Biobanking Agreement Credit Assessment Report

Rossvale Biobank Site

Prepared for
Pacific Hydro Australia

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DOCUMENT TRACKING

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Cover photo	Photos clockwise from top: Hillslope of Broad-leaved Peppermint – Red Stringybark grassy open forest derived grassland community with turbines in the background taken from the southern boundary of the biobank site, Pink-tailed Worm Lizard, Silvertop Ash – Blue-leaved Stringybark shrubby open forest. Photograph by Nicole McVicar

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Abbreviations

Abbreviation	Description
BACAR	Biobank Agreement Credit Assessment Report
BBAM 2014	BioBanking Assessment Methodology 2014
BBCC	BioBanking Credit Calculator
BVT	BioMetric Vegetation Type
CEEC	Critically Endangered Ecological Community
CMA	Catchment Management Area
DECCW	Department of Environment, Climate Change and Water (now OEH)
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd
EPBC Act	*Environment Protection and Biodiversity Conservation Act* 1999 (Commonwealth)
HN	Hawkesbury-Nepean
LGA	Local Government Area
NPWS	National Parks and Wildlife Service (now part of OEH)
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Types
PHA	Pacific Hydro Australia
PTWL	Pink-tailed Worm-Lizard
THS	Taralga Historical Society
TSC Act	*Threatened Species Conservation Act 1995*
TWF	Taralga Wind Farm No.2 Pty Ltd
ULLEP	Upper Lachlan Local Environment Plan 2010
ULSC	Upper Lachlan Shire Council
VIS-C	Vegetation Information System – Classification database (OEH)

Executive summary

Eco Logical Australia Pty Ltd (ELA) was commissioned by Pacific Hydro Australia (PHA, the company), on behalf of Taralga Wind Farm Nominees No 1 Pty Ltd, to prepare a Biobank Agreement Credit Assessment Report and Management Plan for the establishment of a Biobank site encompassing part of the property called 'Rossvale', located at Myrtleville, near Taralga, in the Upper Lachlan Shire Local Government Area (LGA). The land comprises Lot 211 and part of Lot 125 of DP750046 and part of Lot 2, DP605482. The property is being registered as a Biobank site to meet part of the offset commitments in the approved Biodiversity Offset Package for the Taralga Wind Farm development.

This document is the **Biobank Agreement Credit Assessment Report** (BACAR) for Rossvale Biobank Site. It contains a detailed description of the Biobanking Assessment process, including a justification of the landscape score, mapping and classification of plant community types, vegetation zones and management zones. The credits generated by the proposal, and their credit profiles, are also outlined. Species credits for species other than Pink-tailed Worm Lizard (PTWL) are not sought as part of this agreement.

This report has been prepared to meet the requirements of the BioBanking Assessment Methodology 2014 (BBAM 2014) (NSW Office of Environment and Heritage [OEH] 2014) stating that a BACAR must be prepared, with the assessment made by an accredited BioBanking assessor. The accredited BioBanking assessor who prepared the assessment is Tammy Paartalu (assessor number: 074). Version 4.0 of the calculator was used in the assessment.

The total area of the Rossvale Biobank Site is 80.52 ha, all of which will generate credits as there are no easements, management tracks or dams in the boundary of the site. The Biobank site includes a 16.6 ha Grassland Reptile Management Area (GRMA) of which 8.95 ha will be managed as existing open woodland for the PTWL and 7.67 ha will be managed as a derived grassland as habitat for other grassland reptile species.

Six plant community types (PCTs) have been mapped on site, with one (HN514) having been divided into three condition classes and another (HN572) into two condition classes. A small area (0.33 ha) of scattered trees with an exotic ground cover has been recorded for the assessment.

The vegetation on site generates 941 ecosystem credits at an average yield of 11.69 credits per hectare. One hundred and one (101) species credits are also generated for 14.29 ha of confirmed and potential Pink-tailed Worm-lizard habitat.

Table 1 and **Table 2** provide a summary of ecosystem and species credits generated, with details provided in **Section 3**.

Table 1: Summary of ecosystem credits generated

Plant community type	Area (ha)	Credits generated
Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	15.53	208
Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	25.95	282
Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion	2.33	31

Plant community type	Area (ha)	Credits generated
River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion	2.77	31
Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion	25.37	286
Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion	8.57	103
Total	**80.52**	**941**

Table 2: Summary of Threatened Species credits generated

Species habitat	Area (ha)	Credits generated
Pink-tailed Worm-lizard (*Aprasia parapulchella*) (Confirmed)	10.62	75
Pink-tailed Worm-lizard (*Aprasia parapulchella*) (Potential)	3.67	26
TOTAL	**14.29**	**101**

Management of the Rossvale Biobank Site will involve the implementation of standard and additional management actions in two broad areas (a general biobank area and a specific Grassland Reptile Management Area (GRMA)) and will include:

- The active management and reduction of weeds;
- The installation of approximately 2.34 km of new boundary fence;
- The installation of boundary markers along the line of sight in areas where fencing would be difficult or unnecessary to install (along Kerrawary Creek);
- The application of fire, where appropriate (excluding the GRMA), within two separately identified burn units;
- Active management of human disturbance, where necessary; and
- The retention of regrowth/native vegetation, dead timber, and rocks.

Management of the Rossvale Biobank Site will also involve additional management actions, including:

- Supplementary planting of trees and shrubs, if required, in management zones 5 and 6a including in areas where natural regeneration is occurring but is insufficient to bring to benchmark condition within a reasonable timeframe.
- Control of feral herbivores (rabbits, goats, deer) and other pests (foxes) (as required).
- Specialised management for the retention and improvement of habitat for the Pink-tailed Worm-lizard and other grassland reptile species in a 16.6ha GRMA.

The management required on site, and the associated costs, are provided in the accompanying Management Plan (completed management actions template) and credit pricing spreadsheet, respectively.

1 Site Description

1.1 Location

The Rossvale Biobank Site is located in the following lots: Part Lot 125 and 211 of DP750046 and Part Lot 2, DP605482 (**Figure 1**). The Rossvale Biobank Site is approximately 80.52 ha in area and the lots on which it lies are located approximately 7 km southeast of Taralga located south of Bannaby Road, which runs to the east of Taralga, and north of Hillcrest Road, in the Upper Lachlan Shire Council Local Government Area (ULSC LGA), (**Figure 1**). The site lies across the mapped boundary of the Crookwell and Bungonia subregions of the South Eastern Highlands IBRA region (Thackway and Creswell 1994) and is within both the Crookwell Basalts and Sands and the Rockley Plains Mitchell Landscapes (**Figure 2**).

The Rossvale Biobank Site is bounded by Charteris Creek (a third order creek) on the north-eastern side, and Kerrawary Creek (a 4th order creek) for part of the eastern side and through the site. A boundary between forest and pasture forms the rest of the eastern, southern and western boundary and boundaries. In the northern part of the site, the western boundary is formed by the forest edge which forms an almost straight north-south line between Charteris Creek and Kerrawary Creek. The remainder of the western boundary extends beyond the forest edge into open woodland and pasture (**Figure 3**). The whole site lies within the locality of Myrtleville. Tarlo National Park lies approximately 1.5km to the south-southeast of the Rossvale Biobank Site.

1.2 Biophysical characteristics of the site

The Rossvale Biobank Site is mostly located on steeply sloping hills above Charteris and Kerrawary Creeks, having a lowest point at 690 m above sea level (masl). The south-western portion rises to a high plateau on basalt up to 840 m. In the south-east a steep ridge runs north-south on metamorphosed sediments and quartzites up to an elevation of 860 m and in the north of the site is a steep ridge of similar geology with a maximum height of 810 m. Several first order streams have been mapped on the Rossvale Biobank Site, along with Charteris Creek, forming the north-eastern boundary the site, which is third order and Kerrawary Creek, which flows through the centre and along the eastern boundary, and is 4th order (**Figure 3**).

The Rossvale Biobank Site lies on three discrete geological types, including recent alluvium. The western portion of the site is primarily influenced by the basalt flows that form the basis of the northern plateau. Soils in this portion are mainly fine-grained clays and clay loams, with red to red-brown colouration. In the centre of the site the basalt has weathered away to reveal an underlying Tertiary-age sandy deposit lying above the much older folded basement rocks. The soils in these areas are coarse grained and rich in silica. The basement rocks are of varying composition, from quartz-rich massive quartzite through to narrow beds of argillaceous material which resembles varves. There is also the suggestion in the landscape form and in the weathering and erosion pattern and the species present that there may be a lime-rich bed or beds within the strata. Along Kerrawary and Charteris Creeks there is a narrow area of alluvium deposited on the creek flats. This alluvium tends to be quite gravelly with a clay-loam matrix.

1.3 Land use zoning

The Rossvale Biobank Site is zoned RU2 (Rural Landscape) in the Upper Lachlan Local Environmental Plan 2010 (ULSC 2010). The RU2 is predominantly on basalt, metasediment and the Tertiary alluvium.

1.4 Site history and current uses of property

The history of the site known now as Rossvale is mainly associated with the development of the northern parts of the Southern Tablelands and Southern Highlands regions. Europeans first entered the district in 1819 and soon after the area was established as a cattle station, with several landholders in the area by 1829 (THS undated). Prior to this aboriginal occupation was by the Burra people of the Gundungarra.

The Rossvale Biobank Site has historically been used and is currently used for cattle grazing. The presence of remnant native vegetation, constructed dams and improved pastures reflects the current land use and history of the site.

1.5 Surrounding land uses

The Rossvale Biobank Site is surrounded by rural land to all sides, although the Taralga Wind Farm is to the north and north-west of the biobank site. The imagery used as the background for **Figure 2** is not recent enough to include the wind farm, so only the pre-development landscape is shown.

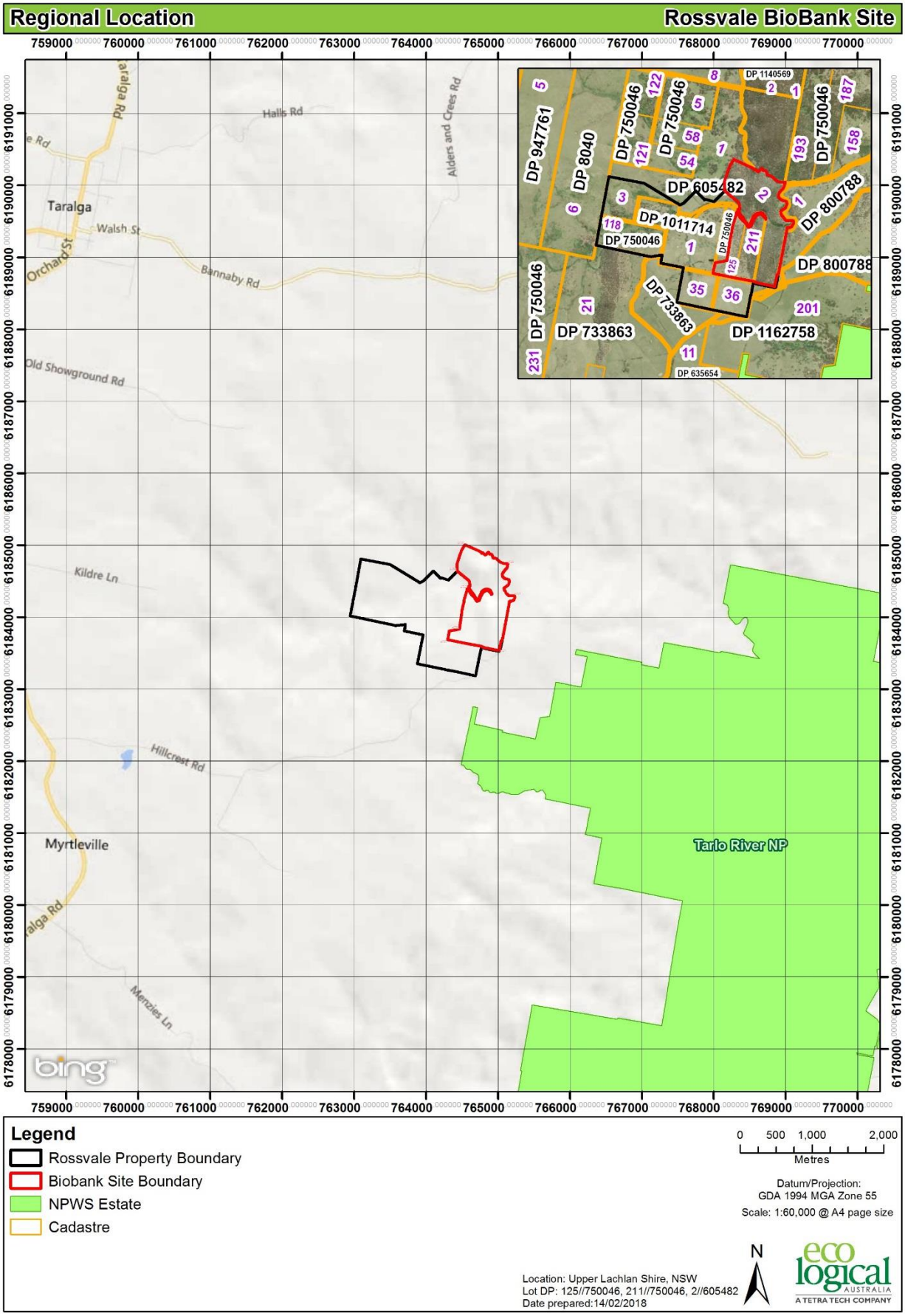

Figure 1: Regional location of the Rossvale Biobank Site

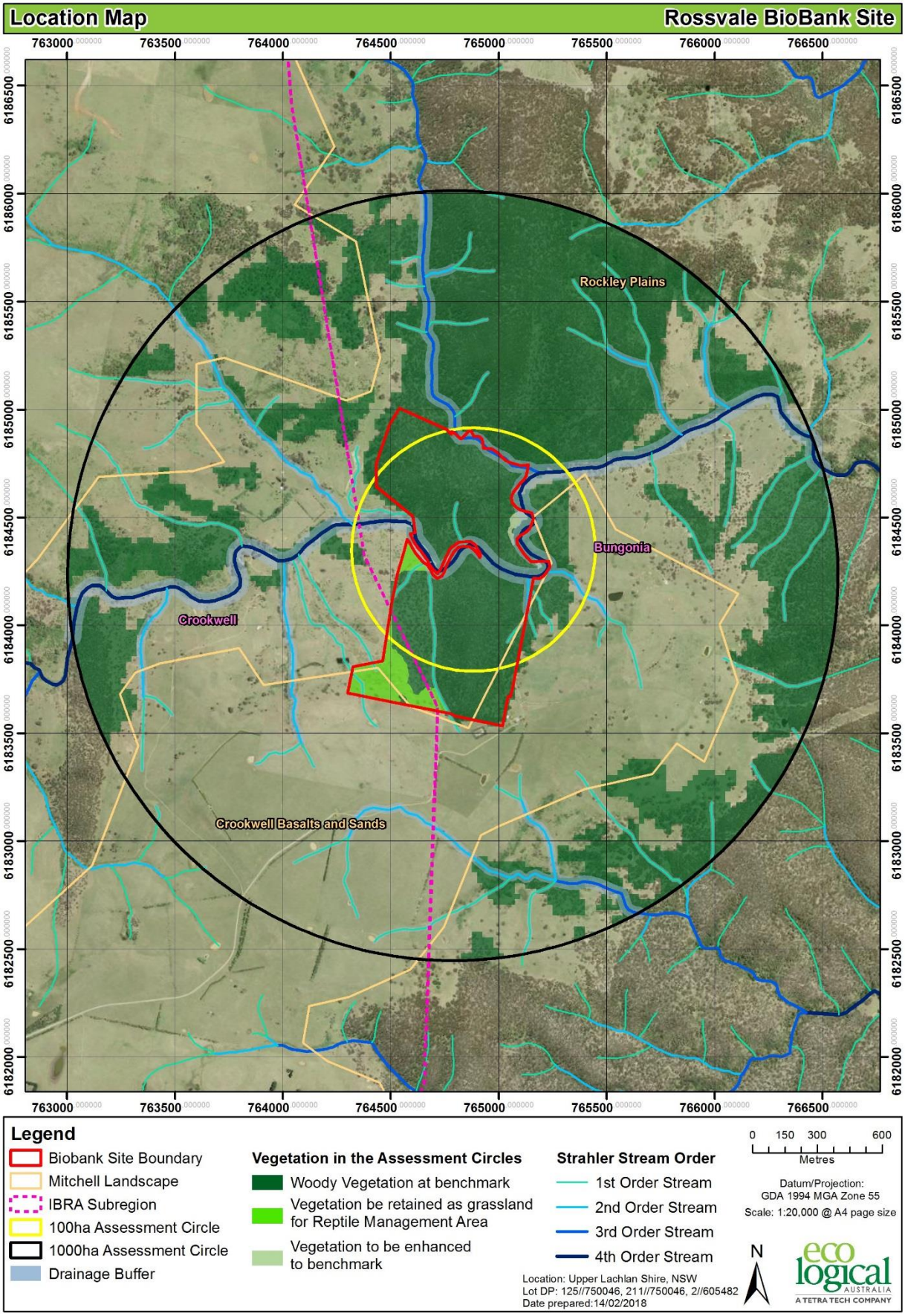

Figure 2: Location of the Rossvale Biobank Site relative to IBRA Regions/Subregions, Mitchell Landscapes, and Assessment circles (Location Map)

Figure 3: Rossvale Biobank Site boundary (Site map)

2 Biobank Assessment

2.1 Biobank area

The Rossvale Biobank Site covers a total area of 80.52 ha, all of which will generate ecosystem credits, and part species credits. The site includes a fourth order stream, which intersects the site in an east-west direction and forms part of the eastern boundary, and a third order stream which forms the north-east boundary of the biobank site.

2.2 Plant Community Types

The vegetation model of the vegetation in the region (as modelled and reported in Tozer *et al*. 2010) which is used as a starting point for assessment is presented in **Figure 4**. This model contains eight different vegetation communities for the immediate vicinity, with six of these modelled to occur within the biobank site. As a model, this is indicative but at an unsuitable resolution for the biobank analysis. It is also subject to the inherent problems of modelling environmental envelopes with variable quality input data.

The Plant Community Types database (the OEH VIS-Classification database, OEH 2018) was consulted to determine the best fit for communities identified in the analysis and by comparison following the field assessments. There is a paucity of informative sampling in the immediate region which has meant that there are some opportunities to fit to a best type based on the species present and the substrate, although the vegetation community itself may not show the structural characters expected or the landscape position identified as typically occupied, or alternatively, the vegetation community is not recognised for the bioregion despite being commonly found.

The vegetation communities as assigned to Plant Community Types includes the following types with justification in the text, summarised in **Table 3**. The arrangement of these plant community types is shown in **Figure 5**.

Table 3: Plant Community Types on Rossvale Biobank Site

Plant Community Type (PCT ID)	BVTID	% Cleared	Area (ha)	Notable Features
Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion (731)	HN514	80%	15.53	An open grassy forest found on the undulating slopes in the south-west of the biobank site.
Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (1093)	HN570	61%	25.95	An open forest dominating the north of the biobank site on the steep slopes where the soil, derived from metamorphosed sediments, is very stony and generally rich in clay
Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion (1100)	HN572	83%	2.33	An open forest with a grassy understorey which occurs on granite-derived soils on the gently undulating to flat terrain on the slopes adjacent to Kerrawary Creek
River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion (1105)	HN574	40%	2.77	Narrow strip of riparian vegetation found along Kerrawary and Charteris Creeks

Plant Community Type (PCT ID)	BVTID	% Cleared	Area (ha)	Notable Features
Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion (1150)	HN583	40%	25.37	Main vegetation type on ridge south of Kerrawary Creek, where soils are very stony and generally rich in clay.
Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion (1155)	HN584	20%	8.57	An open forest type with a sparse understorey found on the steeper slopes and ridge tops, dominated by quartz-rich metamorphosed large cobbles and boulders to north of Kerrawary Creek

A flora inventory from all of the sites assessed is provided in **Appendix A**.

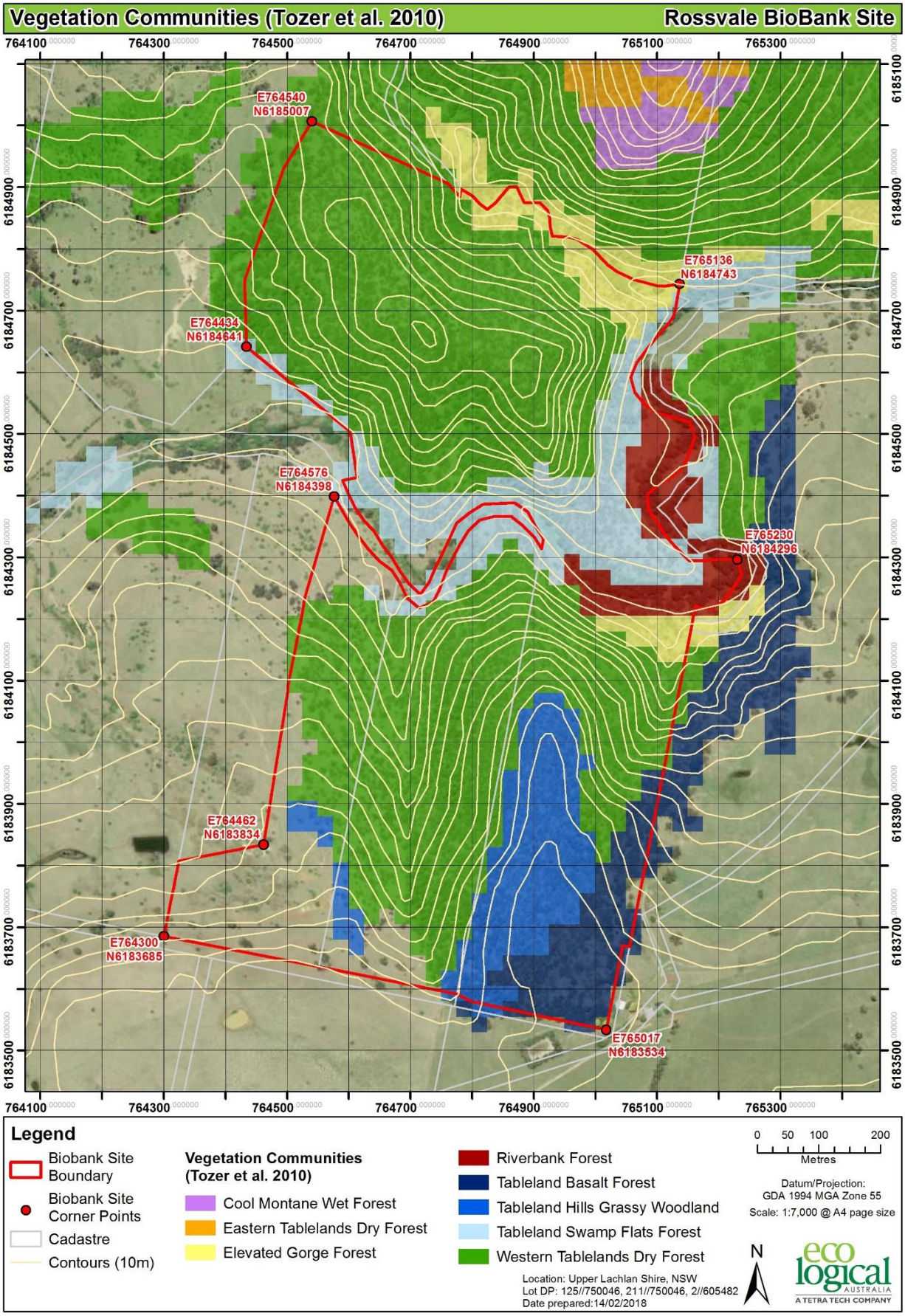

Figure 4: Existing vegetation modelling for the Rossvale Biobank Site (from Tozer *et al.* 2010)

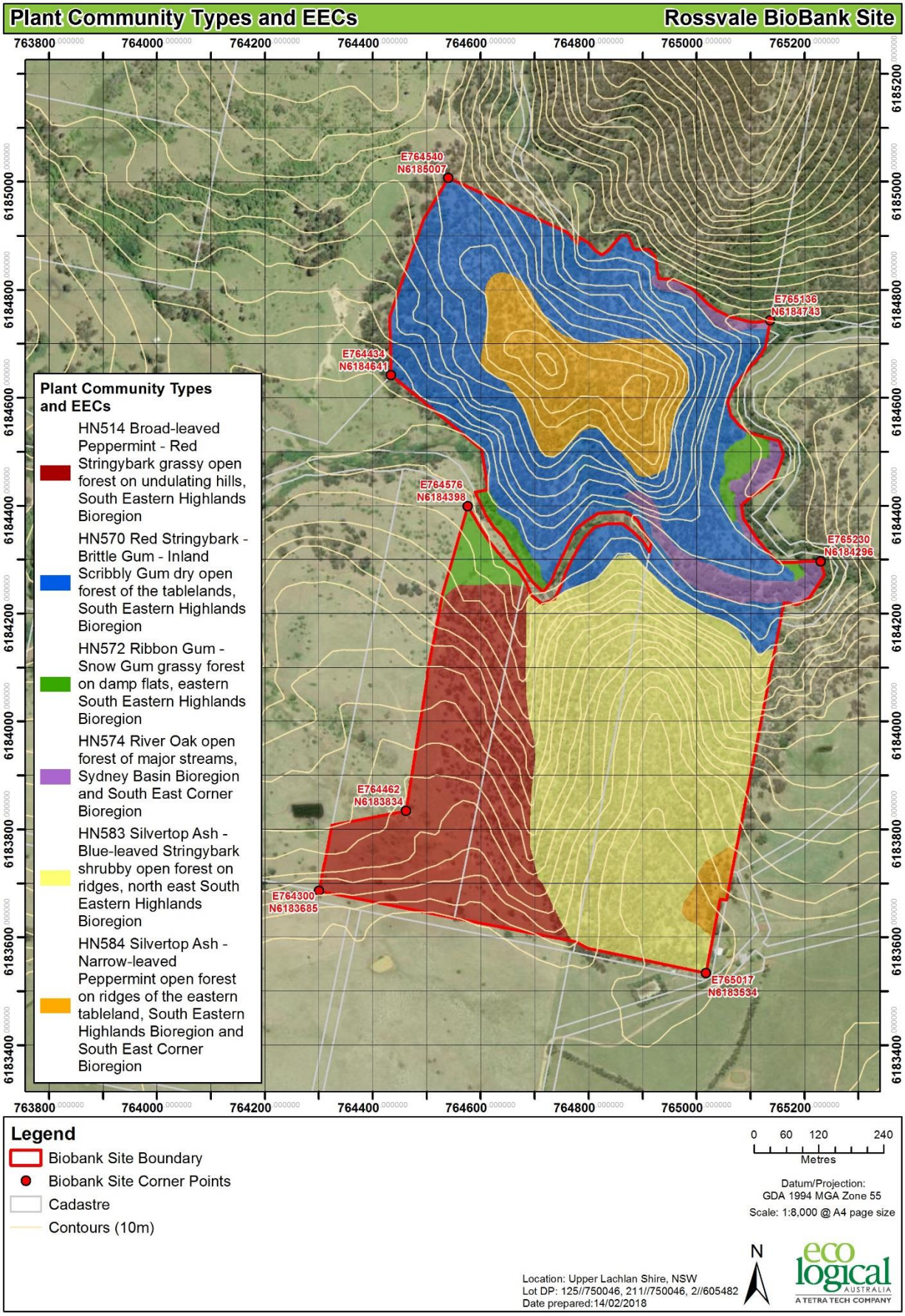

Figure 5: Assigned Plant Community Types following assessment and analysis.

2.2.1 Broad-leaved Peppermint – Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion (HN514, PCT 731)

This community is not representative of a threatened ecological community. The VIS-C database records the community as 80% cleared. This community occurs in the undulating hills in the south-west of the biobank site and was mapped in three condition states: 'intact' (i.e. all strata present and dominated by native species, Vegetation zone 1), 'scattered trees with an exotic understorey' (Zone 2) and 'derived native grassland.' (Zone 3) which will be retained as a derived grassland as part of the GRMA.

Canopy species present include: *Eucalyptus dives* (Broad-leaved Peppermint), *E. macrorhyncha* (Red Stringybark) and *E. mannifera* (Brittle Gum) with the occasional *E. blakelyi* ((Blakely's Red Gum) on the very southern boundary of the site. The shrub layer is primarily absent, with the occasional scattered *Acacia* sp. and *Bursaria spinosa* present in the most eastern of the plots.

The groundcover is dominated by a small number of common native grass species such as *Themeda triandra, Microlaena stipoides* and *Rytidosperma* spp. Species such as *Rytidosperma racemosum* var. *racemosum, Anthosachne scabra, Lomandra filiformis* subsp. *coriacea, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Poa sieberiana* and *Carex inversa* are also common.

The exotic species *Acetosella vulgaris*, *Hypochaeris radicata, Plantago lanceolate*, *Vulpia* sp.and *Aira cupaniana* are also common throughout parts of this community.

In the areas of scattered native trees over an exotic understorey (Zone 2), *Microlaena stipoides* and *Anthosachne scabra* are relatively common amongst a variety of exotic grasses and forbs such as *Acetosella vulgaris*, *Aira* sp., *Bromus molliformis, Eleusine tristachya, Holcus lanatus, Lolium perenne, Paronychia brasiliana*, *Plantago lanceolata* and *Vulpia* sp. Thistles are also present (*Carthamus lanatus* and *Cirsium vulgare*) and the noxious weed *Nassella trichotoma* has been recorded.

Areas of PCT 731 Derived Native Grassland are dominated by native grasses, herbs and forbs including *Sorghum leiocladum, Themeda triandra, Microlaena stipoides, Anthosachne scabra, Austrostipa rudis, Poa sieberiana, Austrostipa scabra, Arthropodium milleflorum, Lomandra filiformis* subsp*. coriacea, Geranium solanderi* and *Rytidosperma racemosum* var. *racemosu*m.

One other PCT similar to this community, Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (PCT 727), was also considered when assigning the PCT to this community given the canopy species shared between both PCTs and overlapping distribution. However, PCT 727 has a more open forest structure with shrubs in the understorey whereas PCT 731 is a grassy woodland and more characteristic of the vegetation on the biobank site.

Figure 6: Broad-leaved Peppermint – Red Stringybark grassy open forest, 'intact' (Zone 1)

Figure 7: Broad-leaved Peppermint – Red Stringybark grassy open forest, 'Derived Native Grassland' (Zone 3)

2.2.2 Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (HN570, PCT 1093)

This community is not representative of a threatened ecological community. The VIS-C database records the community as 61% cleared. This community is primarily intact within the biobank site, with weed invasion increasing adjacent to Kerrawary and Charteris Creeks.

This community occurs on slopes of the ridges in the north of the biobank site and on the northern slopes, south of Kerrawary Creek. The terrain is steep and the soil is derived from metamorphosed sediments, very stony and generally rich in clay. Canopy species present include *Eucalyptus blakelyi* (Blakely's Red Gum), *E. macrorhyncha* (Red Stringybark), *E. radiata* (Narrow-leaved Peppermint), *E. dives* (Broad-leaved Peppermint) and *E. mannifera* (Brittle Gum). A shrub layer dominated by *Olearia viscidula* and *Cassinia aculeata* is present within *Bursaria spinosa* also common in the eastern part of this community. *Acacia implexa* is also present as scattered elements in a lower canopy on the southern slopes of this community.

The groundcover is sparse but diverse, with *Brachyscome* and other daisies, sedges and grasses are present. Grasses such as *Rytidosperma* spp. including *Rytidosperma pallidum*, *Poa sieberiana* and *Microlaena stipoides* are common. Other common groundcover species include *Lomandra filiformis*, *Stellaria pungens*, *Poranthera microphylla*, *Xerochrysum viscosum* and *Wahlenbergia* spp.

This community differs from Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion (PCT 1155) in that *Eucalyptus sieberi* (Silvertop Ash) is absent in PCT 1093 and PCT 1093 occurs on the sides of the ridges rather than the ridgetops.

Figure 8: Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest (Zone 4)

2.2.3 Ribbon Gum – Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion (HN572, PCT1100)

The VIS-C database records the community as 83% cleared and identifies this community as having the potential to be either of two threatened ecological communities; 'Tableland Basalt Forest in the Sydney Basin and South Eastern Highland Bioregions' or 'Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregion'. The community present at the site is considered more likely to be characteristic of Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland.

OEH 2018 states that PCT1100 occurs on granite soils in gently undulating to flat terrain at altitudes between 600 and 1100m on the eastern parts of the tablelands from the western Blue Mountains to Big Badja. The occurrences of this community on the biobank site are largely patches of the derived native grassland form of this community (Zones 6a and 6b), with the occasional scattered *Eucalyptus viminalis* (Ribbon Gum) (zone 5) along the floodplain of Kerrawary Creek at an altitude of about 720 m ASL. The presence of Snow Gum (*Eucalyptus pauciflora*) in areas along the creek, outside the biobank site has been used to assist in assigning the PCT in this area due to the difficulty in assigning PCTs when communities are in a derived native grassland state.

In the western part of the biobank site the understorey is primarily *Themeda triandra* with other native and exotic species scattered throughout. *Sorghum leiocladum* is the next most common native grass species in this area.

The understorey in the eastern patch (Zone 6b) of this community has the very occasional scattered shrub such as *Bursaria spinosa* and *Crataegus monogyna*. Common species in the groundlayer include *Microlaena stipoides*, *Austrodanthonia racemosa* var. *racemosa* and *Bothriochloa decipiens*. *Pteridium esculenum* is also present in a disturbed part of this stand of this community within the biobank site.

Figure 9: Ribbon Gum – Snow Gum grassy forest on damp flats, 'intact' (Zone 5)

Figure 10: Ribbon Gum – Snow Gum grassy forest on damp flats, 'Derived Native Grassland' (Zone 6b)

2.2.4 River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion (HN574, PCT 1105)

This community is identified in the VIS-C database as being 40% cleared. However, as it is also recognised only for the Sydney Basin and the South East Corner (and this site is in the South Eastern Highlands) it was also an uncomfortable fit. The community which exists in this bioregion that has *Casuarina cunninghamiana* (River Oak) as a major canopy component is *River Oak forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands Bioregion* (PCT 85). PCT 1105 appears to be the best fit although there are some overlapping characteristics between the two PCTs.

The occurrences of this community on the biobank site amount to narrow bands along the banks of the creeks. As this community primarily occurs on the alluvial flats, it is a community which is present more as overhanging canopy of the casuarinas

The community is best described as a forest canopy of River Oak (*Casuarina cunninghamiana*) over an herbaceous layer of forbs and shade-tolerant grasses, *Carex appressa* and native nettle *Urtica incisa* forming the tallest components of the groundcover. Shrubs are sparse, with occasional plants of Native Blackthorn (*Bursaria spinosa*). The substrate and soil for the community is typically recent alluvium of coarse texture. The groundlayer is dominated by shade tolerant species such as *Microlaena stipoides*, *Dichondra repens*, *Geranium solanderi*, *Rumex brownii, Plantago lanceolata* and *Stellaria media*.

Figure 11: *Casuarina* dominated community, River Oak open forest of major streams, along Kerrawary Creek (Zone 7)

2.2.5 Silvertop Ash – Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion (HN583, PCT 1150)

This community is not representative of a threatened ecological community. The VIS-C database records the community as 40% cleared. This community is primarily intact within the biobank site, occurring on the slopes of the ridges south of Kerrawary Creek. The terrain is steep and the soil is derived from metamorphosed sediments, very stony and generally rich in clay.

Canopy species present include: *Eucalyptus agglomerata* (Blue-leaved Stringybark), *E. sieberi* (Silvertop Ash), *E. macrorhyncha* (Red Stringybark). A shrub layer dominated by *Olearia viscidula*, *Persoonia linearis*, *Cassinia aculeata* and *Bursaria spinosa*. The groundcover is open and comprised of grasses, graminoids herbs, forbs, sedges and low growing shrubs. Grasses such as *Rytidosperma pallidum*, *Deyeuxia quadriseta, Microlaena stipoides* and *Entolasia stricta* are common. Other common groundcover species include *Lomandra filiformis* subsp*. coriacea*, *Stypandra glauca*, *Lepidosperma gunnii*, *Stellaria pungens*, *Pomax umbellata*, *Lomandra longifolia*, *Wahlenbergia* spp. and *Goodenia hederacea*.

Weed invasion is low with very few weed species, and in very low abundance, recorded within this community.

Figure 12: Silvertop Ash – Blue-leaved Stringybark shrubby open forest (Zone 8)

2.2.6 Silvertop Ash – Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion (HN584, PCT1155)

This community is not representative of a threatened ecological community. The VIS-C database records the community as 20% cleared. This community dominates the ridgetop in the northern part of the biobank site. The substrate is a quartz-rich metamorphosed sediment which breaks into large cobbles and boulders. Cobbles and small boulders form a significant component of the ground cover habitat at the site.

It is a woodland or low forest strongly dominated by *Eucalyptus sieberi* (Silvertop Ash) with scattered plants of *Eucalyptus dives* (Broad-leaved Peppermint), *E. mannifera* (Brittle Gum) and *Acacia melanoxylon*. The understorey is comprised primarily of herbs, forbs and grasses with shrubs generally sparse, although *Cassinia aculeata* is present in some areas. Common understorey species include *Platysace lanceolata, Pomax umbellata, Anthosachne scabra, Rytidosperma pallidum, Austrostipa rudis*, *Gonocarpus tetragynus, Hibbertia obtusifolia, Hydrocotyle laxiflora, Lomandra filiformis* subsp*. coriacea, Microlaena stipoides*, Rytidosperma racemosum var. racemosum, Stellaria pungens, Stypandra glauca. The exotic species *Acetosella vulgarisis* is also common in the small stand of this community in the south of the biobank site.

Given the dominance of *Eucalyptus sieberi* (Silvertop Ash), the location of the site, the presence of this community on the ridgetop, the species composition and the elevation of 800 m, PCT 1155 is considered the best fit for this community.

Figure 13: Silvertop Ash – Narrow-leaved Peppermint open forest (Zone 9)

2.3 Over-cleared vegetation types and Threatened Ecological Communities

Only the Ribbon Gum – Snow Gum community identified on the biobank site (HN572, PCT 1100) qualifies as both over cleared and as an Endangered Ecological Community in NSW: *Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodlands in the in the South Eastern Highlands and Sydney Bioregions.* This community is 83% cleared, allowing it to be classified as a Highly Cleared vegetation type.

2.4 Landscape value assessment

According to the BBAM 2014 (OEH 2014b), the following steps are required in assessing the landscape value for biobank sites:

a) Assess whether the site is in a strategic location;
b) Assess change in connectivity value;
c) Assess the increase in native vegetation cover; and
d) Assess the patch size area.

A strategic location is defined in Section 4.2.6 of the BBAM 2014 as:

- part of a state or regional biodiversity link and in a plan approved by the Chief Executive of the OEH; or
- a riparian buffer area of a third order stream or higher, or an important wetland or estuarine area.

If the biobank site is in a strategic location, there is no need to further assess connectivity value i.e. step 'b' is not required.

The following sections outline the data that were entered to the Biobanking Credit Calculator (BBCC).

2.4.1 Score for strategic location

The site is currently considered to fit within the 'Strategic Location' definition as a result of the fourth order section of Kerrawary Creek intersecting through the site (**Figure 3**). As it occurs on both sides of the stream this has been entered into the BBCC with a score of **15**.

2.4.2 Assess change in connectivity value

As the site is in a strategic location no assessment has been undertaken for the change in connectivity value.

2.4.3 Increase in native vegetation cover

The amount of vegetation currently within the 100 ha and 1000 ha assessment circles (inner and outer assessment circles, respectively) was calculated using ArcGIS at a scale of 1:10,000 (see **Figure 2** for circle placement). The amount of native vegetation in the circles once the Rossvale Biobank Site is established, and managed into the future, was also estimated in ArcGIS.

The assessment for the inner circle recorded approximately 78 ha of overstorey vegetation before the establishment of the biobank site, which represents 78% cover. After the establishment of the biobank site, it has been assumed that the managed parts of the site will, at some stage, reach benchmark, which contributes 1 ha (1%) of additional vegetation to the total. The total amount of overstorey cover native vegetation at benchmark in the inner circle has increased slightly within a band from 78% (before establishment of the biobank site) to 79% (after the establishment of the biobank site).

The assessment for the outer circle recorded approximately 414 ha of overstorey vegetation before the establishment of the biobank site, which represents 41% cover. After the establishment of the biobank site, it has been assumed that much of the non-reptile management area proportion of the under-benchmark area of the biobank site will, at some stage, reach benchmark, which contributes 1 ha (1%) of additional vegetation to the total. The total amount of overstorey cover vegetation in the outer circle has increased slightly within a band to 42% at this scale (from before the establishment of the biobank site to after the establishment of the biobank site).

Table 4 summarises the results of the assessment for each circle. The native vegetation cover class did not change for the outer assessment circle or for the inner assessment circle. As such, in accordance with Table 26 of the BBAM 2014 (OEH 2014b), a score of **9** was entered into the BBCC for the inner assessment circle for before and after the establishment of the biobank site. A score of **10.35** was entered into the BBCC for the outer assessment circle for both before and after the establishment of the biobank site.

Table 4: Area of over-storey cover in assessment circles before and after the establishment of the Rossvale Biobank Site

Assessment circle	Vegetated area before the establishment of the biobank site (ha)	Native vegetation cover class (%)	Vegetated area after the establishment of the biobank site (ha)	Native vegetation cover class (%)
Inner (100 ha)	78	76-80	79	76-80
Outer (1000 ha)	414	41-45	415	41-45

2.4.4 Patch size

There are areas in the vicinity of Rossvale Biobank Site that consist of native canopy cover with a predominately native understorey as shown in **Figure 2**. These areas are predominantly in moderate to good condition. Large intact remnants are positioned to the north of the site. Farmland to the west, east and south as a whole also retain small patches of native over-storey vegetation. The maximum patch size assessable in the Rockley Plains Mitchell landscape (62% cleared) is 200 ha according to the BBAM 2014, and a patch of this vegetation larger than this is identified in **Figure 14**. These linkages of moderate/good condition vegetation were measured at greater than 200 ha and therefore 201 hectares (a score of 12) was entered for patch size in the BBCC.

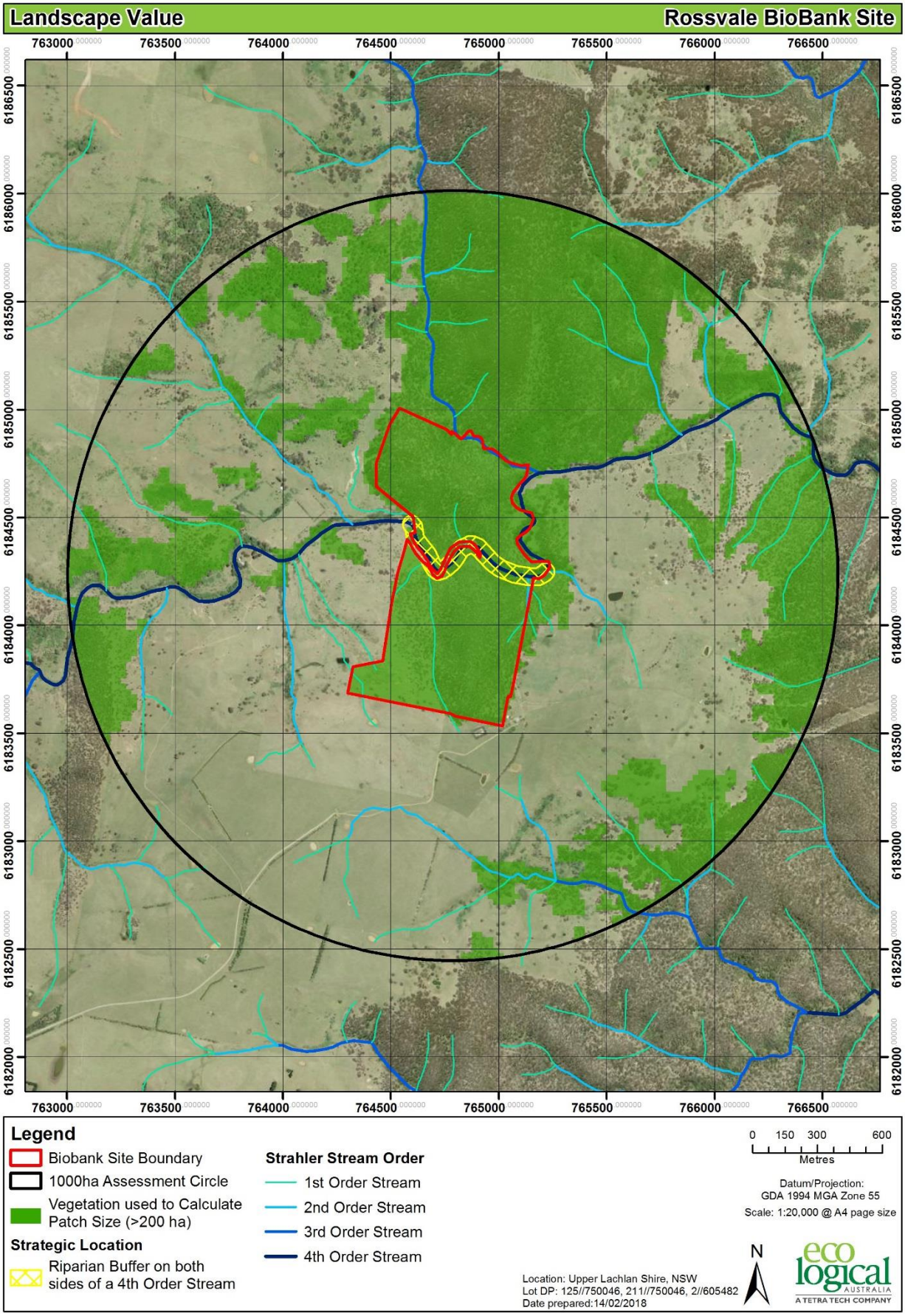

Figure 14: Vegetation to calculate the patch size

2.5 Native vegetation assessment

2.5.1 Changes to benchmark data

No changes were made to benchmark data for this assessment. Some areas of reptile habitat are to be managed such that the benchmark overstorey and midstory values for these areas will not be achieved as agreed by OEH. Maintaining cover at under 10% will mean the vegetation can recover to within about 37% of the lower benchmark value for the nominated plant community type.

2.5.2 Vegetation zones

Vegetation zones are defined as areas of native vegetation that are the same PCT which have similar broad condition states (OEH 2014).

In total, there are nine vegetation zones within the Rossvale Biobank Site. The area of each vegetation zone is provided in **Table 5**, and the spatial configuration of the vegetation zones is shown in **Figure 15**.

2.5.3 Plot and transect surveys

The BBAM 2014 (OEH 2014) requires that Biometric plots/transects are undertaken to sample vegetation zones. The number of plots/transects undertaken for each vegetation zone is outlined in **Table 5**. All plots undertaken during this survey process were permanently marked with two star pickets to allow for the monitoring of vegetation condition in the future. A star-picket was placed at each end of the 50 m line transect. The locations of the star-pickets were recorded using handheld GPS units with co-ordinates in GDA94 datum. At least two photographs were taken along each transect: one at the beginning of the transect and in the direction of the end of the transect, and one at the end of the transect in the direction of the start of the transect.

The location of plots/transects are also shown in **Figure 15**.

Appendix A contains the flora species recorded in each plot, while **Appendix B** contains the plot/transect data entered into the BBCC.

Table 5: Vegetation zones and number of Biometric plots/transects required and surveyed for in the Rossvale Biobank Site

Veg Zone	BVTID	Plant Community Type (PCT ID)	Condition	Ancillary	Area (ha)	Plots required	Plots completed
1	HN514	*Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion* (731)	Moderate to good	Native	8.62	3	4
2	HN514	*Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion* (731)	Moderate to good	Exotic	0.33	1	1
3*	HN514	*Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion* (731)	Moderate to good	DNG	6.58	3	3
4	HN570	*Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion* (1093)	Moderate to good	Native	25.95	4	4
5	HN572	*Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion* (1100)	Moderate to good	Native	0.14	1	1
6a	HN572	*Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion* (1100)	Moderate to good	DNG	1.10	1	1
6b*	HN572	*Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion* (1100)	Moderate to good	DNG	1.09	1	1
7	HN574	*River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion* (1105)	Moderate to good	Native	2.77	2	2
8	HN583	*Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion* (1150)	Moderate to good	Native	25.37	4	4
9	HN584	*Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion* (1155)	Moderate to good	Native	8.57	3	3
		TOTAL			**80.52**	**23**	**24**

* GRMA

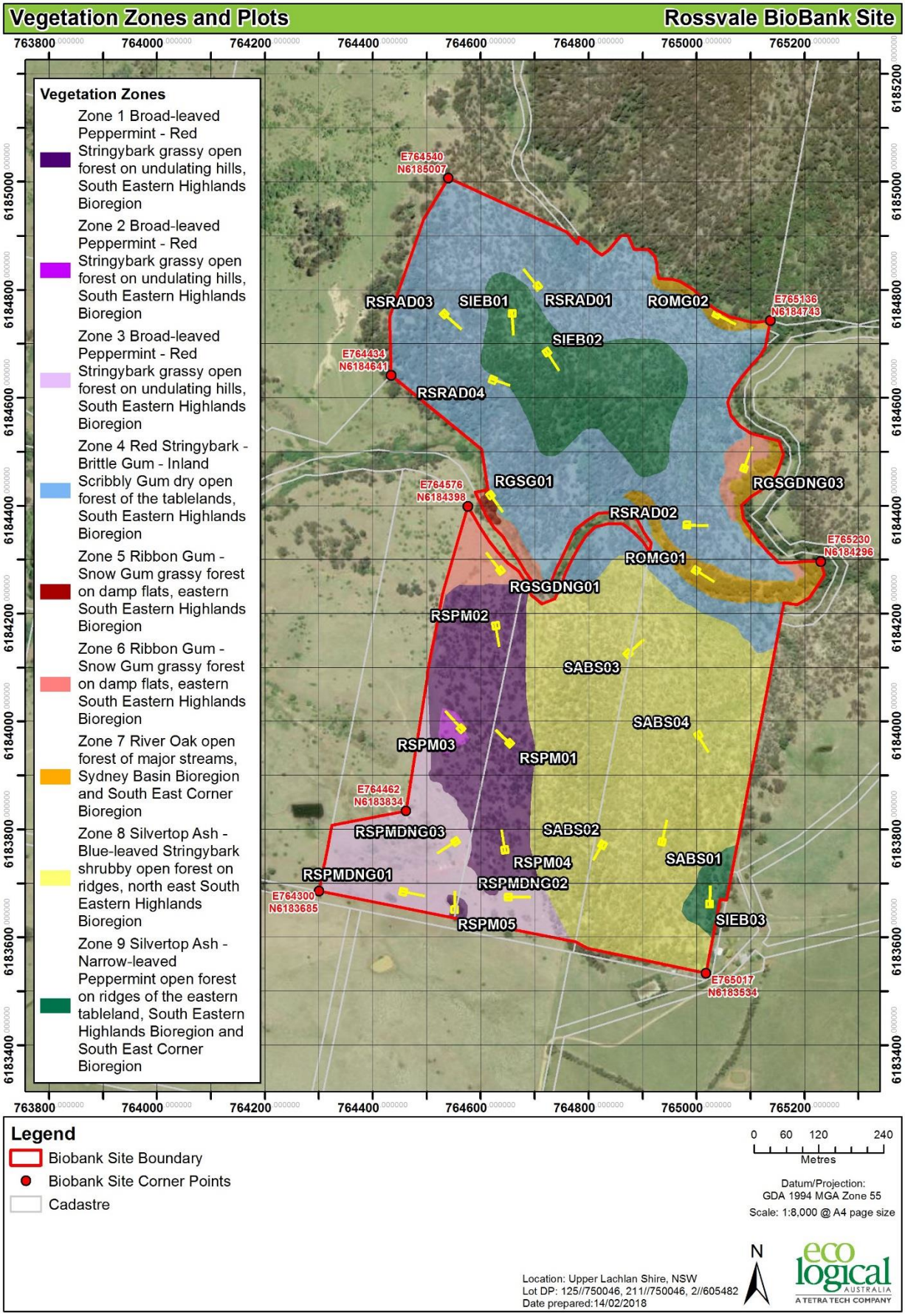

Figure 15: Vegetation zones and location of Biometric plots/transects in the Rossvale Biobank Site.

2.5.4 Management zones and site value scores

Management zones combine the mapping of vegetation zones with the final management outcome on the biobank site. They enable the assessor to increase, or decrease, the number of credits generated depending on the expected condition of the vegetation after management actions are undertaken.

Ten management zones are created on the Rossvale Biobank Site, with boundaries of the management zones matching the boundaries of the vegetation zones, with the exception of Vegetation Zone 6 which has been split into two management zones (6a - for restoration back to benchmark condition with supplementary planting and 6b - to be retained as a derived native grassland as part of the GRMA) (**Table 6** and **Figure 16**).

Table 6: Area of each management zone within the Rossvale Biobank Site

Management zone ID	Plant community type	Condition	Ancillary code	Management Required	Area (ha)
MZ1	Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	Moderate to good	Native	Standard Management	8.62
MZ2	Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	Moderate to good	Exotic	Standard Management	0.33
MZ3	Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	Moderate to good	DNG	GRMA	6.58
MZ4	Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	Moderate to good	Native	Standard Management	25.95
MZ5	Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion	Moderate to good	Native	Additional Management re mid-story planting	0.14
MZ6a	Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion	Moderate to good	DNG	Additional Management re over-story and mid-story planting	1.10
MZ6b	Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion	Moderate to good	DNG	GRMA	1.09
MZ7	River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion	Moderate to good	Native	Standard Management	2.77
MZ8	Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion	Moderate to good	Native	Standard Management	25.37

Management zone ID	Plant community type	Condition	Ancillary code	Management Required	Area (ha)
MZ9	Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion	Moderate to good	Native	Standard Management	8.57
Total					**80.52**

The current site value scores for each management zone, as well as the future site value scores based on the BBCC's default site attribute scores after standard management actions are undertaken, are shown in **Table 7**. The current site value scores ranged between 23.19 and 76.56 for the 10 management zones. The site values were predicted to increase by between 4.35 and 34.78 for the 10 management zones based on the application of standard management actions. The GRMA MZs have much smaller site value scores increases as the assessor has not allowed the 'default' increase in site value score for most attributes other than ground cover grasses, shrubs and other (where these attributes are currently below benchmark), and limited over-story regeneration to allow 'up to' 10% of the lower benchmark for over-story cover.

As parts of the biobank site will be managed to improve grassland reptile habitat (GRMA), variations to the allowed increases in future site value scores were required.

Table 7: Site value scores for each management zone

Management zone ID	Current site value	Future site value	Gain in site value
MZ1	63.53	92.75	29.22
MZ2	43.48	67.39	23.91
MZ3	47.10	67.39	20.29
MZ4	90.10	98.44	8.34
MZ5	50.87	70.05	19.18
MZ6a	29.69	53.30	23.61
MZ6b	29.69	53.30	23.61
MZ7	78.99	91.30	12.31
MZ8	81.25	92.36	11.11
MZ9	70.83	86.11	15.28

*Note: Management zones with shaded rows are the GRMA management zones.

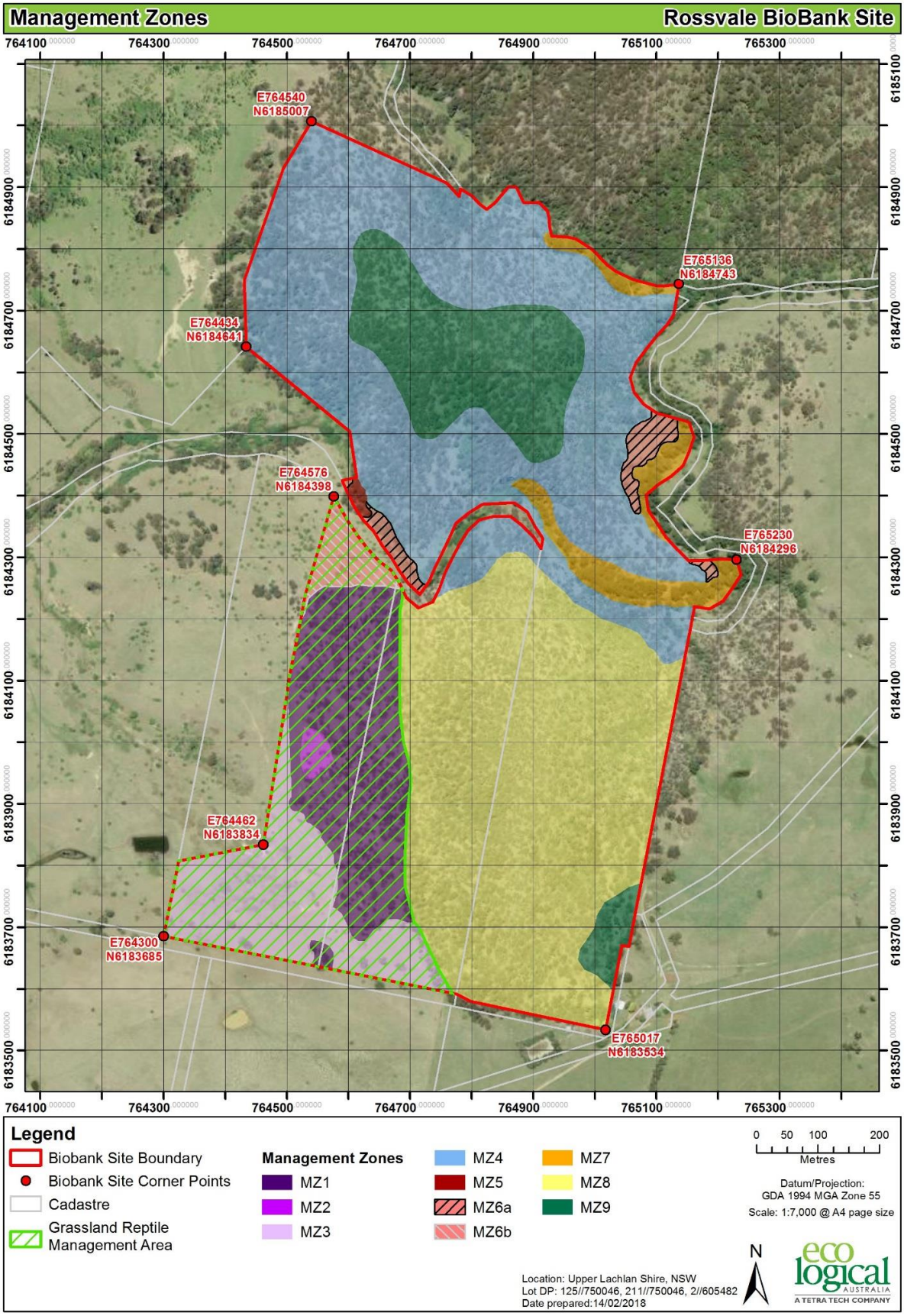

Figure 16: Management zones in the Rossvale Biobank Site (including Grassland Reptile Management Area)

Additional actions (Appendix 7 of BBAM 2014) can be included to further increase site values (other than management zones within the GRMA) and the number of credits generated. There were only a few site attributes where scores could be increased from their current scores with additional actions, either due to site attributes already being at the highest scores allowed, or the BBAM 2014 rules which determine the increases allowed from current scores. Generally, the site attributes that could be increased were:

- Native over-storey cover (for management zone MZ6a) through the implementation of additional planting or seeding of the site;
- Native mid-storey planting (for management zones MZ5 and MZ6a) through the implementation of additional planting or seeding of the site;
- Utilization of fire to induce midstorey shrub and groundcover shrub germination (MZ7) as the zone shows evidence of a very long fire interval and shrub and groundcover strata are appearing to senesce.

In addition, management actions are required to maintain the habitat for the Pink-tailed Worm-lizard in Management Zones 3 and 6b. The following actions are required to provide appropriate management outcomes and also result in the need to negate the gain in certain default increases:

- Management of natural midstorey regeneration to maintain an open midstorey stratum on certain parts of the site (MZ3 and MZ6b) results in a negation of the default increase of score (was 0 to 1 but varied to remain as 0);
- Managing overstorey regeneration to reduce any increase beyond a notional mature canopy density of under 10% canopy (MZ3 and MZ6b).

The details of the variations (increases and decreases) to site values are shown in **Table 8**.

Table 8: Site value scores after additional management actions for each Management Zone within the Rossvale Biobank Site

Site attribute	Zone 1			Zone 2			Zone 3			Zone 4			Zone 5		
	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management
Native plant species	3	3	-	3	3	-	3	3	-	3	3	-	3	3	-
Native over-storey cover	2	3	-	0	1	-	0	1	-	2	3	-	3	3	-
Native mid-storey cover	1	2	-	0	1	-	0	1	0	3	3	-	1	2	2.5
Native ground cover (grasses)	2	3	-	1	2	-	1	2	-	1	2	-	2	3	-
Native ground cover (shrubs)	3	3	-	3	3	-	3	3	-	2	3	-	3	3	-
Native ground cover (other)	2	3	-	0	1	-	0	1	-	3	3	-	2	3	-
Exotic plant cover	2	3	-	2	3	-	2	3	-	3	3	-	0	0.5	-
Number trees with hollows#	0	0	-	0	0	-	0	0	-	3	3	-	2	3	-
Over-storey regeneration	2	3	-	2	3	-	2	3	-	3	3	-	0	0.5	-
Fallen logs	0	0	-	0	0	-	0	0	-	3	3	-	3	3	-
Site Values	**63.53**	**92.75**	**92.75**	**43.48**	**67.39**	**67.39**	**47.1**	**67.39**	**61.59**	**90.1**	**98.44**	**98.44**	**50.87**	**70.05**	**72.66**

Site attribute	Zone 6a			Zone 6b			Zone 7			Zone 8			Zone 9		
	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management	Current score	Default increased score	Score with additional management
Native plant species	2	3	-	2	3	-	3	3	-	3	3	-	3	3	-
Native over-storey cover	0	1	1.5	0	1	-	2	3	-	3	3	-	2	3	-
Native mid-storey cover	0	1	1.5	0	1	0	3	3	-	1	2	-	0	1	-
Native ground cover (grasses)	1	2	-	1	2	-	3	3	-	3	3	-	0	1	-
Native ground cover (shrubs)	3	3	-	3	3	-	3	3	-	3	3	-	0	1	-
Native ground cover (other)	2	3	-	2	3	-	2	3	-	0	1	-	2	3	-
Exotic plant cover	2	3	-	2	3	-	1	1.5	-	3	3	-	3	3	-
Number trees with hollows#	0	0	-	0	0	-	0	0	-	3	3	-	3	3	-
Over-storey regeneration	3	3	-	3	3	-	3	3	-	2	3	-	2	3	-
Fallen logs	1	1.5	-	1	1.5	-	0	0	-	3	3	-	3	3	-
Site Values	**29.69**	**53.3**	**58.33**	**29.69**	**53.3**	**48.44**	**78.99**	**91.3**	**91.3**	**81.25**	**92.36**	**92.36**	**70.83**	**86.11**	**86.11**

2.6 Threatened species and populations assessment

2.6.1 List of predicted threatened species

The list of threatened species (predicted to occur within ecosystem credits and those that require survey to generate species credits) is provided in **Appendix C**.

2.6.2 Geographic and habitat features

The responses in **Table 9** were provided to the geographic and habitat features questions (Step 2) in the BBCC.

Table 9: Geographic and habitat questions and answers for species credit species

Common name	Scientific name	Feature	Answer
Rosenberg's Goanna	*Varanus rosenbergi*	land within 250 m of termite mounds or rock outcrops	Yes
Large-eared Pied Bat	*Chalinolobus dwyeri*	land containing escarpments, cliffs, caves, deep crevices, old mine shafts or tunnels	No
Giant Burrowing Frog	*Heleioporus australiacus*	land within 40 m of heath, woodland or forest	Yes
Brush-tailed Rock-wallaby	*Petrogale penicillata*	land within 1 km of rock outcrops or clifflines	Yes
Booroolong Frog	*Litoria booroolongensis*	land within 100 m of stream or creek banks	Yes
Giant Dragonfly	*Petalura gigantea*	land within 100 m of coastal or upland swamps, bogs or wetlands	No
Littlejohn's Tree Frog	*Litoria littlejohni*	land within 100 m of permanent rocky streams with thick fringing vegetation	Yes
Stuttering Frog	*Mixophyes balbus*	rainforest or tall open wet forest with understorey and/or leaf litter and within 100 m of streams	No
Green and Golden Bell Frog	*Litoria aurea*	land within 100 m of emergent aquatic or riparian vegetation	Yes

2.6.3 Threatened fauna habitat and survey

A survey for threatened grassland reptiles, in particular the Pink-tailed Worm Lizard, was undertaken by Ross Wellington in areas of suitable habitat within the Rossvale Biobank Site (i.e. Vegetation Zones 1, 2 and 3) (**Figure 17**). Over a four day period of intensive targeted survey in October 2017 (rock rolling and micro habitat searches), three PTWL were captured (hand held for identification) within, or immediately adjacent to the biobank site by Ross and an opinion provided as to the extent of 'suitable habitat', including the ongoing restoration and maintenance of Vegetation Zone 3 (MZ3) as a derived grassland. Weather conditions during this survey were not ideal as it followed an extended period of hot, dry weather when lizards were not expected to be sheltering under rocks.

A list of reptile species recorded during the survey is provided in **Appendix D**.

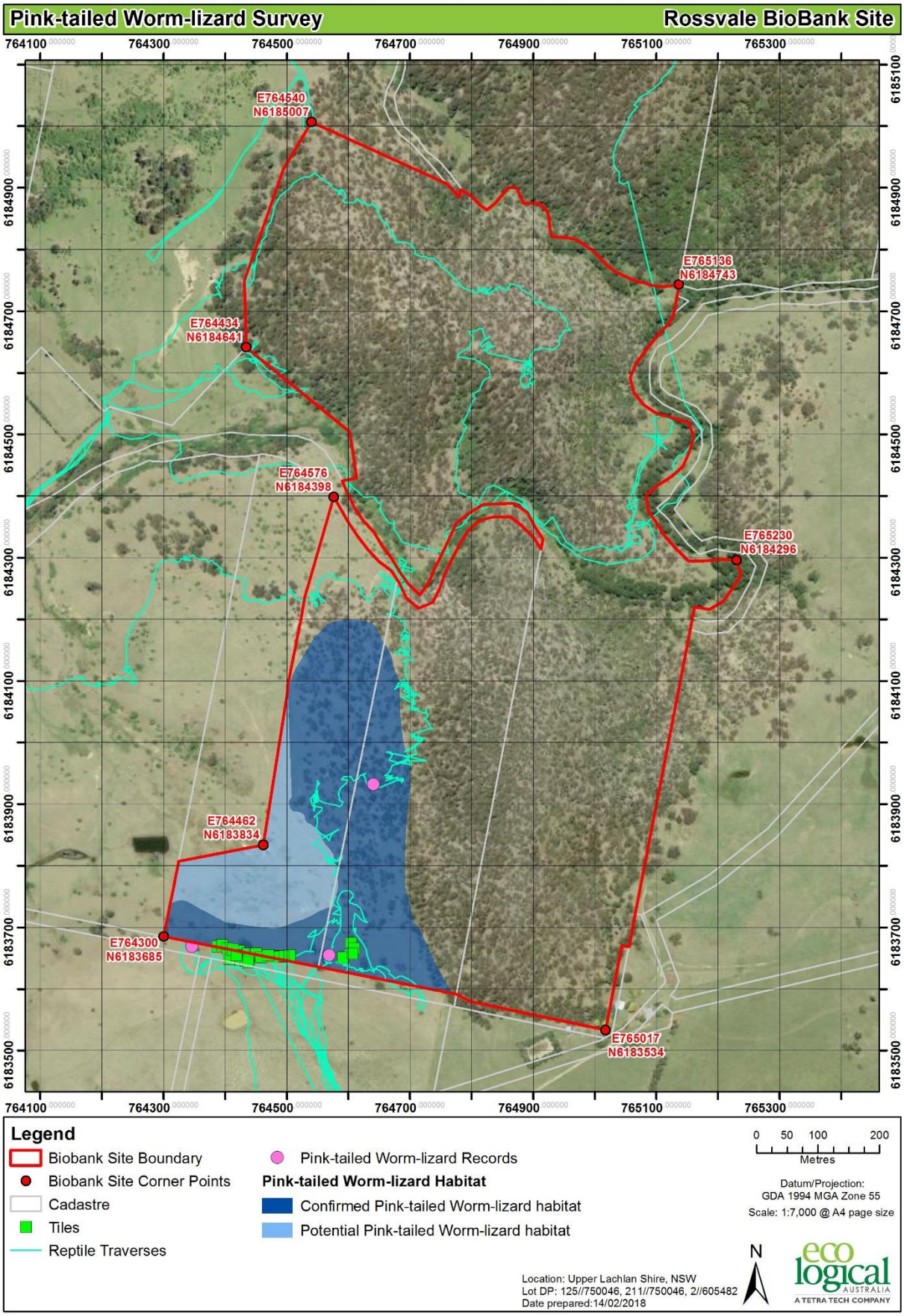

Figure 17: Grassland Reptile survey within and adjacent to Rossvale Biobank Site (October 2017)

3 Credits generated

3.1 Ecosystem credits

Table 10 shows the results of the credit calculations. A copy of the credit report produced by the BBCC is provided in **Appendix E**. In total, 941 ecosystem credits are generated by the Rossvale Biobank Site.

Table 10: Ecosystem credits generated and credit profile

Plant Community Type	Veg Zone	Condition and ancillary code	Area (ha)	Credits generated	Credits/ha
Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	1	Moderate to good (Native)	8.62	130	15.08
	2	Moderate to good (Exotic)	0.33	4	12.12
	3*	Moderate to good (DNG)	6.58	74	11.25
Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	4	Moderate to good (Native)	25.95	282	10.87
Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion	5	Moderate to good (Native)	0.14	2	14.29
	6a	Moderate to good (DNG)	1.10	16	14.55
	6b*	Moderate to good (DNG)	1.09	13	11.93
River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion	7	Moderate to good (Native)	2.77	31	11.19
Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion	8	Moderate to good (Native)	25.37	286	11.27
Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion	9	Moderate to good (Native)	8.57	103	12.02
TOTAL			**80.52**	**941**	**11.69**

* GRMA

3.2 Species credits

Table 11 shows the results of the species credit calculations. A copy of the credit report produced by the BBCC is provided in **Appendix D**. In total 101 species credits are generated by 14.29 ha of Pink-tailed Worm Lizard habitat within the Rossvale Biobank site (**Figure 18**).

Table 11: Species credits generated

Species habitat	Area (ha)	Credits generated
Pink-tailed Worm-lizard (*Aprasia parapulchella*) (Confirmed)	10.62	75
Pink-tailed Worm-lizard (*Aprasia parapulchella*) (Potential)	3.67	26
TOTAL	**14.29**	**101**

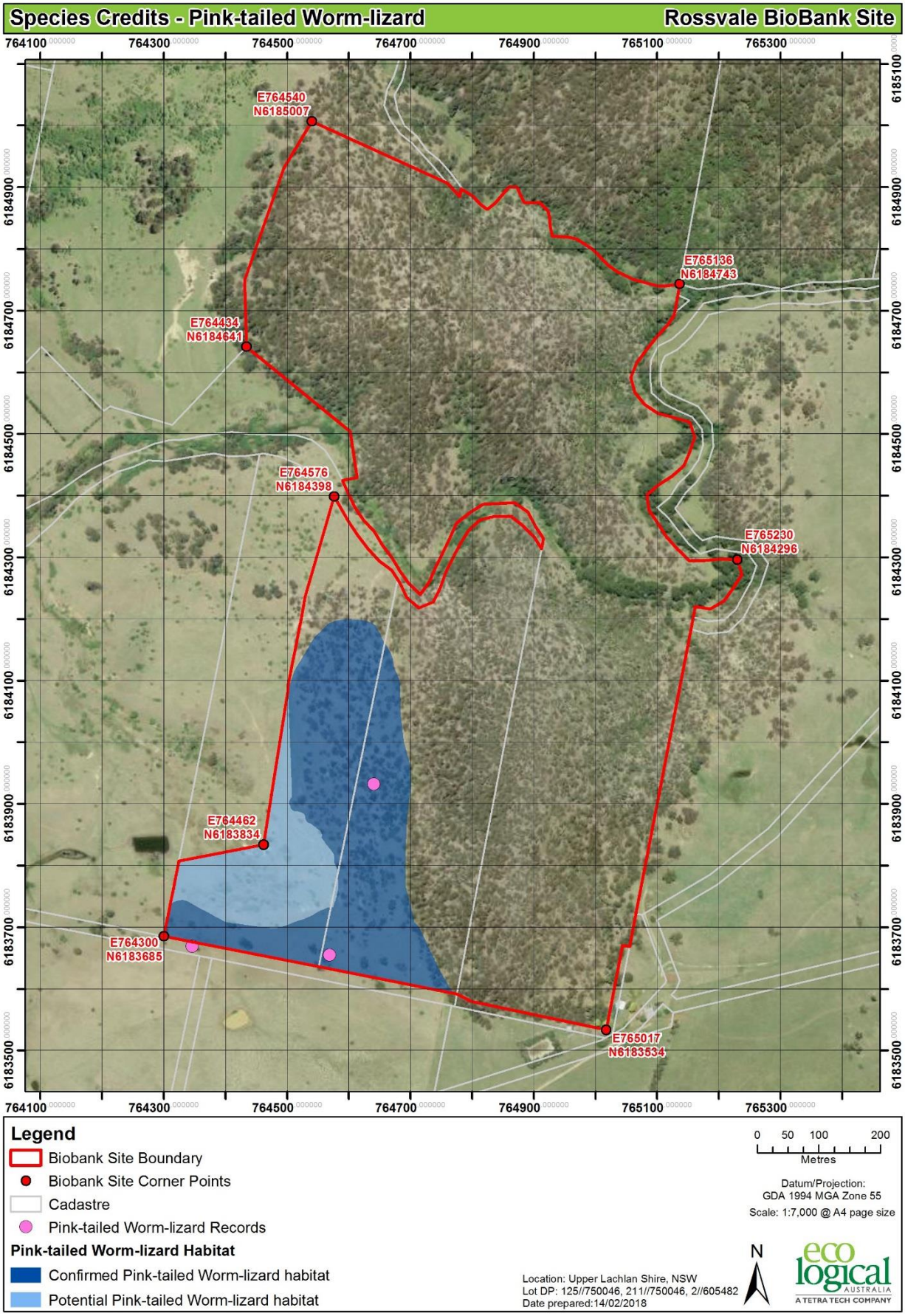

Figure 18: Species credit area for Pink-tailed Worm-lizard

4 Existing management obligations

The Rossvale Biobank site is currently zoned RU2 (Rural Landscape)) under the ULLEP (ULSC 2010). There are no covenants or conservation funding arrangements for the property, and the entire Biobank site is to be managed for ecosystem credits and species credits.

The proposed Biobank site has no existing obligations to actively manage the site for conservation as a requirement of any consents under the Environmental Planning and Assessment Act 1979 (EP&A Act).

Based on the above, ELA is of the opinion that there is no requirement to 'discount' the number of credits generated. Indeed, in consultation with OEH, the credit calculations for the GRMA have been undertaken on the basis of a less than default increase in site value scores and the ecosystem credits generated by this area (74 HN514, and 13 HN572 ecosystem credits over 7.67 ha of GRMA) will all be 'retired' as part of the approved Biodiversity Offset Package for the Taralga Wind Farm (7.67 ha GRMA), as well as 134 HN514, 103 HN584 and 75 HN583 ecosystem credits as 29.58 ha of potential Rosenberg's Goanna habitat.

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Appendix A Flora species recorded

Species listed in the following table are compiled from the site data sheets attached as **Appendix** E.

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Anthericaceae																									
Arthropodium milleflorum											1	1													
Apiaceae																									
Daucus glochidiatus												1													
Platysace lanceolata																								1	
*Conium maculatum**	1					1																			
Araliaceae																									
Hydrocotyle laxiflora	1					1	1	1	1	1	1	1				1			1			1			1
Aspleniaceae																									
Asplenium flabellifolium	1										1	1				1		1				1			
Asteraceae																									
*Carduus nutans**													1												
*Carduus sp.**											1														
Cassinia aculeata							1								1	1	1	1	1			1	1	1	1
Chrysocephalum apiculatum		1																							
*Cirsium vulgare**	1		1	1	1	1	1		1	1	1		1	1											

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Cymbonotus lawsonianus				1										1											1
Euchiton sphaericus											1														
*Hypochaeris radicata**	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1			1	1		1
Olearia viscidula					1										1				1		1	1			1
Senecio prenanthoides																						1			
Senecio quadridentatus	1						1		1		1	1					1					1			
*Sonchus asper**												1	1												
*Sonchus oleraceus**	1				1	1					1	1	1												
Vittadinia cuneata		1					1		1			1													
Xerochrysum bracteatum															1										
Brachyscome sp.							1				1				1	1			1			1	1		
*Conyza sp.**	1					1	1			1		1		1	1										
Euchiton sp.				1			1																		
*Senecio madagascariensis**																							1		
Senecio sp.	1														1			1							
Xerochrysum viscosum							1	1									1		1				1		
*Anthemis sp.**	1																								
*Carthamus lanatus**	1								1		1	1	1	1											
Cassinia laevis							1									1	1		1						
Euchiton involucratus										1			1	1								1			
*Gamochaeta americana**						1																			
*Gamochaeta calviceps**		1												1											

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
*Hypochaeris glabra**	1						1												1			1			1
Senecio linearifolius	1																								
*Taraxacum sp.**	1					1																			
Vittadinia muelleri		1																							
Senecio diaschides						1											1								
Xerochrysum sp.							1									1		1							
Helichrysum leucopsideum																	1								
Lactuca serriola											1	1													
Vittadinia sp.											1		1												
Ozothamnus diosmifolius																				1					
Senecio bathurstianus																						1			
*Chondrilla juncea**											1	1													
*Taraxacum officinale**											1														
Boraginaceae																									
Cynoglossum australe										1	1		1												
Brassicaceae																									
*Hirschfeldia incana**			1	1																					
*Brassicaceae sp.**	1																								
*Lepidium africanum**							1				1														
*Lepidium bonariense**	1																								
*Sisymbrium officinale**						1					1														
*Sisymbrium sp.**						1																			

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Campanulaceae																									
Wahlenbergia gracilis																		1							
Wahlenbergia luteola													1												1
Wahlenbergia sp.	1	1		1			1			1	1	1		1	2	1			1	1	1	1	1	1	
Wahlenbergia communis																	1								
Wahlenbergia gracilenta									1	1															
Caryophyllaceae																									
*Cerastium glomeratum**				1																					
*Paronychia brasiliana**				1		1	1		1	1	1	1		1											
*Petrorhagia nanteuilii**	1	1		1	1		1			1	1	1	1	1											
*Polycarpon tetraphyllum**	1																								
*Stellaria media**	1				1	1																			
Stellaria pungens	1		1					1	1	1	1	1			1	1		1	1		1	1	1		1
*Dianthus armeria**				1																					
Stellaria sp.				1																					
*Cerastium vulgare**	1																								
*Silene gallica**										1	1			1											
Casuarinaceae																									
Casuarina cunninghamiana				1	1	1																			
Chenopodiaceae																									
Einadia nutans					1		1		1	1	1														
Einadia trigonos						1		1		1	1										1				1

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Einadia hastata							1								1	1					1	1	1		1
Einadia sp.															1										
Einadia polygonoides									1																
Dysphania pumilio												1													
Convolvulaceae																									
Convolvulus erubescens											1	1		1											
Dichondra repens	1		1		1	1	1			1	1		1												
Dichondra sp. A				1																					
Crassulaceae																									
Crassula sieberiana										1	1	1			1										
Cyperaceae																									
Carex appressa	1					1																			
Lepidosperma gunnii								1											1	1		1			
Schoenus apogon		1																							
Carex inversa		1	1	1	1		1	1	1	1			1	1											
Carex longebrachiata														1											
Lepidosperma laterale							1																		
Lepidosperma sp.							1																		
Carex incomitata																									1
Lepidosperma urophorum																					1				
Dennstaedtiaceae																									
Pteridium esculentum	1		1																						1

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Dilleniaceae																									
Hibbertia obtusifolia															1	1	1	1	1	1			1	1	1
Hibbertia sp.																	1								
Ericaceae																									
Melichrus urceolatus																								1	
Monotoca scoparia																			1						
Brachyloma daphnoides																				1	1		1		
Lissanthe strigosa																							1		
Melichrus erubescens										1									1	1					
Euphorbiaceae																									
*Euphorbia lathyris**						1																			
Fabaceae - Faboideae																									
Desmodium varians							1	1		1															1
Glycine clandestina							1			1		1													1
Hardenbergia violacea							1											1	1		1	1	1		
Indigofera australis																			1						
*Trifolium arvense**	1		1	1					1		1	1													
*Trifolium repens**	1				1	1								1											
*Trifolium sp.**	1		1						1																
Desmodium brachypodum				1																					
Hovea heterophylla							1									1	1						1		
*Medicago sp.**					1																				

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Desmodium sp.		1																							
Glycine tabacina						1				1	1														
*Medicago lupulina**	1					1																			
Hovea sp.																				1					
Podolobium ilicifolium																					1				
Bossiaea buxifolia								1																	
*Trifolium angustifolium**										1				1											
Fabaceae - Mimosoideae																									
Acacia melanoxylon											1					2						1			1
Acacia terminalis																				1					
Acacia gunnii																	1						1		
Acacia dealbata		1																							
Acacia implexa	1																								
Acacia ulicifolia																1				1					
Acacia sp.										1							1	1	1			1			
Acacia sp. bipinnate										1															
Gentianaceae																									
*Centaurium sp.**		1	1	1																					
*Centaurium erythraea**								1						1											
Geraniaceae																									
Geranium solanderi	1		1			1			1	1	1	1	1	1											
Geranium sp.			1	1	1																				

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Erodium crinitum														1											
Goodeniaceae																									
Goodenia hederacea							1								1				1	1	1		1		1
Goodenia sp.																							1		
Goodenia heterophylla																1	1	1							
Haloragaceae																									
Gonocarpus tetragynus							1	1		1						1	1	1		1		1	1		1
Gonocarpus teucrioides																			1						
Hypericaceae																									
Hypericum gramineum										1							1						1		1
Juncaceae																									
Juncus australis		1						1																	
Luzula densiflora																1						1			
Juncus sp.				1			1		1	1			1	1			1								
Lamiaceae																									
*Salvia verbenaca**				1																					
Lamiaceae (offinus)														1											
*Marrubium vulgare**						1					1	1													
*Mentha sp.**	1					1																			
Mentha satureioides									1																
Lindsaeaceae																									
Lindsaea linearis															1										

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Lobeliaceae																									
Pratia purpurascens	1																								
Lobelia sp.					1																				
Lomandraceae																									
Lomandra filiformis		1					1							1	1	1	1	1					1	1	
Lomandra longifolia	1							1		1					1	1	1	1	1	1	1	1		1	1
Lomandra multiflora							1								1		1	1					1		
Lomandra filiformis subsp. coriacea								1	1	1	1								1	1	1	1			1
Lomandra multiflora subsp. multiflora								1		1									1						1
Malvaceae																									
*Malva parviflora**												1													
*Modiola caroliniana**	1		1	1	1	1				1	1		1												
Myrtaceae																									
Eucalyptus blakelyi										1	1				1										
Eucalyptus dives							1	1	1						1	1	1	1					1		1
Eucalyptus mannifera							1	1								1	1	1					1	1	
Eucalyptus pauciflora		1																							
Eucalyptus radiata																	1	1							
Eucalyptus sieberi																			1	1			1	1	
Eucalyptus viminalis	1		1								1														
Eucalyptus macrorhyncha				1				1	1	1						1	1					1			1
Eucalyptus sp.															1								1		

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Eucalyptus radiata subsp. radiata																									1
Eucalyptus agglomerata																			1	1	1	1			
Oleaceae																									
*Ligustrum sinense**	1																								
Onagraceae																									
Epilobium billardiereanum													1												
Orchidaceae																									
Orchidaceae sp.																									1
Oxalidaceae																									
Oxalis perennans	1		1	1			1	1	1	1	1	1	1	1	1	1							1		
*Oxalis sp.**	1				1	1	1												1						1
Phormiaceae																									
Dianella caerulea	1																	1							1
Dianella revoluta							1											1		1	1		1	1	1
Stypandra glauca							1								1				1	1	1	1		1	1
Dianella longifolia											1	1													1
Phyllanthaceae																									
Poranthera microphylla															1	1	1	1		1		1	1	1	
Phyllanthus occidentalis																							1		
Phyllanthus virgatus							1																		
Phyllanthus hirtellus																					1				
Phytolaccaceae																									

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
*Phytolacca octandra**						1																			
Pittosporaceae																									
Billardiera scandens																		1	1		1				
Bursaria spinosa	1		1		1	1	1	1								1						1			
Plantaginaceae																									
*Plantago lanceolata**	1	1	1	1	1	1	1		1	1		1	1	1											
Plantago varia													1												
Plantago sp.				1																					
Veronica plebeia		1					1	1	1	1					1	1		1	1			1	1		1
Plantago gaudichaudii							1																		
*Veronica anagallis-aquatica**	1					1																			
Veronica perfoliata																1		1							
Poaceae																									
Bothriochloa decipiens			1	1								1		1											
*Bromus catharticus**	1				1	1					1														
Dichelachne micrantha												1							1			1	1		
Echinopogon intermedius																									1
Echinopogon ovatus					1			1		1	1								1						
Entolasia stricta																			1	1	1				
*Holcus lanatus**	1					1			1				1	1											
*Lolium sp.**			1		1																				
Microlaena stipoides	1		1	1	1	1		1	1	1	1		1	1		1	1		1			1			1

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
*Paspalum dilatatum**													1	1											
*Phalaris aquatica**	1																								
*Poa annua**				1																					
Poa labillardierei	1																								
Poa sieberiana	1	1					1	1	1	1	1	1	1	1		1	1	1	1			1	1		1
Rytidosperma monticola											1												1		
Rytidosperma laeve							1			1															
Rytidosperma bipartitum																			1		1		1		
Themeda triandra	1	1		1				1		1	1	1	1	1											
Anthosachne scabra	1		1				1	1	1	1	1	1	1	1											1
*Briza minor**		1	1	1																					
*Bromus diandrus**		1		1																					
*Bromus molliformis**	1			1	1				1	1			1	1											
*Bromus sp.**			1																						
Eragrostis sp				1																					
*Holcus sp.**				1																					
*Hordeum sp.**				1		1					1														
Panicum sp.				1																					
*Paspalum sp.**				1																					
Rytidosperma pallidum															1		1	1		1	1		1	1	
Rytidosperma pilosum										1				1									1	1	

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Rytidosperma racemosum var. racemosum			1	1	1			1	1	1	1	1	1												1
Rytidosperma sp.	1					1			1						1			1							
*Vulpia sp.**	1	1	1	1			1		1	1			1	1									1		
*Aira sp.**									1					1		1	1						1		1
Austrostipa bigeniculata							1																		
Austrostipa scabra											1	1		1											
Austrostipa sp.		1				1	1																		
Echinopogon caespitosus	1						1															1			
*Eleusine tristachya**									1		1	1		1											
Eragrostis leptostachya								1						1											
*Lolium loliaceum**	1																								
*Lolium rigidum**											1		1	1											
*Nassella trichotoma**				1					1	1	1	1	1	1											
*Poaceae sp.**						1																			
*Rostraria cristata**						1																			
Rytidosperma erianthum		1																							
Rytidosperma longifolium																1	1					2			
Rytidosperma racemosum	1						1							1											
Sorghum leiocladum		1									1	1	1	1											
*Arrhenatherum elatius**																		1							
Deyeuxia quadriseta															1				1	1	1	1		1	

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Austrostipa rudis								1	1	1	1	1							1		1				1
Panicum effusum										1	1	1													
Dactylis glomerata											1														1
Aristida vagans								1																	
Chloris truncata											1														
*Aira cupaniana**								1																	
*Avena barbata**											1														
*Bromus hordeaceus**												1													
*Lolium perenne**									1	1		1													
*Vulpia muralis**								1																	
Polygonaceae																									
*Acetosella vulgaris**	1		1	1			1	1	1	1	1		1	1		1								1	1
Rumex brownii	1		1	1	1	1			1		1	1	1	1								1			
*Rumex obtusifolius**		1																							
Portulacaceae																									
Portulaca oleracea												1													
Primulaceae																									
*Lysimachia arvensis**				1		1						1	1												
Proteaceae																									
Lomatia myricoides																		1							
Persoonia linearis										1								2	1		1	1			
Persoonia sp.																	1								

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Pteridaceae																									
Adiantum aethiopicum					1																				
Cheilanthes sieberi		1					1	1			1	1			1	1						1			
Pellaea falcata											1	1													
Ranunculaceae																									
Clematis aristata						1										1									
Clematis sp.															1										
Rosaceae																									
Acaena agnipila	1				1																				
Acaena novae-zelandiae	1												1												
*Crataegus monogyna**	1		1		1		1	1	1	1	1		1	1											
*Rosa rubiginosa**										1			1												
Acaena ovina			1	1																					
Acaena sp.						1																			
Rubus parvifolius	1				1						1	1													
Acaena echinata									1	1	1	1	1												
*Rubus fruticosus sp. agg**	1					1				1	1		1												
Rubiaceae																									
Asperula conferta	1								1	1		1	1												
Pomax umbellata															1		1		1	1	1	1	1	1	
Opercularia hispida															1										
*Gallium sp.**						1																			

Family and species	RGSG01	RGSGDNG01	RGSGDNG03	RODNG01	ROMG01	ROMG02	RSPM01	RSPM02	RSPM03	RSPM04	RSPM05	RSPMDNG01	RSPMDNG02	RSPMDNG03	RSRAD01	RSRAD02	RSRAD03	RSRAD04	SABS01	SABS02	SABS03	SABS04	SIEB01	SIEB02	SIEB03
Opercularia diphylla																			1		1	1			1
Rutaceae																									
Philotheca salsolifolia																				1	1				
Salicaceae																									
*Salix sp.**	1																								
Scrophulariaceae																									
*Verbascum thapsus**											1	1													
Solanaceae																									
*Solanum nigrum**							1				1										1	1			
Solanum prinophyllum						1		1		1												1			
Thymelaeaceae																									
Pimelea curviflora		1																							
Pimelea curviflora var. sericea								1																	
Urticaceae																									
Urtica incisa			1	1	1	1					1														

Appendix B Biometric plot and transect data

Plot number	Native plant species richness	Native over-storey cover (%)	Native mid-storey cover (%)	Native ground cover – grasses (%)	Native ground cover – shrubs (%)	Native ground cover – other (%)	Exotic plant cover (%)	# Tree Hollows	Over-storey regeneration	Fallen logs	Easting	Northing
Zone1: Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion – Native												
RSPM01	42	14	6.5	38	2	22	0	3	0.8	314	764658	6183954
RSPM02	31	11	0	46	0	38	10	1	0.8	132	764626	6184185
RSPM04	42	30	0	36	2	24	18	0	0.8	57	764646	6183754
RSPM05	43	15	0	36	0	6	38	3	0.8	97	764550	6183641
Zone 2: Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion – Exotic												
RSPM03	25	2	0	54	0	0	32	1	0.67	36	764569	6183981
Zone 3: Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion – DNG												
RSPMDNG01	33	0	0	60	0	10	16	0	1	0	764448	6183686
RSPMDNG02	21	0	0	98	0	0	6	0	1	32	764643	6183674
RSPMDNG03	23	0	0	70	0	6	18	0	1	0	764560	6183782
Zone 4: Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion – Native												
RSRAD01	31	17	4.9	10	2	16	0	5	1	132	764710	6184800
RSRAD02	32	19.5	1	7	8	30	6	12	1	226	764974	6184364
RSRAD03	30	15.5	2.8	26	4	6	0	1	1	265	764527	6184760
RSRAD04	29	10.6	6.2	28	6	8	4	2	1	268	764615	6184636

Plot number	Native plant species richness	Native over-storey cover (%)	Native mid-storey cover (%)	Native ground cover – grasses (%)	Native ground cover – shrubs (%)	Native ground cover – other (%)	Exotic plant cover (%)	# Tree Hollows	Over-storey regeneration	Fallen logs	Easting	Northing
Zone 5: Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion – Native												
RGSG01	31	21	2.1	26	0	34	75.6	1	0	47	764613	6184426
Zone 6: Ribbon Gum - Snow Gum grassy forest on damp flats, eastern South Eastern Highlands Bioregion – DNG												
RGSGDNG01	19	0	0	96	0	0	8	0	1	0	764641	6184273
RGSGDNG03	16	0	0	60	0	26	40	0	1	22	765085	6184461
Zone 7: River Oak open forest of major streams, Sydney Basin Bioregion and South East Corner Bioregion – Native												
ROMG01	16	0.7	50	44	0	34	40	0	1	60	764992	6184284
ROMG02	17	55	0	4	0	34	46	2	1	31	765029	6184758
Zone 8: Silvertop Ash - Blue-leaved Stringybark shrubby open forest on ridges, north east South Eastern Highlands Bioregion – Native												
SABS01	36	32	2	8	16	22	2	1	0.75	104	764934	6183769
SABS02	23	20	0	22	0	6	0	2	0.75	76	764829	6183778
SABS03	26	28	0	0	0	22	0	2	0.75	39	764867	6184120
SABS04	39	18	15	6	4	40	0	1	0.75	126	764998	6183981
Zone 9: Silvertop Ash - Narrow-leaved Peppermint open forest on ridges of the eastern tableland, South Eastern Highlands Bioregion and South East Corner Bioregion – Native												
SIEB01	34	7.9	0	12	0	0	0	0	0.8	141	764657	6184764
SIEB02	16	18	0	2	0	4	0	5	0.8	100	764718	6184691
SIEB03	37	39	0	58	0	26	6	3	0.8	74	765024	6183654

Appendix C Predicted threatened species and species requiring survey

Predicted species (ecosystem credits) – survey not required

Common name	Scientific name	TS offset multiplier
Barking Owl	*Ninox connivens*	3
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis subsp. gularis*	1.3
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus subsp. victoriae*	2
Diamond Firetail	*Stagonopleura guttata*	1.3
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	2.2
Eastern Freetail-bat	*Mormopterus norfolkensis*	2.2
Flame Robin	*Petroica phoenicea*	1.3
Gang-gang Cockatoo	*Callocephalon fimbriatum*	2
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	1.8
Greater Broad-nosed Bat	*Scoteanax rueppellii*	2.2
Hooded Robin (south-eastern form)	*Melanodryas cucullata subsp. cucullata*	1.7
Little Eagle	*Hieraaetus morphnoides*	1.4
Little Lorikeet	*Glossopsitta pusilla*	1.8
Masked Owl	*Tyto novaehollandiae*	3
Painted Honeyeater	*Grantiella picta*	1.3
Powerful Owl	*Ninox strenua*	3
Scarlet Robin	*Petroica boodang*	1.3
Speckled Warbler	*Chthonicola sagittata*	2.6
Spotted-tailed Quoll	*Dasyurus maculatus*	2.6
Swift Parrot	*Lathamus discolor*	1.3
Turquoise Parrot	*Neophema pulchella*	1.8
Varied Sittella	*Daphoenositta chrysoptera*	1.3
Yellow-bellied Glider	*Petaurus australis*	2.3

Species requiring survey (species credits) – if application to generate species credits is submitted

Common name	Scientific name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black Gum	*Eucalyptus aggregata*		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Booroolong Frog	*Litoria booroolongensis*	Yes	Yes									Yes	Yes
Brush-tailed Rock-wallaby	*Petrogale penicillata*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buttercup Doubletail	*Diuris aequalis*										Yes	Yes	Yes
Bynoe's Wattle	*Acacia bynoeana*	Yes	Yes	Yes						Yes	Yes	Yes	Yes
Cambage Kunzea	*Kunzea cambagei*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cotoneaster Pomaderris	*Pomaderris cotoneaster*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Delicate Pomaderris	*Pomaderris delicata*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Eastern Pygmy-possum	*Cercartetus nanus*												
Few-seeded Bossiaea	*Bossiaea oligosperma*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flockton Wattle	*Acacia flocktoniae*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Giant Burrowing Frog	*Heleioporus australiacus*	Yes	Yes	Yes	Yes	Yes				Yes	Yes	Yes	Yes
Giant Dragonfly	*Petalura gigantea*	Yes											Yes
Green and Golden Bell Frog	*Litoria aurea*	Yes	Yes	Yes					Yes	Yes	Yes	Yes	Yes
Hoary Sunray	*Leucochrysum albicans subsp. tricolor*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kanangra Wattle	*Acacia clunies-rossiae*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Koala	*Phascolarctos cinereus*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kowmung Hakea	*Hakea dohertyi*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Large-eared Pied Bat	*Chalinolobus dwyeri*	Yes	Yes	Yes	Yes					Yes	Yes	Yes	Yes
Littlejohn's Tree Frog	*Litoria littlejohni*	Yes	Yes							Yes	Yes	Yes	Yes

Common name	Scientific name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Paddys River Box, Camden Woollybutt	*Eucalyptus macarthurii*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pine Donkey Orchid	*Diuris tricolor*									Yes	Yes		
Regent Honeyeater	*Anthochaera phrygia*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rosenberg's Goanna	*Varanus rosenbergi*	Yes	Yes									Yes	Yes
Solanum amourense	*Solanum amourense*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squirrel Glider	*Petaurus norfolcensis*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stuttering Frog	*Mixophyes balbus*	Yes	Yes	Yes	Yes	Yes				Yes	Yes	Yes	Yes

Appendix D Reptile species recorded in Rossvale Biobank site (October 2017)

Group	Family	Scientific Name	Common Name	Previous / Predicted	This Study
Reptiles	Agamidae	*Pogona barbata*	Bearded Dragon	*	*
	Pygopodidae	*Aprasia parapulchella*	Pink-tailed Worm-Lizard	*	*
	Scincidae	*Acritoscincus platynota*	Red-throated Skink	*	*
		Egernia cunninghamii	Cunningham's Skink		*
		Eulamprus heatwolei	Heatwole's Water Skink		*
		Hemiergis talbingoensis	Three-toed Earless Skink		*
		Lampropholis delicata	Delicate Grass Skink	*	*
		Lampropholis guichenoti	Guichenot's Grass Skink		*
		Tiliqua scincoides	Common Blue-Tongue	*	*
		Tiliqua nigrolutea	Blotched Blue-Tongue		*
	Elapidae	*Pseudechis porphyriacus*	Red-bellied Black Snake	*	*
		Pseudonaja textilis	Eastern Brown Snake	*	*
	Typhlopidae	*Ramphotyphlops nigrescens*	Blackish Blind Snake		*
Frogs	Limnodynastidae	*Limnodynastes dumerilli*	Pobble Bonk	*	*
		Limnodynastes tasmaniensis	Spotted Marsh Frog	*	*

Appendix E Biobanking tool credit report

Provided as a separate report

Appendix F Biometric Plot Data Sheets

Provided as separate documents

Appendix G Biobank Assessment GIS data files

Provided as separate Arcview shape files

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