro bats and scavenging birds such as crows. Introduced mammals such as Fox, rabbit, rats, mice and other opportunistic introduced/feral species are likely to occur around the site.
- Water quality runoff is likely to be poor coming from the facility, and detention/treatment dams and wetlands are a good design to help ameliorate off site water quality impacts.

## **5.0 FLORA SURVEY RECONNAISSANCE RESULTS**

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### **5.1: METHODOLOGY AND LIMITATIONS**

Vegetation was assessed on site by a walking/vehicle meander transect (after Cropper 1993) over the subject site and surrounds. All transects, and any hollow bearing trees or threatened species were recorded on a Garmin handheld GPS 60CSx unit, generally accurate to within 1-3m depending on canopy cover. Special attention was paid to any potential threatened species. This has enabled identification and assessment of most species on the site. The survey is limited by:

- Non flowering of cryptic orchid/grass/other species at time of survey as described above making identification impossible/problematic.

To help overcome these limitations surveys are carried out where feasible during known flowering seasons, and if this cannot occur and habitat requirements are suitable for a species to be present then an additional targeted survey will be recommended if impact is expected. Any plants that were not readily identifiable in the field were sampled and analysed in the office. Potential threatened species are sent to NSW Herbarium for identification /ratification, and Office of Environment and Heritage informed of locations for recording on the NSW Bionet database as per NPWS scientific licence requirements. This was not required in this instance.

### **5.2: RESULTS**

In summary:-

- No threatened species or Endangered Ecological Communities were recorded, with the site comprising almost wholly exotic weeds, with only two native species recorded in very low numbers and probably planted over the site.
- No habitat present for any naturally occurring threatened species or Endangered Ecological Communities over the site due to it being totally filled with mine spoil & ash.
- No native vegetation clearing proposed.



## 6.0 CONCLUSION AND RECOMMENDATIONS

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The ecological investigations have found that there is not considered to be any affect, or suitable habitat present over the site or immediate surrounds to support any Threatened species, Endangered Ecological Community, Critical Habitat, or Endangered Populations by the proposed works.

The following recommendations (in no order of importance) if adopted will improve the biodiversity outcomes for this proposal:

- The north-western area where existing small dams and the proposed artificial wetlands are to be located is encouraged. Use of a variety of water depths, and planting of native wetland species endemic to the Singleton region is encouraged.
- Environmental weeds present over the disturbed areas of the site should be controlled/eradicated where feasible.

It is considered that itinerant migratory bird & possible bat species habitat may be improved by the proposed retention and improvement of the proposed wetland areas over the northwestern part of the site, which may in the long term improve wildlife habitat in this severely degraded area.

There is not considered to be any significant impact on any threatened species, Endangered Ecological Community, critical habitat, or endangered populations by the proposed works on any state or nationally listed species under the *EP&BC Act 1999*, or *BC Act 2016*.

Report prepared by:



Ted Smith BSc (Hons) Certified Practising Ecologist – Ecological Consultants Association of NSW  
PEAK LAND MANAGEMENT

**DISCLAIMER:** Whilst every effort is made to present clear and factual information based on current scientific data, on site field survey, and council guidelines, no guarantee is made that all species have been identified on the site, or that all information is presented to councils satisfaction, or that the development will be approved as this is in the hands of the approving statutory authority. No warranty or guarantee, whether expressed or implied, is made with respect to the observations, information, findings and inclusions expressed within this report. No liability is accepted for losses, expenses or damages occurring as a result of information presented in this document.

## 7.0 REFERENCES

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### **Websites**

The following legal acts and legislation were accessed through Australasian Legal Information Institute (<http://www.austlii.edu.au/>):

*Environment Protection and Biodiversity Conservation Act 1999*

*Biodiversity Conservation Act 2016*

*National Parks and Wildlife Act 1974,*

*Environmental Planning and Assessment Act (1979)*

*Water Management Act,2000*

*State Environmental Planning Policy 19, 44, 71, 14, Vegetation in Non-Rural Areas SEPP*

### **Other Websites**

The following websites have been viewed throughout the development of this report:

<http://plantnet.rbgsyd.nsw.gov.au/search/simple.htm>

<http://imagery.maps.nsw.gov.au/>

Nearmap

<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10604>

<http://www.bionet.nsw.gov.au/>

[www.deh.gov.au](http://www.deh.gov.au)

<http://www.environment.gov.au/epbc/pmst/index.html>- & Protected Matters Search

<http://www.frogsaustralia.net.au/frogs/>

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed/noxious>

[http://www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html#claws\\_for\\_climbing](http://www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html#claws_for_climbing)

<http://www.environment.nsw.gov.au/determinations>

<http://www.environment.nsw.gov.au/animals/Glidingpossums.htm>

<http://weeds.dpi.nsw.gov.au/WeedDeclarations/Results/Singleton> Shire Council

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice>

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap>

<https://www.landmanagement.nsw.gov.au/biodiversity-offsets-scheme/>

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>

<http://www.olg.nsw.gov.au/biodiversity-assessment-and-approvals-navigator>

<https://www.planningportal.nsw.gov.au/find-a-property>

<http://www.environment.nsw.gov.au/determinations>

### **Applications – iphone**

- The Michael Morcombe eGuide to the Birds of Australia, 2017. Mydigitalearth.com
- Frogs of Australia. Hoskin, C.J, Grigg, G.C., Stewart, D.A. & Macdonald, S.L. 2015. Frogs of Australia (1.0.1/4139). (Mobile application software). Retrieved from <http://www.ugmedia.com.au>.

## APPENDIX 1: FAUNA SURVEY RESULTS

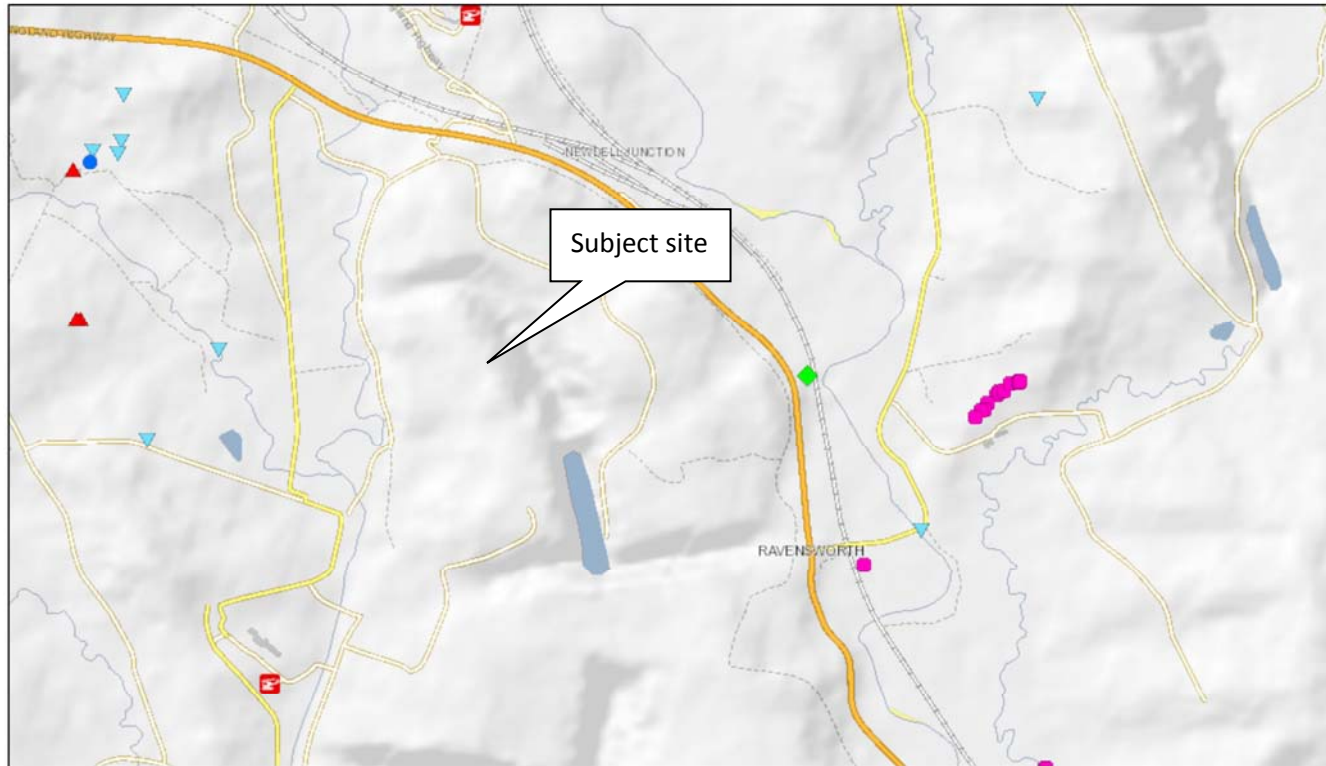
COMMON NAME	
The following birds were observed, or heard either on or near the subject site, including flying overhead (common bird names from Pizzey & Knight, 1997):	
Zebra Finch	Welcome Swallow
Richards Pipit	Martin
Grey Teal	Masked Lapwing/Common Plover
Wood Sandpiper	Hardhead Duck
Red Kneed Dotterel	Red capped Plover
Australian Raven	White faced Heron
Rufous Songlark	
<b>Other fauna observed, or heard from calls/scats/footprints/scratch marks were:</b>	
Eastern Grey Kangaroo scat	
# Threatened spp listed under EPBC Act	
+ Threatened spp listed under TSC Act	
* Exotic species	

## APPENDIX 2: THREATENED FLORA & FAUNA SPECIES SEARCH RESULT (Over a 100 square kilometre area – NSW & National EPBC Species – from Bionet).

Note: this does not mean these species are found on the site.

Search area and some key local species records:

Atlas Map



October 28, 2018

drawGraphics\_poly

Override 1

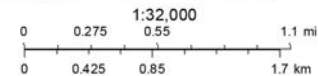
▲ Green and Golden Bell Frog (*Litoria aurea*)

● Blue-billed Duck (*Oxyura australis*)

◆ Black-necked Stork (*Ephippiorhynchus asiaticus*)

▼ Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*)


● Acacia pendula population in the Hunter catchment



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Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Å°; ^^ rounded to 0.01Å°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Entities in selected area [North: -32.40 West: 150.97 East: 151.07 South: -32.50] recorded since 27 Oct 1990 until 28 Oct 2018 returned a total of 595 records of 31 species.






Report generated on 28/10/2018 10:02 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Hylidae	3166	<i>Litoria aurea</i>		Green and Golden Bell Frog	E1,P	V	4	
Animalia	Aves	Anatidae	0216	<i>Oxyura australis</i>		Blue-billed Duck	V,P		1	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		1	
Animalia	Aves	Accipitridae	0218	<i>Circus assimilis</i>		Spotted Harrier	V,P		7	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P	C	2	
Animalia	Aves	Accipitridae	0225	<i>Hieraetus morphnoides</i>		Little Eagle	V,P		3	

Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3	1	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V,P	1	
Animalia	Aves	Acanthizidae	0504	<i>Chthonicola sagittata</i>	Speckled Warbler	V,P	35	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P	56	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P	2	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P	5	
Animalia	Aves	Petroicidae	8367	<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	V,P	2	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>	Scarlet Robin	V,P	2	
Animalia	Aves	Petroicidae	0382	<i>Petroica phoenicea</i>	Flame Robin	V,P	1	



Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	3	
Animalia	Mammalia	Dasyuridae	1017	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		10	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	V,P	V	1	
Animalia	Mammalia	Macropodidae	1215	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E1,P	V	1	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	1	
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		2	
Animalia	Mammalia	Molossidae	1329	<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V,P		2	
Animalia	Mammalia	Vespertilionidae	1353	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	1	
Animalia	Mammalia	Vespertilionidae	1346	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		1	
Animalia	Mammalia	Vespertilionidae	1834	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P		15	
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		7	

Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P	1	
Animalia	Mammalia	Vespertilionidae	1025	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P	3	
Plantae	Flora	Fabaceae (Mimosoideae)	3848	<i>Acacia pendula</i>	Acacia pendula population in the Hunter catchment	E2	335	
Plantae	Flora	Myrtaceae	6360	<i>Eucalyptus camaldulensis</i>	Eucalyptus camaldulensis population in the Hunter catchment	E2	85	
Plantae	Flora	Orchidaceae	6399	<i>Cymbidium canaliculatum</i>	Cymbidium canaliculatum population in the Hunter Catchment	E2,P,2	4	

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### APPENDIX 3: SELECTED PHOTOS OF SITE

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Existing composting & recycling facility over subject site looking east



Existing composting & recycling facility over subject site looking north. Vegetation to left of frame off site is planted, and unaffected by proposal.





Small ephemeral ponds from recent rain



Some water birds present (such as this Red Kneed Dotterel) over vegetated ponds/and including proposed wetland area





Red Capped Plover



Wood Sandpiper





Wetland area proposed for retention



Wetland birds using proposed wetland area (both deep and shallow water dams/ponds/habitats)





Northern boundary of site looking south-west. Area if foreground proposed for wetland protection & stormwater retention area



Looking west over subject site





Southern proposed & existing leachate & sediment detention dams



Access road





Void dam to south of subject site, unaffected by proposal



**APPENDIX 4: EPBC Act Protected Matters Search**

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