

APPENDIX A

TOTAL FLORA LIST

Introduced species are indicated by an asterisk (“*”).

The following standard abbreviations are used to indicate subspecific taxa:

- subsp.** subspecies
- var.-** variety
- x -** hybrid between the two indicated species

Threatened Species - NSW Biodiversity Conservation Act 2016 (BC Act)

- V** Vulnerable
- E1** Endangered
- E2** Endangered Population
- E4A** Critically Endangered Population

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

- V** Vulnerable
- E** Endangered
- CE** Critically Endangered

ROTAP (Rare or Threatened Australian Plants)

Distribution

- 1.** – Known from only one collection
- 2.** – Geographic range in Australia less than 100km
- 3.** – Geographic range in Australia greater than 100km.
- +** - Also occurs overseas.

Conservation Status

- E.** – Endangered. Species at risk of disappearing from the wild within 20 years.
Includes populations of 100 or less individual plants.
- V.** – Vulnerable. Species not presently endangered, but at risk over 20-50 years.
- R.** – Rare in Australia, but not currently under threat. Includes species within a very restricted area or small populations over a wide range.
- K.** – Poorly known. Accurate knowledge is inadequate.
- C.** – Reserved. The species has at least one population within a national park or other reserve.

Size of Reserved Populations

- a.** – 1000 plants or more known within a conservation reserve.
- i.** – Less than 1000 plants known within a conservation reserve.
- - Reserved population size not accurately known.
- t** - Total known population reserved.

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
CLASS FILICOPSIDA (Ferns)					
Adiantaceae syn. Sinopteridaceae					
<i>Adiantum aethiopicum</i>	Common Maidenhair Fern				2
<i>Pellaea falcata</i> subsp. <i>falcata</i>	Sickle Fern				
Dennstaedtiaceae					
<i>Pteridium esculentum</i>	Bracken				
Pteridaceae					
<i>Pteris tremula</i>	Tender Brake				
MAGNOLIOPSIDA: Magnoliidae					
LILOPSIDA: (Monocotyledons)					
Amaryllidaceae					
<i>*Nothoscordum borbonicum</i>	Onion Weed				
Asparagaceae					
<i>*Asparagus asparagoides</i>	Bridal Creeper				
Cyperaceae					
<i>Carex appressa</i>	Saw Sedge				
<i>*Cyperus eragrostis</i>	Umbrella Sedge				
<i>Gahnia aspera</i>	Rough Saw Sedge				
<i>Lepidosperma filiforme</i>					
<i>Lepidosperma laterale</i>	Sword Sedge				
Iridaceae					
<i>Pattersonia sericea</i>	Silky Purple Flag				
Juncaceae					
<i>*Juncus cognatus</i>					
<i>Juncus usitatus</i>	Common Rush				
Lemnaceae change to Araceae					
<i>Lemna disperma</i>					
Lomandraceae					
<i>Lomandra confertifolia</i>	Mat-rush				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
<i>Lomandra filiformis</i>					
<i>Lomandra longifolia</i>	Spiny Mat Rush				
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many-flowered Mat-rush				
<i>Lomandra obliqua</i>	Fish Bones				
Orchidaceae					
<i>Calochilus paludosus</i>	Red Beardie				
<i>Pterostylis</i> sp.	Sharp Greenhood				
Phormiaceae					
<i>Dianella caerulea</i> var. <i>producta</i>	Blue Flax-lily				
<i>Stypandra glauca</i>	Nodding Blue Lily				
Poaceae					
* <i>Andropogon virginicus</i>	Whisky Grass				
<i>Aristida vagans</i>	Three-awn Speargrass				
<i>Austrostipa pubescens</i>					
* <i>Avena fatua</i>	Wild Oats				
* <i>Briza minor</i>	Shivery Grass				
* <i>Bromus catharticus</i>	Prairie Grass				
<i>Cynodon dactylon</i>	Common Couch				
<i>Entolasia stricta</i>	Wiry Panic				
<i>Eragrostis leptostachya</i>	Paddock Lovegrass				
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass				
* <i>Lolium perenne</i>	Perennial Ryegrass				
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Meadow Grass				
* <i>Paspalum dilatatum</i>	Paspalum				
* <i>Pennisetum clandestinum</i>	Kikuyu				
<i>Rytidosperma</i> sp.	Wallaby Grass				
<i>Themeda australis</i>	Kangaroo Grass				
Typhaceae					
<i>Typha orientalis</i>	Cumbungi				
Xanthorrhoeaceae					
<i>Xanthorrhoea media</i>	Grass Tree, Gulgadya (Cadigal)				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
MAGNOLIIDAE (Dicotyledons)					
Apiaceae					
<i>Hydrocotyle tripartita</i>	Penny-weed				
Apocynaceae					
<i>*Gomphocarpus fruticosus</i>	Narrow-leaved Cottonbush				
Asteraceae					
<i>* Aster subulatus</i> syn. <i>Aster squamatus</i>	Bushy Starwort				
<i>Cassinia aculeata</i>	Common Cassinia				
<i>*Cirsium vulgare</i>	Spear Thistle				
<i>Cotula australis</i>	Carrot Weed				
<i>*Hypochaeris glabra</i>	Smooth Catsear				
<i>*Hypochaeris radicata</i>	Catsear, Flatweed				
<i>Lagenophora stipitata</i>	Blue Bottle-daisy				
<i>*Senecio madagascariensis</i>	Fireweed				
<i>*Sonchus oleraceus</i>	Common Sow Thistle				
Bignoniaceae					
<i>Pandorea pandorana</i>	Wonga-wonga Vine				
Brassicaceae					
<i>*Cardamine hirsuta</i>	Common Bittercress				
<i>*Lepidium africanum</i>	Peppercress				
Campanulaceae					
<i>Wahlenbergia gracillis</i>	Sprawling Bluebell				
<i>Wahlenbergia stricta</i>	Australian bluebell				
Caryophyllaceae					
<i>*Cerastium glomeratum</i>	Mouse Ear Chickweed				
<i>*Stellaria media</i>	Common Chickweed				
Cassythaceae					
<i>Cassytha glabella</i>	Slender Devil's Twine				
Casuarinaceae					
<i>Allocasuarina littoralis</i>	Black She-oak				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
<i>Allocasuarina torulosa</i>	Forest Oak				
Chenopodiaceae					
<i>Einadia hastata</i>	Berry Saltbush				
<i>Einadia nutans</i>	Nodding Saltbush				
Clusiaceae					
<i>Hypericum gramineum</i>	Small St John's Wort				
Dilleniaceae					
<i>Hibbertia aspera</i>	Rough Guinea Flower				
<i>Hibbertia diffusa</i>	Guinea Flower				
Ericaceae					
<i>Epacris purpurascens</i> var. <i>purpurascens</i>		V			
Fabaceae Subfamily (Faboideae)					
<i>Mirbelia rubiifolia</i>	Heathy Mirbelia				
<i>Pultenaea villosa</i>	Hairy Bush Pea				
* <i>Trifolium repens</i>	White Clover				
Fabaceae (Subfamily Mimosoideae)					
<i>Acacia implexa</i>	Hickory				
<i>Acacia longifolia</i>	Sydney Golden Wattle				
<i>Acacia parramattensis</i>	Parramatta Wattle				
<i>Acacia ulicifolia</i>	Prickly Moses				
Goodeniaceae					
<i>Dampiera purpurea</i>	Purple Dampiera				
<i>Goodenia heterophylla</i>	Variable-leaved Goodenia				
Haloragaceae					
<i>Gonocarpus teucrioides</i>	Germander Raspswort				
Lobeliaceae					
<i>Pratia purpurascens</i>	White Root				
Loganiaceae					
<i>Mitrasacme polymorpha</i>	Varied Mitrewort				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
Loranthaceae					
<i>Amyema pendula</i>	Drooping Mistletoe				
Malvaceae					
<i>*Modiola carliniana</i>	Red-flowered Mallow				
Meliaceae					
<i>Melia azedarach</i> var. <i>australasica</i>	White Cedar				
Myrsinaceae					
<i>Myrsine variabilis</i> syn. <i>Rapanea variabilis</i>	Muttonwood				
Myrtaceae					
<i>Callistemon rigidus</i>	Stiff Bottlebrush				
<i>Corymbia gummifera</i>	Red Bloodwood				
<i>Eucalyptus agglomerata</i>	Blue-leaved Stringybark				
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark				
<i>Eucalyptus eugenioides</i>	Thin-leaved Stringybark				
<i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i>	Broad-leaved Ironbark				
<i>Eucalyptus longifolia</i>	Woollybutt				
<i>Eucalyptus piperita</i>	Sydney Peppermint				
<i>Eucalyptus punctata</i>	Grey Gum				
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum				
<i>Kunzea ambigua</i>	Tick Bush				
<i>Leptospermum polygalifolium</i> subsp. <i>polygalifolium</i>	Teatree				
<i>Melaleuca decora</i>	White Feather Honeymyrtle				
<i>Melaleuca lineariifolia</i>	Snow in Summer				
<i>Melaleuca nodosa</i>	Ball Honeymyrtle				
<i>Melaleuca thymifolia</i>	Thyme Honey-myrtle				
Onagraceae					
<i>Ludwigia peploides</i> subsp. <i>montevidensis</i>	Water Primrose				
Oxalidaceae					
<i>Oxalis perennans</i>	-				
Papaveraceae					
<i>*Fumaria bastardii</i>	Bastard's Fumitory				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
Phyllanthaceae					
<i>Phyllanthus hirtellus</i>	Thyme Spurge				
Phytolaccaceae					
* <i>Phytolacca octandra</i>	Inkweed				
Pittosporaceae					
<i>Billardiera scandens</i>	Apple Dumplings				
<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Blackthorn				
<i>Pittosporum undulatum</i>	Sweet Pittosporum				
Plantaginaceae					
* <i>Plantago lanceolata</i>	Plantain				
Polygonaceae					
<i>Persicaria decipens</i>	Slender Knotweed				
<i>Rumex brownii</i>	Swamp Dock				
Primulaceae					
* <i>Anagallis arvensis</i> var. <i>arvensis</i>	Scarlet Pimpernel				
Proteaceae					
<i>Banksia spinulosa</i> subsp. <i>spinulosa</i>	Hair-pin Banksia				
<i>Hakea dactyloides</i>	Broad-leaved Hakea				
<i>Hakea sericea</i>	Needlebush				
<i>Persoonia linearis</i>	Narrow-leaved Geebung				
<i>Persoonia levis</i>	Broad-leaved Geebung				
Rhamnaceae					
<i>Pomaderris</i> sp.	Woolly Pomaderris				
Rubiaceae					
<i>Morinda jasminoides</i>	Jasmine Morinda				
Santalaceae					
<i>Exocarpus cupressiformis</i>	Cherry Ballart				
Solanaceae					

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	ROTAP	NPW ACT
* <i>Solanum lycopersicum</i>	Tomato				
<i>Solanum aviculare</i>	Kangaroo Apple				
* <i>Solanum mauritianum</i>	Wild Tobacco				
* <i>Solanum melongena</i>	Eggplant				
* <i>Solanum nigrum</i>	Blackberry Nightshade				
<i>Solanum prinophyllum</i>	Forest Nightshade				
Thymelaeaceae					
<i>Pimelea linifolia</i>	Rice Flower				
Urticaceae					
<i>Urtica incisa</i>	Stinging Nettle				
Verbenaceae					
* <i>Verbena bonariensis</i>	Purple Top				
Violaceae					
<i>Viola hederacea</i>	Native Violet				

APPENDIX B

VEGETATION PLOT DATA

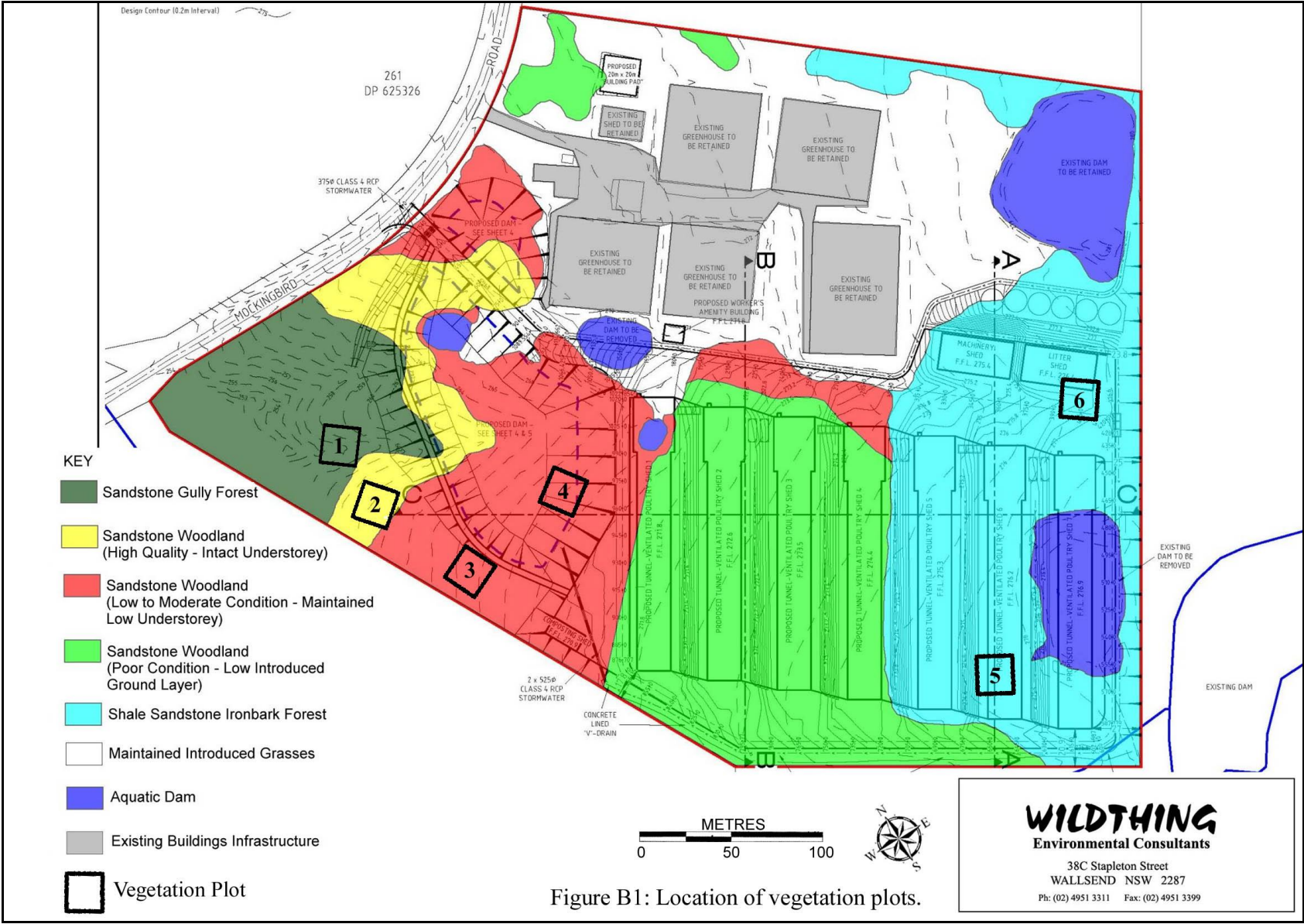
1.0 PLOT METHODOLOGY

Four plot-based vegetation surveys were undertaken within the site to provide additional detail on the flora assemblages present (Figure B1). The plot was 20 × 20m in area. All species observed within the plot were recorded, with the dominant species in each stratum being duly noted. A modified Braun-Blanquet 6-point scale (Braun-Blanquet 1927, with selected modifications sourced from Poore 1955 and Austin *et al.* 2000) was used to estimate cover-abundances of all plant species within each plot. The cover-abundance categories are shown in Table B1.

Table B1: Modified Braun-Blanquet Crown Cover-abundance Scale

Class	Cover - Abundance	Notes
1	Few individuals (less than 5% cover)	Herbs, sedges and grasses: < 5 individuals Shrubs and small trees: 5 or more individuals
2	Many individuals (less than 5% cover)	Herbs, sedges and grasses: 5 or more individuals Medium-large over hanging tree
3	5 – < 20% cover	-
4	20 – < 50% cover	-
5	50 – < 75% cover	-
6	75 – 100% cover	-

* - Introduced species



Plot 1

Sandstone Gully Forest

PCT – 1081 - Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion.

Tozer, 2003 – Map Unit 31 – Sandstone Ridgetop Woodland.

Vegetation Formation – Dry Sclerophyll Forests (Shrubby sub-formation)

Vegetation Class – Sydney Hinterland Dry Sclerophyll Forests.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282350, N – 6204805

Bearing: 300 degrees

Aspect: 5-10 degree slope, within gully

Soil: Sandy

Litter: 10%

Rock: 5-10%

Lichen: <5%



Native Over-storey

<i>Eucalyptus punctata</i>	Grey Gum	1
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	1

Native Mid-storey (>1m)

<i>Allocasuarina torulosa</i>	Forest Oak	2
<i>Acacia longifolia</i>	Sydney Golden Wattle	1
<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Blackthorn	1

<i>Melaleuca lineariifolia</i>	Snow in Summer	1
<i>Leptospermum polygalifolium</i> subsp. <i>polygalifolium</i>	Teatree	2
<i>Acacia implexa</i>	Hickory Wattle	1
<i>Persoonia linearis</i>	Narrow-leaved Geebung	2
Native Ground Cover (Shrubs <1m)		
<i>Banksia spinulosa</i> subsp. <i>spinulosa</i>	Hairpin Banksia	1
Native Grasses		
<i>Aristida vagans</i>	Three-awn Grass	2
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass	2
Native Ground Cover (Other)		
<i>Adiantum aethiopicum</i>	Common Maidenhair Fern	1
<i>Solanum prinophyllum</i>	Forest Nightshade	1
<i>Lepidosperma laterale</i>		
<i>Einadia hastata</i>	Berry Saltbush	1
<i>Hydrocotyle tripartita</i>	Pennyweed	1
<i>Gahnia aspera</i>	Saw Sedge	
<i>Lomandra confertifolia</i>		2
<i>Cyperus</i> sp.		
Exotic Plant Cover		
* <i>Stellaria media</i>	Common Chickweed	1

Native Species No. 20

20 x 50 Plot
Eucalyptus crebra (Narrow-leaved Ironbark) 2 Trees
Eucalyptus punctata (Grey Gum) 1 Tree.

Plot 2

Sandstone Woodland

PCT – 1081 - Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion.

Tozer, 2003 – Map Unit 31 – Sandstone Ridgetop Woodland.

Vegetation Formation – Dry Sclerophyll Forests (Shrubby sub-formation)

Vegetation Class – Sydney Hinterland Dry Sclerophyll Forests.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282334, N – 6204767

Bearing: 60 degrees

Aspect: Level

Soil: Sandy

Litter: 10%

Rock: 5%

Lichen: <5%



Native Over-storey

Eucalyptus sclerophylla
Eucalyptus punctata

Hard-leaved Scribbly Gum 2
Grey Gum 1

Native Mid-storey (>1m)

Kunzea ambigua
Acacia longifolia

Tick Bush 4
Sydney Golden Wattle 1

Native Ground Cover (Shrubs <1m)

0

Native Grasses

Entolasia stricta

Wiry Panic 3

<i>Themeda australis</i>	Kangaroo Grass	2
<i>Aristida vagans</i>	Three-awn Grass	2
Native Ground Cover (Other)		
<i>Lepidosperma laterale</i>	Sword Sedge	1
<i>Xanthorrhoea media</i>		1
<i>Dampiera purpurea</i>	Purple Dampiera	1
<i>Hibbertia aspera</i>	Rough Guinea Flower	1
<i>Lomandra filiformis</i>		1
<i>Lomandra confertifolia</i>		2
<i>Pattersonia sericea</i>	Silky Purple Flag	1
<i>Lasiopetalum ferrugineum</i>		1
Exotic Plant Cover		0

Native Species No. 15

20 x 50 Plot
Eucalyptus sclerophylla (Hard-leaved Scribbly Gum) 5 trees
Eucalyptus crebra (Narrow-leaved Ironbark) 2 Trees
Eucalyptus punctata (Grey Gum) 1 Tree.

Plot 3

Sandstone Woodland (Disturbed)

PCT – 1081 - Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion.

Tozer, 2003 – Map Unit 31 – Sandstone Ridgetop Woodland.

Vegetation Formation – Dry Sclerophyll Forests (Shrubby sub-formation)

Vegetation Class – Sydney Hinterland Dry Sclerophyll Forests.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282368, N – 6204707

Bearing: 327 degrees

Aspect: Westerly

Slope: 5 degrees

Soil: Sandy

Litter: 10%

Rock: 5%

Lichen: <5%



Native Over-storey

Eucalyptus sclerophylla

Hard-leaved Scribbly Gum

2

Native Mid-storey (>1m)

0

Native Ground Cover (Shrubs <1m)

Kunzea ambigua

Tick Bush

4

0

Native Grasses

<i>Themeda australis</i>	Kangaroo Grass	2
<i>Aristida vagans</i>	Three-awn Grass	2
<i>Entolasia stricta</i>	Wiry Panic	2

Native Ground Cover (Other)

<i>Hibbertia aspera</i>	Rough Guinea Flower	1
<i>Lomandra confertifolia</i>		1
<i>Lepidosperma laterale</i>	Sword Sedge	1
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many-flowered Mat-rush	1
<i>Lomandra filiformis</i>		1
<i>Xanthorrhoea media</i>		
<i>Lagenophora stipitata</i>	Blue Bottle-daisy	2
<i>Goodenia</i> sp.		1

Exotic Plant Cover **0**

Native Species No. 13

20 x 50 Plot

Eucalyptus sclerophylla (Hard-leaved Scribbly Gum) 3 trees

Corymbia gummifera (Red Bloodwood) 1 Tree

Plot 4

Sandstone Woodland (Disturbed)

PCT – 1081 - Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion.

Tozer, 2003 – Map Unit 31 – Sandstone Ridgetop Woodland.

Vegetation Formation – Dry Sclerophyll Forests (Shrubby sub-formation)

Vegetation Class – Sydney Hinterland Dry Sclerophyll Forests.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282436, N – 6204716

Bearing: 310 degrees

Aspect: Westerly

Slope: 5 degrees

Soil: Sandy

Litter: 10%

Rock: 5%

Lichen: <5%



Native Over-storey

Eucalyptus sclerophylla

Hard-leaved Scribbly Gum

2

Native Mid-storey (>1m)

0

Native Ground Cover (Shrubs <1m)

Kunzea ambigua

Tick Bush

4

0

Native Grasses

<i>Themeda australis</i>	Kangaroo Grass	2
<i>Aristida vagans</i>	Three-awn Grass	2
<i>Entolasia stricta</i>	Wiry Panic	1

Native Ground Cover (Other)

<i>Lepidosperma laterale</i>	Sword Sedge	
<i>Juncus</i> sp.	Rush	
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	Many-flowered Mat-rush	1
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	Port Jackson Heath	1
<i>Lomandra confertifolia</i>		1
<i>Lagenophora stipitata</i>	Blue Bottle-daisy	1

Exotic Plant Cover

* <i>Andropogon virginicus</i>	Whisky Grass	1
* <i>Hypochaeris radicata</i>	Catsear	1

Native Species No. 11

20 x 50 Plot

Eucalyptus sclerophylla (Hard-leaved Scribbly Gum) 1 Tree

Eucalyptus punctata (Grey Gum) 2 Trees

Plot 5

Cumberland shale - sandstone Ironbark forest (Highly Disturbed)

PCT – 1395 - Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion

Tozer, 2003 – Map Unit 2 – Shale Sandstone Transition Forest (High Sandstone Influence).

Vegetation Formation – Grassy Woodlands

Vegetation Class – Coastal Valley Grassy Woodlands.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282580, N – 6204507

Bearing: 290 degrees

Aspect: Slight Westerly

Slope: 2 degrees

Soil: Sandy-loam

Litter: 10%

Rock: <5%

Lichen: <5%



Native Over-storey

Eucalyptus crebra

Narrow-leaved Ironbark

1

Eucalyptus eugenioides

Thin-leaved Stringybark

1

Native Mid-storey (>1m)

0

Native Ground Cover (Shrubs <1m)

Kunzea ambigua

Tick Bush

4

Native Grasses **0**

Native Ground Cover (Other)

Exotic Plant Cover

* <i>Vulpia myuros</i>	Rat's Tail Fescue	2
* <i>Briza minor</i>	Shivery Grass	2
* <i>Gamochaeta</i> sp.		1
* <i>Senecio madagascariensis</i>	Fireweed	1
* <i>Hypochaeris glabra</i>	Smooth Catsear	2
* <i>Anagallis arvensis</i> var. <i>arvensis</i>	Scarlet Pimpernel	3

Native Species No. 3

20 x 50 Plot

Eucalyptus crebra (Narrow-leaved Ironbark) 4 Trees

Eucalyptus punctata (Grey Gum) 1 Trees

Eucalyptus eugenioides (Thin-leaved Stringybark) 1 Tree

Plot 6

Cumberland shale - sandstone Ironbark forest (Highly Disturbed)

PCT – 1395 - Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion

Tozer, 2003 – Map Unit 2 – Shale Sandstone Transition Forest (High Sandstone Influence).

Vegetation Formation – Grassy Woodlands

Vegetation Class – Coastal Valley Grassy Woodlands.

Date: 06 October 2017

Plot Size - 20 × 20m.

Location: E – 282700, N – 6204605

Bearing: 295 degrees

Aspect: Slight Westerly

Slope: 2 degrees

Soil: Sandy-loam

Litter: 10%

Rock: <5%

Lichen: <5%



Native Over-storey

Eucalyptus crebra

Narrow-leaved Ironbark

1

Native Mid-storey (>1m)

0

Native Ground Cover (Shrubs <1m)

Kunzea ambigua

Tick Bush

3

Melaleuca thymifolia

Thyme Honey-myrtle

3

Native Grasses		0
Native Ground Cover (Other)		
* <i>Senecio madagascariensis</i>	Fireweed	1
* <i>Hypochaeris glabra</i>	Smooth Catsear	2
* <i>Anagallis arvensis var. arvensis</i>	Scarlet Pimpernel	3
Exotic Plant Cover		
* <i>Vulpia myuros</i>	Rat's Tail Fescue	2
* <i>Briza minor</i>	Shivery Grass	2
* <i>Gamochaeta</i> sp.		1
* <i>Senecio madagascariensis</i>	Fireweed	1
* <i>Cerastium glomeratum</i>	Mouse-eared Chickweed	1

Native Species No. 3

20 x 50 Plot
Eucalyptus crebra (Narrow-leaved Ironbark) 2 Trees

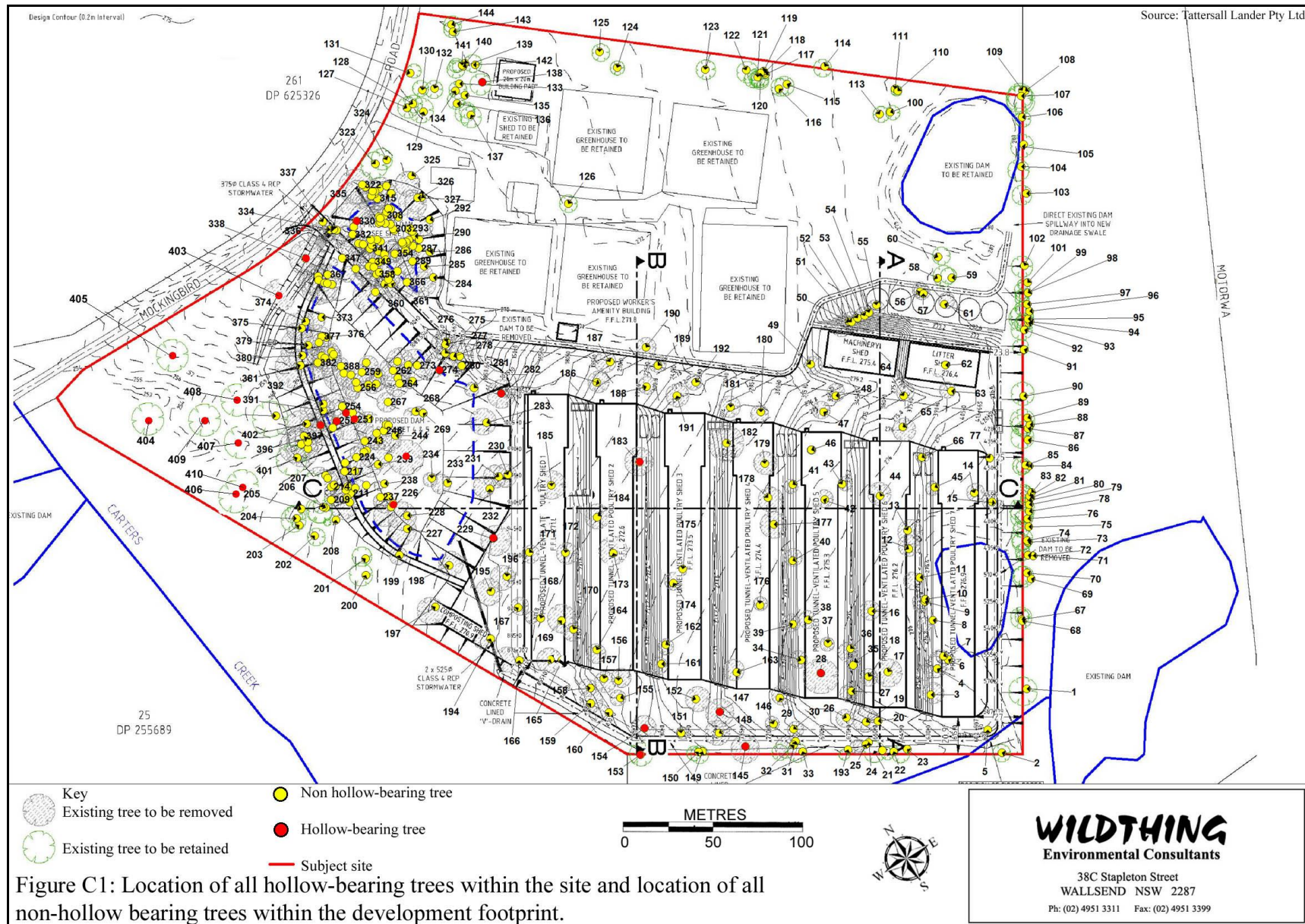
APPENDIX C

DETAILS OF TREES WITHIN SITE

Habitat Tree Data Key for Table C1.

- **DBH** – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level). Fabric diameter tape used which assumes a circular cross section.
- **Tree Height** – Estimated with the use of an inclinometer and rangefinder (metres).
- **Coordinates - GDA - 1994**
- **Habitat/Hollows** –
 - Class 1** – large sized hollow openings (i.e. >15cm) suitable for species such as Owls
 - Class 2** – medium sized hollow-openings (i.e. 5-15cm) suitable for species such as Gliders and Possums
 - Class 3** – small sized hollow openings (i.e. <5cm) suitable for species such as microchiropteran bats.

Spout: Hollow opening towards sky offering little protection from the weather.



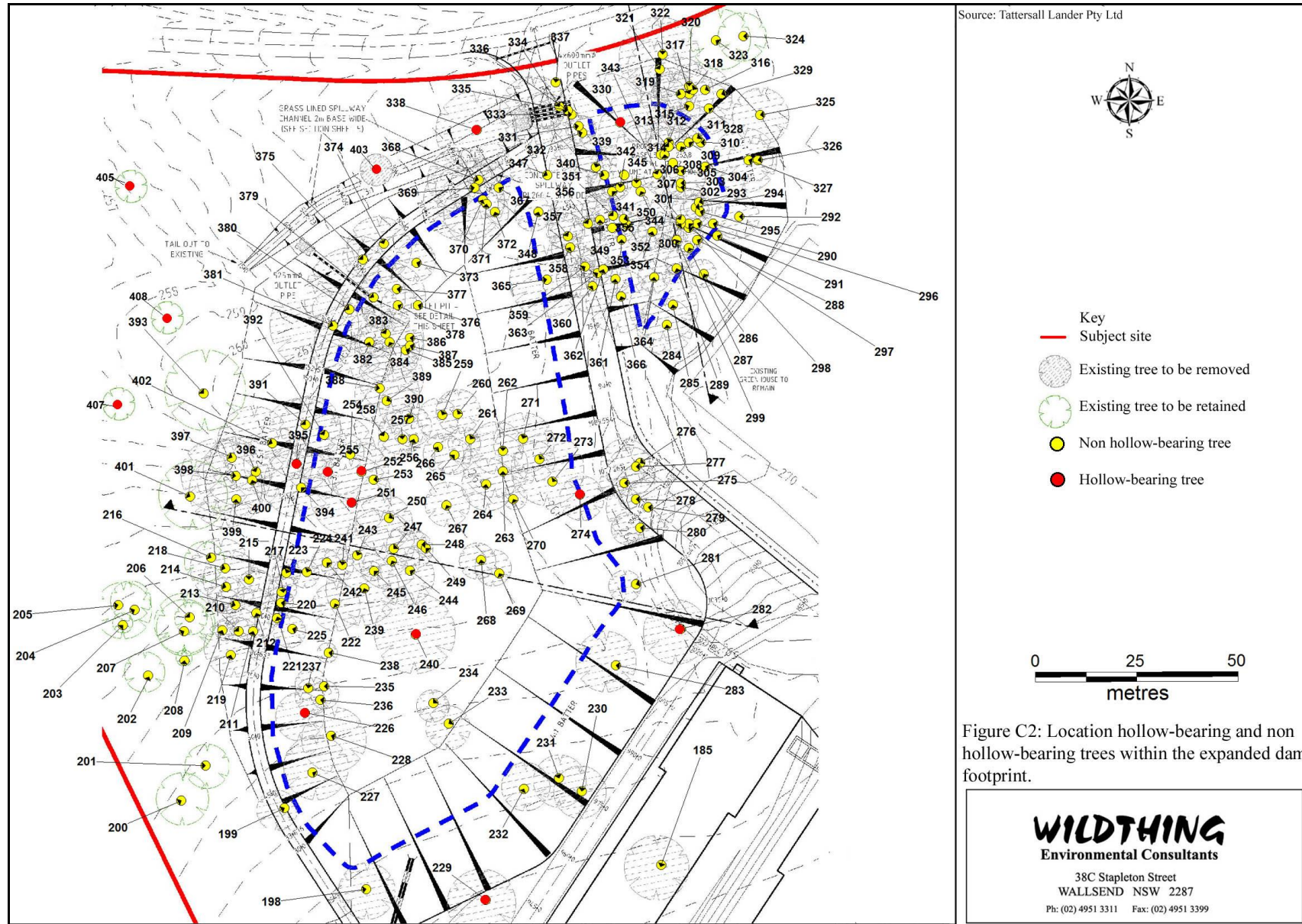


Table C1: Details of trees within cleared area.

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
1	<i>Eucalyptus punctata</i> Grey Gum	282632	6204455	0.8	20			No
2	<i>Corymbia gummifera</i> Red Bloodwood	282607	6204435	0.5 + 0.2 + 0.2	18			No
3	<i>Eucalyptus agglomerata</i> Blue-leaved Stringybark	282593	6204479	0.5	16			Yes
4	<i>E. punctata</i>	282596	6204492	0.4	14		Scratches	Yes
5	<i>E. agglomerata</i>	282601	6204448	0.5	17			Yes
6	<i>E. punctata</i>	282604	6204493	0.45	16			Yes
7	<i>E. punctata</i>	282603	6204496	0.2	13		Scratches	Yes
8	<i>E. agglomerata</i>	282609	6204516	0.35	15			Yes
9	<i>E. agglomerata</i>	282611	6204527	0.25	12			Yes
10	<i>E. punctata</i>	282612	6204528	0.3	14			Yes
11	<i>E. agglomerata</i>	282616	6204540	0.4	16			Yes
12	<i>E. punctata</i>	282626	6204557	0.4	15			Yes
13	<i>Eucalyptus crebra</i> Narrow-leaved Ironbark	282628	6204561	0.5	13			Yes
14	<i>Eucalyptus fibrosa</i> Broad-leaved Ironbark	282673	6204562	0.5	16			Yes
15	<i>E. agglomerata</i>	282676	6204555	0.45	17			Yes
16	<i>E. agglomerata</i>	282587	6204536	0.35	17			Yes
17	<i>E. agglomerata</i>	282576	6204503	0.6 + 0.6	18			Yes
18	<i>E. crebra</i>	282566	6204506	0.25	13		Scratches	Yes
19	<i>E. punctata</i>	282548	6204487	0.4	15			Yes
20	<i>Eucalyptus sclerophylla</i> Hard-leaved Scribbly Gum	282552	6204486	0.25	10			Yes
21	<i>E. sclerophylla</i>	282545	6204471	0.45	16			No
22	<i>C. gummifera</i>	282550	6204467	0.25	15			No
23	<i>E. agglomerata</i>	282557	6204464	0.3	11			No

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
24	<i>E. agglomerata</i>	282541	6204479	0.3	14			Yes
25	<i>E. agglomerata</i>	282539	6204479	0.4	14			Yes
26	<i>E. crebra</i>	282543	6204497	2 x 0.3	15			Yes
27	<i>E. crebra</i>	282552	6204507	0.25	14			Yes
28	<i>E. fibrosa</i>	282543	6204524	1.0	17	1 x Class 3		Yes
29	<i>E. punctata</i>	282519	6204527	0.35	16			Yes
30	<i>E. agglomerata</i>	282515	6204507	0.4	16			Yes
31	Dead Tree	282507	6204502	0.45	17			Yes
32	<i>E. agglomerata</i>	282505	6204501	0.3	15			No
33	<i>E. agglomerata</i>	282507	6204495	0.35	16			No
34	<i>E. punctata</i>	282539	6204538	2 x 0.3	16			Yes
35	<i>E. crebra</i>	282562	6204518	0.3	14			Yes
36	<i>E. crebra</i>	282563	6204524	0.3	14			Yes
37	<i>E. crebra</i>	282557	6204537	0.3	11			Yes
38	<i>E. punctata</i>	282555	6204554	0.4	16			Yes
39	<i>E. punctata</i>	282546	6204558	0.45	15			Yes
40	<i>C. gummifera</i>	282573	6204591	0.5	20			Yes
41	<i>E. punctata</i>	282588	6204621	0.45	16			Yes
42	<i>E. punctata</i>	282599	6204606	0.35	17			Yes
43	<i>E. crebra</i>	282613	6204607	0.3	15			Yes
44	<i>E. punctata</i>	282627	6204591	0.5	17			Yes
45	<i>E. punctata</i>	282654	6204576	0.4	18		Scratches	Yes
46	<i>E. punctata</i>	282616	6204632	0.45	16		Scratches	Yes
47	<i>E. punctata</i>	282626	6204647	0.45	18			Yes
48	<i>E. crebra</i>	282638	6204651	0.4	16			Yes
49	<i>E. punctata</i>	282637	6204670	0.4	16			Yes
50	<i>E. punctata</i>	282662	6204681	0.5	15			Yes
51	<i>E. sclerophylla</i>	282663	6204680	0.3	15			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
52	<i>E. punctata</i>	282667	6204680	0.45	16			Yes
53	<i>E. punctata</i>	282671	6204679	0.3	15			Yes
54	<i>E. fibrosa</i>	282674	6204679	0.3	14			Yes
55	<i>E. punctata</i>	282683	6204675	0.5	14			Yes
56	<i>E. fibrosa</i>	282708	6204673	0.4	17			Yes
57	<i>E. fibrosa</i>	282710	6204672	0.45	17			Yes
58	<i>E. fibrosa</i>	282726	6204674	0.4	17			No
59	<i>E. fibrosa</i>	282727	6204672	0.3	16			No
60	<i>E. fibrosa</i>	282731	6204681	0.4	13			No
61	<i>E. fibrosa</i>	282719	6204660	0.45	17			Yes
62	<i>E. crebra</i>	282694	6204631	0.5	16			Yes
63	<i>E. crebra</i>	282692	6204618	0.45	12			Yes
64	<i>E. crebra</i>	282670	6204631	0.5	15			Yes
65	<i>E. agglomerata</i>	282658	6204613	0.45	16			Yes
66	<i>E. punctata</i>	282659	6204596	0.5	16		Cumberland Plain Land Snail shell at base of tree	Yes
67	<i>E. agglomerata</i>	282651	6204489	0.5	18			No
68	<i>E. agglomerata</i>	282651	6204488	0.3	17			No
69	<i>E. agglomerata</i>	282668	6204505	0.45	16			No
70	<i>E. agglomerata</i>	282668	6204509	0.4	16			No
71	Dead Tree	282674	6204517	0.35	13			No
72	<i>E. agglomerata</i>	282676	6204515	0.3	12			No
73	<i>E. agglomerata</i>	282678	6204523	0.3	15			No
74	<i>E. fibrosa</i>	282678	6204524	0.6	18			No
75	<i>E. agglomerata</i>	282683	6204530	0.3	16			No
76	<i>E. agglomerata</i>	282685	6204534	0.2	10			No
77	<i>E. fibrosa</i>	282686	6204574	0.7	20			No
78	<i>E. agglomerata</i>	282688	6204537	0.35	17			No

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
79	<i>E. agglomerata</i>	282690	6204540	0.2	16			No
80	<i>E. fibrosa</i>	282691	6204542	0.4	18			No
81	<i>E. agglomerata</i>	282693	6204543	0.35	17			No
82	<i>E. fibrosa</i>	282693	6204544	0.4	18			No
83	<i>E. fibrosa</i>	282695	6204545	0.35	16			No
84	<i>E. fibrosa</i>	282702	6204558	0.5	16			No
85	<i>E. agglomerata</i>	282704	6204559	0.4	15			No
86	<i>E. agglomerata</i>	282711	6204573	0.5	16			No
87	<i>Eucalyptus longifolia</i> Woollybutt	282713	6204576	0.35	18			No
88	<i>E. longifolia</i>	282715	6204577	2 x 0.4	18			No
89	<i>E. agglomerata</i>	282716	6204581	0.6	16			No
90	<i>E. agglomerata</i>	282725	6204594	0.7	18			No
91	<i>E. fibrosa</i>	282739	6204615	0.45	17			No
92	<i>E. fibrosa</i>	282745	6204622	0.45	18			No
93	<i>E. fibrosa</i>	282746	6204625	0.45	18			No
94	<i>E. fibrosa</i>	282747	6204625	0.25	14			No
95	<i>E. agglomerata</i>	282747	6204627	0.5	17			No
96	<i>E. fibrosa</i>	282750	6204630	0.5	18			No
97	<i>E. fibrosa</i>	282751	6204634	0.3	16			No
98	<i>E. fibrosa</i>	282755	6204639	0.3	13			No
99	<i>E. fibrosa</i>	282755	6204639	0.25	14			No
100	<i>E. fibrosa</i>	282757	6204757	0.45	17			No
101	<i>E. agglomerata</i>	282758	6204644	0.2	12			No
102	<i>E. crebra</i>	282766	6204655	0.5	19			No
103	<i>E. crebra</i>	282785	6204686	0.5	16			No
104	<i>E. fibrosa</i>	282791	6204700	0.5	17			No
105	<i>E. agglomerata</i>	282803	6204714	0.75	18			No

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
106	<i>E. agglomerata</i>	282810	6204728	0.3	15			No
107	<i>Eucalyptus tereticornis</i> Forest Red Gum	282815	6204734	0.8	17			No
108	<i>E. tereticornis</i>	282816	6204734	0.45	20			No
109	<i>E. tereticornis</i>	282815	6204735	0.45	20			No
110	<i>Melaleuca decora</i>	282763	6204776	0.3	12			No
111	<i>M. decora</i>	282761	6204776	0.15	9			No
112	<i>Eucalyptus sieberi</i> Silvertop Ash	282752	6204766	0.4	18			No
113	<i>E. crebra</i>	282746	6204769	0.2	10			No
114	<i>E. crebra</i>	282732	6204809	0.4	13			No
115	<i>E. crebra</i>	282709	6204812	0.3	12			No
116	<i>E. crebra</i>	282706	6204813	0.4	13			No
117	<i>E. crebra</i>	282699	6204822	0.2	9			No
118	<i>E. crebra</i>	282699	6204823	0.3	14			No
119	<i>E. crebra</i>	282699	6204824	0.35	16			No
120	<i>E. crebra</i>	282697	6204824	0.35	15			No
121	<i>E. crebra</i>	282699	6204825	0.3	16			No
122	<i>E. crebra</i>	282697	6204830	0.45	15			No
123	<i>E. crebra</i>	282677	6204845	0.5	16			No
124	<i>E. crebra</i>	282635	6204874	0.3	15			No
125	<i>E. sclerophylla</i>	282631	6204885	2 x 0.4	14			No
126	<i>E. punctata</i>	282570	6204824	0.45	16			No
127	<i>E. punctata</i>	282523	6204921	0.5	14			No
128	<i>E. crebra</i>	282528	6204921	0.45	15			No
129	<i>E. agglomerata</i>	282528	6204914	0.5 + 0.3	14			No
130	<i>C. gummifera</i>	282535	6204925	0.7	18			No
131	<i>C. gummifera</i>	282539	6204935	0.2	12			No
132	<i>E. sclerophylla</i>	282542	6204920	0.4 + 0.3	16			No

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
133	<i>E. sclerophylla</i>	282552	6204912	0.5	16			No
134	<i>E. sclerophylla</i>	282548	6204910	0.35	14			No
135	<i>E. sclerophylla</i>	282551	6204905	2 x 0.3	15			No
136	<i>E. sclerophylla</i>	282550	6204903	0.6	16			No
137	<i>E. sclerophylla</i>	282551	6204899	0.35	16			No
138	<i>E. sclerophylla</i>	282567	6204905	1.1	18	4 x Class 1 1 x Class 2 2 x Class 3		No
139	<i>E. sclerophylla</i>	282559	6204919	2 x 0.3	18			No
140	<i>E. punctata</i>	282561	6204920	2 x 0.15	15			No
141	<i>E. sclerophylla</i>	282559	6204920	2 x 0.3	16			No
142	Dead Tree	282568	6204916	0.4	16			No
143	<i>E. sclerophylla</i>	282568	6204936	0.2 + 0.4	15			No
144	<i>E. punctata</i>	282569	6204939	0.45	16			No
145	<i>E. sclerophylla</i>	282484	6204511	0.65	18	1 x Class 2 in trunk		Yes
146	<i>E. sclerophylla</i>	282502	6204517	0.3	11			Yes
147	<i>E. punctata</i>	282484	6204537	0.8	20	2 x Class 3		Yes
148	<i>E. sclerophylla</i>	282476	6204529	0.35	16			Yes
149	<i>E. agglomerata</i>	282460	6204526	0.35	17			No
150	<i>E. agglomerata</i>	282458	6204527	0.18	8			No
151	<i>E. punctata</i>	282459	6204538	0.3	15			Yes
152	<i>E. punctata</i>	282477	6204552	0.45	19			Yes
153	<i>E. punctata</i>	282435	6204543	0.55	15	1 x Class 1 spout.	Dead hollow branch middle of tree	No
154	<i>E. sclerophylla</i>	282443	6204551	10	20	1 x Class 1 2 x Class 2 2 x Class 3 3 x Class 4	Large opening at base	Yes
155	<i>E. sclerophylla</i>	282441	6204570	0.32	14			Yes
156	<i>E. sclerophylla</i>	282449	6204580	0.4	12			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
157	<i>E. punctata</i>	282442	6204586	0.35	17			Yes
158	<i>E. sclerophylla</i>	282432	6204589	0.4 + 0.4	10			Yes
159	<i>E. sclerophylla</i>	282427	6204581	0.4	14			Yes
160	<i>E. agglomerata</i>	282428	6204573	0.4	17			Yes
161	<i>E. punctata</i>	282472	6204575	0.3	15			Yes
162	<i>E. sclerophylla</i>	282480	6204582	0.45	17			Yes
163	<i>E. punctata</i>	282504	6204550	0.38	16		Old scratches	Yes
164	<i>E. sclerophylla</i>	282443	6204599	0.65	13			Yes
165	<i>E. sclerophylla</i>	282422	6204612	0.35 x 3	11			Yes
166	<i>Eucalyptus piperita</i> Sydney Peppermint	282402	6204625	0.45 x 4	16			Yes
167	<i>E. punctata</i>	282421	6204645	0.48	15			Yes
168	<i>C. gummifera</i>	282425	6204638	0.42	16			Yes
169	<i>E. punctata</i>	282438	6204627	0.48	15			Yes
170	<i>E. punctata</i>	282439	6204616	0.48	17			Yes
171	<i>E. punctata</i>	282443	6204666	0.48	14		Scratches on trunk. Likely possum.	Yes
172	<i>E. punctata</i>	282461	6204661	0.5	13			Yes
173	<i>E. punctata</i>	282483	6204649	0.6	16			Yes
174	<i>E. punctata</i>	282502	6204610	0.38	12			Yes
175	<i>E. crebra</i>	282510	6204613	0.35	16			Yes
176	<i>E. punctata</i>	282537	6204571	0.45	10			Yes
177	<i>E. punctata</i>	282568	6204607	0.5	18			Yes
178	<i>E. punctata</i>	282574	6204621	0.3	17			Yes
179	<i>E. sclerophylla</i>	282582	6204639	0.3	14		Two stems	Yes
180	<i>E. punctata</i>	282595	6204664	0.44	17			Yes
181	<i>E. punctata</i>	282583	6204676	0.35	14			Yes
182	<i>E. punctata</i>	282570	6204659	0.45	20		Nest in tree. Likely Magpie or Australian Raven	Yes
183	<i>E. punctata</i>	282523	6204681	0.85	22	1 x Class 3		Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
						1 x Class 4		
184	<i>E. sclerophylla</i>	282487	6204670	0.5	16		Forked	Yes
185	<i>E. sclerophylla</i>	282476	6204698	0.6	16			Yes
186	<i>E. sclerophylla</i>	282531	6204730	0.3	12		Two stems	Yes
187	<i>E. punctata</i>	282537	6204736	0.5	14			Yes
188	<i>E. agglomerata</i>	282552	6204710	0.5	15		Rubbing on trunk	Yes
189	<i>E. sclerophylla</i>	282563	6204720	0.5	10		Scar on trunk. Mistletoe	Yes
190	<i>E. punctata</i>	282564	6204732	0.45	10			Yes
191	<i>E. punctata</i>	282562	6204699	0.5	14			Yes
192	<i>E. punctata</i>	282571	6204700	0.4	15			Yes
193	<i>C. gummifera</i>	282529	6204482	0.4	17		Just over boundary	No
194	<i>E. agglomerata</i>	282395	6204644	0.4	14		Minor rubbing on trunk	Yes
195	<i>E. punctata</i>	282410	6204666	0.7	12		Forked	Yes
196	<i>E. punctata</i>	282422	6204668	0.42	10		Forked. Mulch around base	Yes
197	<i>E. punctata</i>	282379	6204676	0.46	13			Yes
198	<i>E. punctata</i>	282405	6204691	0.5	16			Yes
199	<i>E. punctata</i>	282378	6204711	0.38	10			Yes
200	<i>E. sclerophylla</i>	282356	6204712	0.48	13			No
201	<i>E. sclerophylla</i>	282361	6204720	0.48	14			No
202	<i>E. sclerophylla</i>	282351	6204745	0.4	12		Forked	No
203	<i>E. sclerophylla</i>	282340	6204756	0.28	15		Small scratches on trunk	No
204	<i>E. sclerophylla</i>	282341	6204760	0.32	12		Forked	No
205	<i>E. sclerophylla</i>	282346	6204763	0.38	13			No
206	<i>E. sclerophylla</i>	282358	6204756	0.35	12		Forked	No
207	<i>E. sclerophylla</i>	282357	6204757	0.48	16			No
208	<i>C. gummifera</i>	282359	6204747	0.25	16			No
209	<i>E. sclerophylla</i>	282363	6204758	0.3	13			No
210	<i>E. sclerophylla</i>	282371	6204754	0.28	12			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
211	<i>E. sclerophylla</i>	282374	6204755	0.28	13			Yes
212	<i>E. sclerophylla</i>	282373	6204758	0.28	13			Yes
213	<i>E. sclerophylla</i>	282369	6204763	0.2	12			Yes
214	<i>E. sclerophylla</i>	282367	6204764	0.2	10			Yes
215	<i>E. sclerophylla</i>	282369	6204764	0.45	15			Yes
216	<i>E. sclerophylla</i>	282368	6204771	0.42	16			Yes
217	<i>E. sclerophylla</i>	282378	6204767	0.3	12			Yes
218	<i>E. sclerophylla</i>	282368	6204769	0.25	11			No
219	<i>E. punctata</i>	282371	6204751	0.4	16			Yes
220	<i>E. sclerophylla</i>	282375	6204759	0.35	15			Yes
221	<i>E. sclerophylla</i>	282378	6204756	0.12	8			Yes
222	<i>E. sclerophylla</i>	282383	6204764	0.2	11			Yes
223	<i>E. sclerophylla</i>	282381	6204771	0.28	11			Yes
224	<i>E. sclerophylla</i>	282388	6204770	0.3	15			Yes
225	<i>E. agglomerata</i>	282384	6204754	0.3	16			Yes
226	<i>E. punctata</i>	282389	6204736	0.9	18	1 x Class 1 1 x Class 4		Yes
227	<i>E. sclerophylla</i>	282390	6204721	0.45	15			Yes
228	<i>E. sclerophylla</i>	282394	6204727	0.48	16			Yes
229	<i>E. punctata</i>	282431	6204686	0.7	20	1 x Class 1 1 x Class 3 1 x Class 4	Corellas nesting?	Yes
230	<i>E. agglomerata</i>	282454	6204715	0.45	16		Forked	Yes
231	<i>E. punctata</i>	282449	6204717	0.48	18			Yes
232	<i>E. sclerophylla</i>	282441	6204714	0.45	10		Forked	Yes
233	<i>E. sclerophylla</i>	282423	6204730	0.45	11			Yes
234	<i>E. punctata</i>	282417	6204737	0.45	12			Yes
235	<i>E. sclerophylla</i>	282391	6204742	0.3	11			Yes
236	<i>E. sclerophylla</i>	282391	6204737	0.3	11			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
237	<i>E. sclerophylla</i>	282387	6204744	0.3	12			Yes
238	<i>E. sclerophylla</i>	282393	6204749	0.22	13			Yes
239	<i>E. sclerophylla</i>	282396	6204760	1	20			Yes
240	<i>E. sclerophylla</i>	282403	6204760	1.1	25	4 x Class 1 2 x Class 2 2 x Class 3 2 x Class 4	Brushtail possum spotlighted exiting hollow	Yes
241	<i>E. agglomerata</i>	282395	6204770	0.35	17			Yes
242	<i>E. agglomerata</i>	282393	6204770	0.22	12			Yes
243	<i>E. agglomerata</i>	282397	6204775	0.3	15			Yes
244	<i>E. sclerophylla</i>	282413	6204768	0.3	15			Yes
245	<i>E. sclerophylla</i>	282404	6204771	0.18	8			Yes
246	<i>E. punctata</i>	282409	6204774	0.38	16		Scratches likely from Possum	Yes
247	<i>E. agglomerata</i>	282405	6204775	0.5	18			Yes
248	<i>E. agglomerata</i>	282412	6204776	0.35	16			Yes
249	<i>E. sclerophylla</i>	282413	6204775	0.3	10		Tree leaning over	Yes
250	<i>E. punctata</i>	282406	6204784	0.42	17			Yes
251	<i>E. sclerophylla</i>	282399	6204788	1	20	2 x Class 1? 2 x Class 2 2 x Class 4	Brushtail possum spotlighted exiting hollow	Yes
252	<i>E. sclerophylla</i>	282397	6204794	0.8	19	1 x Class 2 1 x Class 4		Yes
253	<i>E. agglomerata</i>	282400	6204792	0.25	13		Fallen tree branch growing as a tree	Yes
254	<i>Acacia implexa</i> Hickory Wattle	282397	6204798	0.25	10			Yes
255	<i>E. crebra</i>	282390	6204793	0.5	16	1 x Class 1	Hollow at head height	Yes
256	<i>E. punctata</i>	282410	6204802	0.25	16			Yes
257	<i>E. punctata</i>	282410	6204802	0.5	15		Scratches on tree. Brushtail Possum scats at base of tree	Yes
258	Dead Tree	282411	6204805	0.42	17			Yes
259	<i>E. sclerophylla</i>	282417	6204808	0.42	15			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
260	<i>E. agglomerata</i>	282422	6204811	0.42	16			Yes
261	Dead Tree	282424	6204802	0.3	14			Yes
262	<i>E. sclerophylla</i>	282432	6204799	0.4	15			Yes
263	<i>E. sclerophylla</i>	282432	6204794	0.3	15			Yes
264	<i>E. sclerophylla</i>	282431	6204791	0.4	15			Yes
265	<i>E. sclerophylla</i>	282420	6204798	0.28	15			Yes
266	<i>E. sclerophylla</i>	282416	6204800	0.4	17			Yes
267	<i>E. sclerophylla</i>	282420	6204786	0.4	15		Forked tree	Yes
268	<i>E. sclerophylla</i>	282430	6204773	0.35	15			Yes
269	<i>E. sclerophylla</i>	282433	6204770	0.4	16		Scar on trunk	Yes
270	<i>E. sclerophylla</i>	282438	6204788	0.32	15			Yes
271	<i>E. agglomerata</i>	282437	6204802	0.42	18		Brushtail Possum scats at base of tree	Yes
272	<i>E. sclerophylla</i>	282441	6204797	0.4	17			Yes
273	<i>E. punctata</i>	282445	6204794	0.5	18		Large scratches likely from Lace Monitor	Yes
274	<i>E. sclerophylla</i>	282454	6204785	1	20	3 x Class 1 2 x Class 2 3 x Class 3 4 x Class 4	Half dead tree	Yes
275	<i>E. agglomerata</i>	282462	6204791	0.28	14		Dead tree	Yes
276	<i>E. punctata</i>	282466	6204796	0.5	17		Scratches	Yes
277	<i>E. punctata</i>	282465	6204795	0.42	17		Scratches likely possum	Yes
278	Dead Tree	282465	6204787	0.16	15			Yes
279	<i>E. punctata</i>	282468	6204785	0.5	20		Scratches	Yes
280	Dead Tree	282466	6204780	0.28	16		Brushtail Possum scats at base of tree. Forked tree	Yes
281	<i>E. sclerophylla</i>	282465	6204766	0.5	16			Yes
282	<i>E. punctata</i>	282476	6204755	0.8	20	1 x Class 3 1 x Class 4	Mistletoe	Yes
283	<i>E. sclerophylla</i>	282460	6204746	0.5	12			Yes
284	<i>E. sclerophylla</i>	282480	6204830	0.5	16			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
285	<i>E. sclerophylla</i>	282479	6204838	0.5	16			Yes
286	<i>E. sclerophylla</i>	282486	6204843	0.22	11			Yes
287	Dead Tree	282482	6204848	0.28	12			Yes
288	<i>E. sclerophylla</i>	282480	6204851	0.5	16			Yes
289	<i>E. sclerophylla</i>	282475	6204844	0.25	9			Yes
290	Dead Tree	282484	6204855	0.3	8		Was an <i>E. punctata</i>	Yes
291	Dead Tree	282485	6204852	0.12	7		Was an <i>E. punctata</i>	Yes
292	<i>E. sclerophylla</i>	282496	6204858	0.45	10			Yes
293	<i>E. sclerophylla</i>	282484	6204860	0.25	10			Yes
294	<i>E. sclerophylla</i>	282483	6204860	0.22	12			Yes
295	<i>E. sclerophylla</i>	282484	6204858	0.28	14		2 stems	Yes
296	<i>E. sclerophylla</i>	282480	6204855	0.15	10			Yes
297	<i>E. sclerophylla</i>	282478	6204854	0.16	8			Yes
298	<i>E. sclerophylla</i>	282478	6204855	0.16	8			Yes
299	Dead Tree	282475	6204851	0.12	8			Yes
300	<i>E. sclerophylla</i>	282476	6204855	0.4	16			Yes
301	<i>E. agglomerata</i>	282476	6204856	0.45	18			Yes
302	<i>E. sclerophylla</i>	282476	6204864	0.3	16			Yes
303	<i>E. sclerophylla</i>	282476	6204865	0.3	17			Yes
304	Dead Tree	282482	6204869	0.35	10		Was an <i>E. sclerophylla</i>	Yes
305	<i>E. sclerophylla</i>	282476	6204868	0.32	16			Yes
306	<i>E. sclerophylla</i>	282474	6204870	0.2	16			Yes
307	<i>E. punctata</i>	282472	6204872	0.3	16			Yes
308	<i>E. sclerophylla</i>	282476	6204874	0.32	16		Mistletoe with nest in it.	Yes
309	<i>E. sclerophylla</i>	282478	6204875	0.3	15			Yes
310	<i>E. sclerophylla</i>	282481	6204875	0.45	13			Yes
311	<i>E. sclerophylla</i>	282480	6204876	0.3	14		Forked	Yes
312	<i>E. sclerophylla</i>	282473	6204875	0.4	14			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
313	<i>E. punctata</i>	282473	6204874	0.48	16		Scratches likely from possum	Yes
314	<i>E. sclerophylla</i>	282471	6204872	0.2	10			Yes
315	<i>E. sclerophylla</i>	282478	6204884	0.28	13			Yes
316	<i>E. sclerophylla</i>	282482	6204888	0.38	13			Yes
317	<i>E. sclerophylla</i>	282478	6204887	0.28	10			Yes
318	<i>E. sclerophylla</i>	282479	6204888	0.28	12			Yes
319	<i>E. sclerophylla</i>	282476	6204887	0.25	12			Yes
320	<i>E. sclerophylla</i>	282478	6204889	0.2	10		4 stems	Yes
321	<i>E. agglomerata</i>	282476	6204893	0.3	15		Forked	Yes
322	<i>E. punctata</i>	282475	6204895	0.5	16			Yes
323	<i>E. punctata</i>	282492	6204903	0.5	17			No
324	<i>E. sclerophylla</i>	282494	6204903	0.5	17			No
325	<i>E. sclerophylla</i>	282501	6204884	0.5	17			Yes
326	<i>E. sclerophylla</i>	282499	6204871	0.32	13			Yes
327	<i>E. sclerophylla</i>	282497	6204872	0.5	14		Forked	Yes
328	<i>E. sclerophylla</i>	282486	6204882	0.3	14		Forked. Gravel around base of tree	Yes
329	<i>E. sclerophylla</i>	282486	6204887	0.45	15		Gravel around base of tree	Yes
330	<i>E. sclerophylla</i>	282461	6204880	1	20	4 x Class 1 1 x Class 2 2 x Class 3 2 x Class 4	Scar on trunk	Yes
331	<i>C. gummifera</i>	282458	6204878	0.3	15			Yes
332	<i>C. gummifera</i>	282455	6204875	0.15	10			Yes
333	<i>E. sclerophylla</i>	282449	6204882	0.27	15			Yes
334	<i>E. sclerophylla</i>	282446	6204884	0.28	10			Yes
335	<i>E. sclerophylla</i>	282448	6204883	0.3	14			Yes
336	<i>E. sclerophylla</i>	282448	6204883	0.4	16		Forked	Yes
337	<i>E. punctata</i>	282445	6204890	0.3	14			Yes
338	<i>E. sclerophylla</i>	282431	6204879	1	20	2 x Class 1		Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
						1 x Class 4		
339	<i>E. sclerophylla</i>	282455	6204869	0.35	16			Yes
340	<i>E. sclerophylla</i>	282457	6204867	0.3	12			Yes
341	<i>E. sclerophylla</i>	282459	6204863	0.3	10		Forked	Yes
342	<i>E. sclerophylla</i>	282461	6204864	0.28	14			Yes
343	<i>E. agglomerata</i>	282461	6204886	0.3	12			Yes
344	<i>E. agglomerata</i>	282466	6204863	0.28	15			Yes
345	<i>E. sclerophylla</i>	282465	6204865	0.3	13			Yes
346	<i>E. sclerophylla</i>	282462	6204867	0.25	15			Yes
347	Dead Tree	282443	6204867	0.18	8			Yes
348	<i>E. sclerophylla</i>	282446	6204858	0.28	12			Yes
349	<i>E. sclerophylla</i>	282456	6204856	0.32	15			Yes
350	<i>E. sclerophylla</i>	282463	6204858	0.28	16			Yes
351	<i>E. sclerophylla</i>	282462	6204859	0.2	10			Yes
352	<i>E. sclerophylla</i>	282464	6204856	0.22	11			Yes
353	<i>E. sclerophylla</i>	282463	6204853	0.22	12			Yes
354	<i>E. punctata</i>	282469	6204853	0.48	18			Yes
355	<i>E. sclerophylla</i>	282459	6204854	0.3	16			Yes
356	<i>E. sclerophylla</i>	282453	6204855	0.32	9			Yes
357	<i>E. sclerophylla</i>	282455	6204853	0.28	15			Yes
358	<i>E. sclerophylla</i>	282454	6204849	0.25	10			Yes
359	<i>E. sclerophylla</i>	282456	6204849	0.3	12			Yes
360	<i>E. sclerophylla</i>	282455	6204842	0.4	15			Yes
361	<i>E. sclerophylla</i>	282458	6204840	0.4	16			Yes
362	<i>E. sclerophylla</i>	282460	6204844	0.3	15			Yes
363	<i>E. sclerophylla</i>	282458	6204843	0.22	15			Yes
364	<i>E. sclerophylla</i>	282465	6204844	0.3	14			Yes
365	<i>E. sclerophylla</i>	282448	6204841	0.5	16			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
366	<i>E. sclerophylla</i>	282466	6204836	0.55	15			Yes
367	<i>E. sclerophylla</i>	282431	6204864	0.45	15			Yes
368	<i>E. sclerophylla</i>	282426	6204866	0.3	16			Yes
369	<i>E. sclerophylla</i>	282425	6204864	0.2	10			Yes
370	<i>E. punctata</i>	282427	6204861	0.55	20			Yes
371	<i>E. sclerophylla</i>	282428	6204860	0.25	15			Yes
372	<i>E. punctata</i>	282430	6204858	0.45	16			Yes
373	<i>E. agglomerata</i>	282415	6204846	0.2	10			Yes
374	<i>E. agglomerata</i>	282406	6204849	0.4	16			Yes
375	<i>Allocasuarina torulosa</i> Forest Oak	282402	6204847	0.3	10			Yes
376	<i>E. agglomerata</i>	282411	6204835	0.25	9			Yes
377	<i>E. agglomerata</i>	282409	6204837	0.45	17			Yes
378	<i>E. agglomerata</i>	282406	6204835	0.18	9			Yes
379	<i>E. agglomerata</i>	282400	6204837	0.65	25			Yes
380	<i>A. torulosa</i>	282394	6204834	0.25	9	Grey fantail nest		Yes
381	<i>E. agglomerata</i>	282390	6204830	0.7	22			Yes
382	<i>E. punctata</i>	282399	6204826	0.55	18			Yes
383	<i>E. crebra</i>	282403	6204828	0.2	10			Yes
384	Dead Tree	282404	6204826	0.2	8		Was an <i>E. agglomerata</i>	Yes
385	<i>E. agglomerata</i>	282408	6204824	0.3	16			Yes
386	<i>E. agglomerata</i>	282409	6204827	0.3	16			Yes
387	<i>E. agglomerata</i>	282409	6204825	0.3	16			Yes
388	Dead Tree	282409	6204817	0.45	16			Yes
389	<i>E. agglomerata</i>	282408	6204813	0.4	16			Yes
390	<i>E. crebra</i>	282411	6204810	0.15	10			Yes
391	<i>E. punctata</i>	282387	6204802	0.65	20			Yes
392	<i>C. gummifera</i>	282389	6204805	0.25	15			Yes

No.	Tree Species	Easting	Northing	DBH	Height	Hollows/Habitat	Comments	Removal Required
393	<i>E. punctata</i>	282363	6204814	0.6	20			No
394	<i>E. agglomerata</i>	282386	6204791	0.45	17			Yes
395	Dead hollow trunk	282381	6204796	0.45	17	1 x Class 1	Tree has been ringbarked	Yes
396	<i>E. agglomerata</i>	282371	6204794	0.4	17			Yes
397	<i>A. torulosa</i>	282370	6204796	0.2	12			Yes
398	<i>C. gummifera</i>	282366	6204793	0.45	18			Yes
399	<i>E. punctata</i>	282368	6204789	0.45	18			Yes
400	<i>E. punctata</i>	282370	6204792	0.42	18			Yes
401	<i>E. crebra</i>	282360	6204788	0.4	17			No
402	<i>E. crebra</i>	282375	6204801	0.4	18			Yes
403	<i>E. sclerophylla</i>	282402	6204870	0.8	16	2 x Class 1 1 x Class 4"		Yes
404	Dead Tree	282304	6204852	0.6	18	1 x Class 1	Hollow through middle. Outside of development footprint.	No
405	<i>E. punctata</i>	282336	6204873	0.8	25	1 x Class 1 1 x Class 2	Outside of development footprint.	No
406	<i>E. punctata</i>	282321	6204791	0.6	20	3 x class 2 3 x Class 4	Outside of development footprint.	No
407	<i>E. punctata</i>	282339	6204814	0.5	18	1 x Class 2 1 x Class 4	Outside of development footprint.	No
408	<i>E. punctata</i>	282351	6204835	0.9	22	1 x Class 1 2 x Class 3 2 x Class 4	Large opening at base. Outside of development footprint.	No
409	<i>E. punctata</i>	282328	6204835	0.55	17	1 x Class 2 1 x Class 4	Outside of development footprint.	No
410	<i>E. punctata</i>	282324	6204791	0.6	20	2 x Class 2 2 x Class 3 2 x Class 4	Outside of development footprint.	No

APPENDIX D

FAUNA LIST

FAUNA LIST

Family sequencing and taxonomy follow for each fauna class:

Herpetofauna

Cogger (2000), Ehmann (Ed) (1997) and Barker, Grigg and Tyler (1995).

Birds

Pizzey and Knight (2012)(9th edn).

Mammals - Van Dyck & Strahan (Ed) (2008) and Churchill (2008).

Churchill, S. (2008). *Australian Bats*. (2nd edn.). Allen & Unwin Australia.

(?) - Indicates a species identified without certainty or to a Genus level only.

* - Indicates an introduced species.

The following symbols are used to indicate species recorded during previous surveys.

@ - Previous record (Wildthing Environmental Consultants, 2008a)

Threatened species addressed within this assessment appear in **bold** font.

Introduced species are indicated by an asterisk (“*”).

The following standard abbreviations are used to indicate subspecific taxa:

subsp. -subspecies

var.- variety

x - hybrid between the two indicated species

Threatened Species Conservation Act 1995 (TSC Act)

V Vulnerable

E1 **Endangered**

E2 Endangered Population

E4A Critically Endangered Population

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

V **Vulnerable**

E **Endangered**

CE **Critically Endangered Population**

M **Migratory**

Observation Type

O - Observed (sighted)

W - Heard call

OW – Observed and heard call

X - In scat

P – Scat

T - Trapped or netted

H – Hair, feathers or skin

A - Stranded/Beached

G – Crushed cones

R – Road Kill

D – Dog Kill

Q – Camera

C – Cat Kill

V – Fox Kill

K – Dead

S – Shot

I – Fossil/subfossil

FB – Burrow

F – Tracks, scratching

Z – In raptor/owl Pellet

U – Ultrasonic recording

M - Miscellaneous

E – Nest/roost

B - Burnt

Y – Bones, teeth or shell

N – Not located

AR – Acoustic Recording

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
Phylum - Chordata				
Subphylum - Vertebrata				
Class Amphibia - Amphibians				
Order Salientia - Frogs				
Family Myobatrachidae - 'Southern Frogs'				
<i>Crinia signifera</i>	Common Eastern Froglet			W
<i>Limnodynastes tasmaniensis</i>	Spotted Grass Frog			W
<i>Pseudophryne bibronii</i>	Brown Toadlet			W
<i>Uperoleia laevisgata</i>	Smooth Toadlet			OW
Family Hylidae - Tree Frogs				
<i>Litoria fallax</i>	Eastern Dwarf Tree Frog			W
<i>Litoria peronii</i>	Peron's Tree Frog			W
<i>Litoria verreauxii</i>	Verreaux's Tree Frog			W
Class Reptilia - Reptiles				
Family Agamidae - Dragons				
<i>Pogona barbata</i>	Eastern Bearded Dragon			O
Family Varanidae - Monitors				
<i>Varanus varius</i>	Lace Monitor			O F
Family Scinidae - Skinks				
<i>Lampropholis delicata</i>	Grass Skink			O
Suborder Serpentes - Snakes				
Family Elapidae - Venomous Snakes				
<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake			O

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
Class Aves - Birds				
Family Anatidae - Ducks, Swans and Geese				
<i>Anas superciliosa</i>	Pacific Black Duck			
<i>Chenonetta jubata</i>	Australian Wood Duck			O
Family Podicipedidae - Grebes				
<i>Tachybaptus novaehollandiae</i>	Australian Grebe			O
Family Columbidae - Pigeons, Doves				
* <i>Columba livia</i>	Feral Pigeon			O
<i>Ocyphaps lophotes</i>	Crested Pigeon			O
<i>Phaps chalcoptera</i>	Common Bronzewing			O
Family Ardeidae - Herons, Egrets and Bitterns				
<i>Egretta novaehollandiae</i>	White-faced Heron			O
Family Charadriidae Plover, Dotterels, Lapwings				
<i>Vanellus miles</i>	Masked Lapwing			O
Family Cacatuidae - Cockatoos and Corellas				
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo			OW
<i>Cacatua tenuirostris</i>	Long-billed Corella			
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V		G
Family Psittacidae - Parrots, Rosellas and Lorikeets				
<i>Alisterus scapularis</i>	King Parrot			OW
<i>Platycercus elegans</i>	Crimson Rosella			O
<i>Platycercus eximius</i>	Eastern Rosella			OW
Family Cuculidae - Cuckoos				
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo			W

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo			OW
Family Halcyonidae - Tree Kingfishers				
<i>Dacelo novaeguineae</i>	Laughing Kookaburra			OW
<i>Todiramphus sanctus</i>	Sacred Kingfisher			OW
Family Maluridae				
<i>Malurus cyaneus</i>	Superb Fairy-wren			OW
Family Pardalotidae - Pardalotes, Gerygones, Scrubwrens, Heathwrens and Thornbills				
<i>Acanthiza nana</i>	Yellow Thornbill			O
<i>Gerygone olivacea</i>	White-throated Gerygone			O
<i>Pardalotus punctatus</i>	Spotted Pardalote			OW
Family Meliphagidae - Honeyeaters				
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill			OW
<i>Caligavis chrysops</i>	Yellow-faced Honeyeater			OW
<i>Lichenostomus melanops</i>	Yellow-tuft Honeyeater			O
<i>Manorina melanocephala</i>	Noisy Miner			O
<i>Manorina melanophrys</i>	Bell Miner			OW
<i>Meliphaga lewinii</i>	Lewin's Honeyeater			OW
<i>Melithreptus lunatus</i>	White-naped Honeyeater			O
Family Petroicidae - Robins and Jacky Winter				
<i>Microeca fascians</i>	Jacky Winter			
<i>Petroica boodang</i>	Scarlet Robin	V		O
Family Pachycephalidae - Whistlers, Shrike-tit and Shrike-thrushes				
<i>Colluricincla harmonica</i>	Grey Shrike-thrush			OW
Family Cinclosomatidae - Whipbird and Quail-thrushes				
<i>Psophodes olivaceus</i>	Eastern Whipbird			OW

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
Family Monarchidae - Monarchs, Flycatchers and Magpie-Lark				
<i>Myiagra inquieta</i>	Restless Flycatcher			OW
<i>Grallina cyanoleuca</i>	Magpie-lark			OW
Family Rhipiduridae - Fantails				
<i>Rhipidura albiscapa</i>	Grey Fantail			OW
<i>Rhipidura leucophrys</i>	Willie Wagtail			OW
Family Campephagidae - Cuckoo-shrikes and Trillers				
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			OW
Family Hirundinidae - Swallows and Martins				
<i>Hirundo neoxena</i>	Welcome Swallow			O
Family Artamidae - Wood-swallows, Butcherbirds, Magpie and Currawongs				
<i>Cracticus nigrogularis</i>	Pied Butcherbird			OW
<i>Cracticus tibicen</i>	Australian Magpie			OW
<i>Strepera graculina</i>	Pied Currawong			OW
Family Corvidae - Crows, Raven				
<i>Corvus coronoides</i>	Australian Raven			OW
Family Turdidae - Thrushes				
* <i>Turdus merula</i>	Common Blackbird			OW
Family Sturnidae - Starlings and Mynas				
* <i>Sturnus tristis</i>	Indian Myna			OW
Class Mammalia - Mammals				

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
Subclass Prototheria - Monotremes				
Order Monotremata				
Subclass Marsupialia - Marsupials				
Order Diprotodontia				
Suborder Vombatiformes				
Family Vombatidae - Wombats				
<i>Vombatus ursinus</i>	Common Wombat			P F FB
Family Pseudocheiridae - Ringtail Possums and Greater Glider				
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum			O P
Superfamily - Phalangerioidea				
Family Phalangeridae - Brushtail Possums				
<i>Trichosurus vulpecula</i>	Common Brushtail Possum			O P
Superfamily - Macropodoidae				
Family Macropodidae - Kangaroos, Wallabies				
<i>Wallabia bicolor</i>	Swamp Wallaby			O P K
Subclass Eutheria - Eutherian Mammals				
Order Chiroptera				
Suborder Microchiroptera				
Family Molossidae - Freetail-bats				
<i>Austronomus australis</i>	White-striped Freetail Bat			W U

SCIENTIFIC NAME	COMMON NAME	TSC ACT	EPBC ACT	OBSERVATION TYPE
<i>syn Nyctinomus australis, Tadarida australis</i>				
Mormopterus norfolkensis	Eastern Freetail Bat	V		U
<i>Mormopterus</i> sp. 2				
Family Vespertilionidae - Plain-nosed Bats				
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V		U
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			U
<i>Chalinolobus morio</i>	Chocolate Wattled Bat			U
<i>Falsistrellus tasmaniensis</i>	Eastern Falsistrelle	V		U
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat?			U
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat?			U
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		U
<i>Vespadelus darlingtoni</i>	Large Forest Bat			U
<i>Vespadelus vulturnus</i>	Little Forest Bat			U
Order Lagomorpha				
Family Leporidae				
* <i>Oryctolagus cuniculus</i>	European Rabbit			O P
Order Carnivora				
Family Canidae				
* <i>Vulpes vulpes</i>	Red Fox			K
* <i>Canis familiaris</i>	Dog			O
Family Felidae				
* <i>Felis catus</i>	Cat			
Order Artiodactyla				
Family Bovidae				
* <i>Ovis aries</i>	Sheep			O

APPENDIX E

SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS



**Planning &
Environment**

Industry Assessments

Contact: Bianca Thornton

Phone: (02) 8217 2040

Email: Bianca.Thornton@planning.nsw.gov.au

Justin & Renee Camilleri c/o Bob Lander
Tattersall Lander Pty Ltd
PO Box 580
RAYMOND TERRACE NSW 2324

16/14139
SEAR 1107

Dear Mr & Ms Camilleri

**Poultry Farm (Livestock Intensive Industries)
180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326)
Secretary's Environmental Assessment Requirements (SEAR) 1107**

Thank you for your request for the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the above development proposal. I have attached a copy of these requirements.

In support of your application, you indicated that your proposal is both designated and integrated development under Part 4 of the *Environmental Planning and Assessment Act 1979* and requires an approval under the *Protection of the Environment Operations Act 1997* and the *Water Management Act 2000*.

In preparing the SEARs, the Department has consulted with the Environment Protection Authority, the Department of Primary Industries and WaterNSW. A copy of their requirements for the EIS are attached.

If other integrated approvals are identified before the Development Application (DA) is lodged, you must undertake direct consultation with the relevant agencies, and address their requirements in the EIS.

If your proposal contains any actions that could have a significant impact on matters of National Environmental Significance, then it will require an additional approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. If you have any questions about the application of the EPBC Act to your proposal, you should contact the Commonwealth Department of the Environment on (02) 6274 1111.

Should you have any further enquiries, please contact Bianca Thornton, Planning Services, at the Department on (02) 8217 2040.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'C. Ritchie'.

Chris Ritchie

Director

Industry Assessments

as delegate of the Secretary

18/11/16

Department of Planning & Environment

Level 22, 320 Pitt Street Sydney NSW 2000 | GPO Box 39 Sydney NSW 2001 | T 1300 305 695 | www.planning.nsw.gov.au

Environmental Assessment Requirements

Section 78A (8) of the *Environmental Planning and Assessment Act 1979*.

Designated Development

SEAR Number	1107
Proposal	Establishment of a 14 shed poultry farm and associated infrastructure to contain 742,000 birds.
Location	180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326), in the Wollondilly local government area
Applicant	Justin & Renee Camilleri
Date of Issue	November 2016
General Requirements	The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> .
Key Issues	<p>The EIS must include an assessment of all potential impacts of the proposed development on the existing environment (including cumulative impacts if necessary) and develop appropriate measures to avoid, minimise, mitigate and/or manage these potential impacts. As part of the EIS assessment, the following matters must also be addressed:</p> <ul style="list-style-type: none"> • strategic context – including: <ul style="list-style-type: none"> – a detailed justification for the proposal and suitability of the site for the development, including the need for any demolition of existing infrastructure; – a demonstration that the proposal is consistent with all relevant planning strategies, environmental planning instruments, development control plans (DCPs), or justification for any inconsistencies; – a list of any approvals that must be obtained under any other Act or law before the development may lawfully be carried out; and – a land use conflict risk assessment, including reference to separation distances and best management practices. • air quality and odour – including: <ul style="list-style-type: none"> – a description of all potential sources of air and odour emissions; – an air quality impact assessment in accordance with relevant Environment Protection Authority guidelines; and – a description and appraisal of air quality impact mitigation and monitoring measures. • biodiversity – including: <ul style="list-style-type: none"> – accurate predictions of any vegetation clearing on site or for any road upgrades; – a detailed assessment of the potential impacts on any threatened species, populations, endangered ecological communities or their habitats, groundwater dependent ecosystems and any potential for offset requirements; and – a detailed description of the measures to avoid, minimise, mitigate and offset biodiversity impacts. • waste management – including: <ul style="list-style-type: none"> – details of all potential waste streams including poultry litter, manure and disposal of dead birds for the proposal; – details of waste handling including, transport, identification, receipt, stockpiling and quality control including off-site reuse and disposal; and – the measures that would be implemented to ensure that the proposed

	<p>development is consistent with the aims, objectives and guidelines in the <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i>.</p> <ul style="list-style-type: none"> • water resources – including: <ul style="list-style-type: none"> – details of any licensing requirements or other approvals under the <i>Water Act 1912</i> and/or <i>Water Management Act 2000</i>; and – an assessment of potential impacts on floodplain and stormwater management and any impact to flooding in the catchment. • soil and water – including: <ul style="list-style-type: none"> – a description of local soils, topography, drainage and landscapes; – an assessment of potential impacts on the quality and quantity of surface and groundwater resources, including identification of potential water pollutants; – details of the proposed stormwater and wastewater management systems (including sewage), water monitoring program and other measures to mitigate surface and groundwater impacts; – details of sediment and erosion controls; – a detailed site water balance; – a description of previous land uses of the site and characterisation of the nature and extent of any contamination; and – a description and appraisal of impact mitigation and monitoring measures. • animal welfare, bio-security and disease management – including: <ul style="list-style-type: none"> – details of how the proposed development would comply with relevant codes of practice and guidelines, including buffer distances from nearby operations; – details of all disease control measures; and – a detailed description of the contingency measures that would be implemented for the mass disposal of livestock in the event of disease outbreak. • traffic and transport – including: <ul style="list-style-type: none"> – details of road transport routes and access to the site; – road traffic predictions for the development during construction and operation; and – an assessment of impacts to the safety and function of the road network and the details of any road upgrades required for the development. • noise and vibration – including: <ul style="list-style-type: none"> – a description of all potential noise and vibration sources during construction and operation, including road traffic noise; – a noise and vibration assessment in accordance with the relevant Environment Protection Authority guidelines; and – a description and appraisal of noise and vibration mitigation and monitoring measures. • bushfire – including risk assessment level and a mitigation plan. • heritage – including Aboriginal and non-Aboriginal cultural heritage. • visual – including an impact assessment at private receptors and public vantage points.
Environmental Planning Instruments and other policies	<p>The EIS must assess the proposal against the relevant environmental planning instruments, including but not limited to:</p> <ul style="list-style-type: none"> • <i>State Environmental Planning Policy (Infrastructure) 2007</i>; • <i>State Environmental Planning Policy (Rural Lands) 2008</i>; • <i>State Environmental Planning Policy No. 33 Hazardous and Offensive Development</i>; • <i>State Environmental Planning Policy No. 44 – Koala Habitat Protection</i>; • <i>State Environmental Planning Policy No. 55 Remediation of Land</i>; • <i>Wollondilly Local Environmental Plan 2011</i>; and • relevant development control plans and section 94 plans.
Guidelines	<p>During the preparation of the EIS you should consult the Department's Register of Development Assessment Guidelines which is available on the Department's website at planning.nsw.gov.au under Development Proposals/Register of</p>

	Development Assessment Guidelines. Whilst not exhaustive, this Register contains some of the guidelines, policies, and plans that must be taken into account in the environmental assessment of the proposed development.
Consultation	<p>During the preparation of the EIS, you must consult the relevant local, State and Commonwealth government authorities, service providers and community groups, and address any issues they may raise in the EIS. In particular, you should consult with the:</p> <ul style="list-style-type: none"> • Environment Protection Authority; • Rural Fire Service; • Office of Environment and Heritage; • Department of Primary Industries; • Roads and Maritime Services; • WaterNSW; • Wollondilly Shire Council; and • the surrounding landowners and occupiers that are likely to be impacted by the proposal. <p>Details of the consultation carried out and issues raised must be included in the EIS.</p>
Further consultation after 2 years	If you do not lodge an application under Section 78A (8) of the <i>Environmental Planning and Assessment Act 1979</i> within 2 years of the issue date of these SEARs, you must consult with the Secretary in relation to any further requirements for lodgement.



DOC16/550505-01:MF
SEAR 1107

Ms Bianca Thornton
Student Planner
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Thornton

**Proposal – SEAR 1107 – Poultry Farm (Livestock Intensive Industries)
180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326)
Secretary Environmental Assessment Requirements**

I am writing in reply to the Department of Planning and Environment's (DPE) request for the Environment Protection Authority (EPA) to provide key requirements for the preparation of an Environmental Impact Statement (EIS) for the above proposed project.


Based on a review of the submitted information, please find attached our key requirements (Attachment A). These relate to:

- General Planning Matters
- Environment Protection Licence
- Best Practice Guidelines
- Air Quality
- Water Quality
- Noise
- Waste Management
- Contaminated Land Management.

These should be assessed in accordance with the relevant guidelines/documents listed in Attachment B.

If you have any comments regarding the above, please phone the contact officer on (02) 4224 4100.

Yours sincerely


PETER BLOEM
Manager Illawarra
Environment Protection Authority

Contact officer: MATT FULLER
(02) 4224 4100

Attachments A and B

PO Box 513, Wollongong NSW 2520
Level 3, 84 Crown Street Wollongong NSW 2500
Tel: (02) 4224 4100 Fax: (02) 4224 4110
ABN 43 692 285 758
www.epa.nsw.gov.au

ATTACHMENT A

KEY ENVIRONMENTAL IMPACT ASSESSMENT REQUIREMENTS

1. General Planning Matters

Details should be documented on the location of the proposed development including the affected environment to place the proposal in its local and regional environmental context. This should include but not be limited to details of land ownership, maps and/or aerial photographs showing surrounding land uses, planning zonings, potential sensitive receptors and catchments. Details should also be provided on the proposals relationship to any other industry or facility.

2. Environment Protection Licence

The proposal seeks the construction of 14 poultry sheds and associated facilities to contain 742,000 birds. The proposal is designated development as it will accommodate over 250,000 birds. Under the *Protection of the Environment Operations Act 1997* (POEO Act) premises with a capacity to accommodate more than 250,000 birds at any time for commercial production are required to hold an Environment Protection Licence (EPL) for "*Livestock Intensive Activities – Bird Accommodation*". It appears the activity will require an EPL (if approved). The EIS should include information justifying the need for an EPL and information that would also be relevant to an EPL application. Details on the information that should be included with an EPL Application are outlined in the *EPA Guide to Licensing* (see Attachment B).

3. Best Practice Guidelines

The proponent should consult the NSW Department of Primary Industry, "*Best Practice Management for Meat Chicken Production in NSW*". This guideline provides a useful summary of the environmental considerations for new development and Best Management Practice for these activities. In particular, this document highlights the importance of adequate separation distance from sensitive land uses for both environmental and biosecurity reasons. In particular, this document states that:

Appropriate siting is the most cost-effective way of minimising environmental performance issues such as odour, dust, noise, stormwater management and the protection of surface water and ground water. If these issues are addressed at the planning stage, then ongoing operational costs and management issues can be significantly reduced.

A copy of this guideline can be obtained from the following web site:

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0019/448210/BPM-for-meat-chicken-production-in-nsw-manual-1.pdf.

4. Air Quality

The environmental outcome for the project should ensure:

- no offensive odour beyond the boundary of the premises, including appropriate boundary offsets
- emissions do not cause adverse impact upon human health or the environment
- compliance with the requirements of the POEO Act and its associated regulations
- all dust emissions from material handling, storage, processing, roadways, transport and material transfer systems are prevented or minimised
- vehicular kilometres travelled are minimised.

The EIS should document how the above outcomes will be achieved.

Poultry activities if not appropriately sited, designed and managed have the potential to generate offensive odours beyond their boundary which can cause community complaint. Offensive odour can result from a range of activities associated with poultry operations including but not necessarily limited to:

- moist litter (bedding material in use on the shed floor, for example, sawdust, and the associated manure). When moist litter and manure accumulates for even short periods, the mass becomes putrescent and supports anaerobic bacteria, which produce highly offensive odours which can be evident a considerable distance from the shed. Excessively wet litter can also be a source of odour in poultry sheds.

- stockpiling of litter outside of the shed can also give rise to complaints from offensive odours and provide potential for surface and groundwater pollution.
- the management of bird carcasses needs to be undertaken in a manner that prevents offensive odour emissions, pollution to waters and land pollution.

Poultry operations can also be a potential source of dust emissions from a range of activities including bulk feed storage silos. In particular, these facilities require dust controls to manage any dust emissions during silo filling operations.

An *Air Impact Assessment* must be prepared in accordance with the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales*. A thorough assessment needs to be undertaken of the proposed operations to assess the impact of any air emissions and the adequacy of proposed air pollution controls. In particular, the assessment should include but not necessarily be limited to:

- (b) all potential sources of dust/particulate matter (TSP and PM10) during the construction and operation of the development
- (c) all potential sources of odour during the construction and operation of the development (for example, handling of dead stock; odour from wastewaters; wastes; etc)
- (d) details of the measures proposed to mitigate the impacts and quantify the extent to which the mitigation measures are likely to be effective in achieving the relevant environmental outcomes (for example, refrigeration of dead stock, appropriate odour control technologies)
- (e) any cumulative impacts.

5. Water Quality

The environmental outcome for the project should ensure:

- there is no pollution of waters (including surface and groundwater) except in accordance with an EPL
- polluted water (including process waters, wash down waters, polluted stormwater or sewage) is captured on the site and directed to reticulated sewer where available or else collected, treated and beneficially reused, where this is safe and practicable to do so
- bunds are designed in accordance with the "EPA's Bunding and Spill Management Guidelines".

The EIS should document how the above outcomes will be achieved.

The EIS should also include but not necessarily be limited to the following matters:

- a) Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance.
- b) Provide details of the project relevant to any water impacts of the development such as drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- c) Details on proposed water management at the site, in particular details on the management and separation of clean and dirty areas. This should include water management associated with activities including:
 - any equipment and maintenance areas, including wash down facilities, oil and water separation
 - stockpiles of materials or waste
 - unsealed/sealed areas
 - poultry farm sheds (these should be constructed in such a manner that water from rain and irrigation sprays does not wet litter or manure. The floor should be sealed with a suitable material to prevent groundwater pollution)
 - feed material processing and transfer areas
 - loading facilities
 - roadways
 - sewage management
 - any associated treatment and reuse systems
 - provide a description of the receiving waters including surface and groundwater.
- d) Provide information on any water discharges including location, volumes, water quality, monitoring programs and frequency of discharge.

- e) Describe the nature and degree of any likely impacts that the proposed project may have on the receiving environment. This should include a characterisation of any potential water pollutants at the site, an assessment of impact on receiving waters to ensure water quality outcomes are not compromised and any associated mitigation and management measures.
- f) Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary.
- g) Describe how stormwater will be managed during the construction phase.

A poultry farm should be located, designed and operated to avoid impact to surface and groundwater. Where a poultry farm is sited on permeable soils over a water resource, then great care must be taken to ensure that nutrients from manures do not leach through to the groundwater.

Water from the roof and uncontaminated stormwater should be diverted away from waste generation, collection and disposal areas. All sheds should be designed to prevent the ingress of all water except that used for drinking and shed cleaning activities.

Shed and truck washings (hosed down waste) should be contained and utilised by irrigation or disposed of in a manner which will not pollute waters.

An integrated *Water Management Plan* should be developed for the site, which addresses all aspects of the water cycle. The aim of the plan should be to maximise the potential for reuse and minimise water demand and the risk of water pollution. It should evaluate options such as:

- (a) Using rainwater tanks to utilise the significant catchment area on the roofs of the sheds to substitute water supplied from other sources and reduce stormwater impacts
- (b) Collecting and storing stormwater and using it for dust control
- (c) Designing and locating poultry sheds to maximise water efficiency, and minimise the need for water for evaporative cooling.

6. Noise Impact

The environmental outcome of the project should be to minimise adverse impacts due to noise from the project. The Environmental Assessment must clearly outline the noise mitigation, monitoring and management measures the proponent intends to apply to the project to minimise noise pollution.

Poultry operations can generate significant noise impact from a range of activities including the handling of stock.

The assessment should be undertaken in accordance with the NSW *Industrial Noise Policy*. In particular, the assessment should include, but not necessarily limited to: the identification and assessment of all potential noise sources associated with the development, the location of all sensitive receptors, proposed hours of operation and proposed noise mitigation measures. The assessment should also take into account adverse weather conditions including temperature inversions. Sound power levels measured or estimated for all plant and equipment should be clearly stated and justified. It should also include an assessment of cumulative noise impacts, having regard to existing surrounding industrial activities and development.

If 24 hour work is proposed, specific measures to address noise impact during night time hours will need to be specified in the EIS. In assessing night time activity sleep disturbance criteria would apply. Where found to be necessary, determine the most appropriate noise mitigation measures and expected noise reduction including noise controls and management of impacts for construction noise.

The EIS must also identify the transport route(s) to be used, the hours of operation and assess any potential road traffic noise impacts in accordance with the "NSW Road Noise Policy".

Any construction noise should also be assessed and any proposed noise mitigations measures identified and documented in the EIS in accordance with the *Interim Construction Noise Guideline* (DECC 2009).

7. Waste Management

The goal of the development should be to ensure:

- it is in accordance with the principles of the waste hierarchy and cleaner production
- the handling, processing and storage of all materials used at the premises does not have negative environmental or amenity impacts
- land pollution is prevented
- the beneficial reuse of all wastes generated at the premises are maximised where it is safe and practical to do so
- no waste disposal occurs on site except in accordance with an EPA Licence.

Any waste generated at the site should be assessed and classified in accordance with the *Waste Classification Guidelines* and documented in the EIS. Detail on this guideline is available in Attachment B.

The proponent should also consult NSW EPA's *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities* (Dec 2012). This guideline provides information on better waste management practice in design, establishment, operation and ongoing management of waste services in commercial and industrial developments. This guideline can be accessed at: <http://www.epa.nsw.gov.au/warr/BPGuideCIFacilities.htm>.

The EIS should also detail the type and quantity of any chemical/pesticide substances to be used or stored at the site and describe arrangements for their safe use and storage in accordance with any legislative or EPA policy requirements.

Management of dead stock

A potential issue relates to the handling and treatment of dead stock generated as a result of daily mortality or incidents involving possible disease outbreak.

The proponent should explore waste management in accordance with the waste management hierarchy of avoidance, resource recovery and lastly disposal, which covers all environmentally responsible disposal options. As stated in the *Best Practice Management for Meat Chicken Production in NSW* (DPI 2012) it is important that carcass disposal practices must not contaminate ground and surface waters or cause odour nuisance or land contamination. Poor management of dead and or diseased birds can also increase biosecurity risks.

Best Management Practice for the treatment of dead birds requires daily collection from the shed and removal from the farm for rendering. If farms do not have ready access to a rendering plant, the next preferred method of disposal is composting. Other methods of disposal, subject to approval, include transport to existing EPA licensed waste disposal facilities or composting on site. The EIS should detail information on the management of dead stock.

We advise that an *Emergency Contingency Plan* would need to be developed for the disposal of birds from endemic disease, heat stress or exotic disease in accordance with the "*Best Practice Management for Chicken Production in NSW*" requirements.

8. Contaminated Land Management

The environmental outcome of the project is to ensure any contaminated land is identified and appropriately managed for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

The requirements of *State Environmental Planning Policy (SEPP) 55* will need to be satisfied and documented in the EIS. SEPP 55 states that as part of the development process the following key considerations should be addressed:

- Whether the land is contaminated.
- If the land is contaminated whether it is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes to which the land will be used.

- If the land requires remediation; will be made suitable for any purpose for which the land will be used.

In cases where land is potentially contaminated, the investigation and any remediation and validation work is to be carried out in accordance with the guidelines made or approved by the EPA under Section 105 of the *Contaminated Land Management Act 1997* and be in accordance with the requirements and procedures in the following:

- *Contaminated Land Management Act 1997*
- *Contaminated Land Management Regulation 2013; and*
- *SEPP 55 – Remediation of Land.*

ATTACHMENT B - GUIDANCE MATERIAL

Title	Web address
<u>Licensing</u>	
Guide to Licensing	www.environment.nsw.gov.au/licensing/licenceguide.htm
<u>Air Issues</u>	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf
Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC 2007)	http://www.environment.nsw.gov.au/resources/air/07001amsaap.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N
The Assessment and Management of Odour from Stationary Sources in NSW: Technical Framework	http://www.environment.nsw.gov.au/resources/air/20060440framework.pdf
The Assessment and Management of Odour from Stationary Sources in NSW: Technical Notes	http://www.environment.nsw.gov.au/resources/air/20060441notes.pdf
NSW Government Resource Efficiency Policy, (OEI 2014)	http://www.environment.nsw.gov.au/resources/government/140567NSWGREP.pdf
<u>Noise and Vibration</u>	
Interim Construction Noise Guideline (DECC, 2009) and Industrial Noise Policy Application Notes	http://www.environment.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.environment.nsw.gov.au/noise/vibrationguide.htm
Industrial Noise Policy (EPA, 2000) and Industrial Noise Policy Application Notes	http://www.environment.nsw.gov.au/noise/industrial.htm
NSW Road Noise Policy (EPA, 2011)	http://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf
<u>Waste, Chemicals and Hazardous Materials and Radiation</u>	
Waste Classification Guidelines (DECC, 2008)	http://www.environment.nsw.gov.au/waste/envguidlins/index.htm
Resource Recovery Exemptions	http://www.epa.nsw.gov.au/waste/RRRecoveryExemptions.htm
EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities (Dec 2012)	http://www.epa.nsw.gov.au/warr/BPGuideCIFacilities.htm
<u>Water and Soils</u>	
Stormwater Management	
Managing Urban Stormwater - Soils and Construction Vol 1 (Landcom 2004) and Vol 2 (A. Installation of services; B Waste Landfills; C Unsealed Roads; d Main	Vol 1 – Available for purchase at http://www.environment.nsw.gov.au/resources/water/BlueBookVol1.pdf Vol 2-

Title	Web address
Roads; E Mines and quarries (DECC 2008)	http://www.environment.nsw.gov.au/resources/stormwater/0801soilsconststorm2a.pdf
Wastewater	
National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC 1997)	http://www.environment.gov.au/water/policy-programs/nwqms/
National Water Quality Management Strategy: Guidelines for Sewerage Systems - Use of Reclaimed Water (ARMCANZ/ANZECC 2000)	http://www.environment.gov.au/water/policy-programs/nwqms
Environmental Guidelines for the Utilisation of Treated Effluent by Irrigation (NSW DEC 2004)	http://www.environment.nsw.gov.au/resources/water/effguide.pdf
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf
NSW Government Water Quality and River Flow Environmental Objectives	http://www.environment.nsw.gov.au/ieo/
Groundwater	
State Groundwater Policy Framework Document (DLWC 1997)	
The NSW State Groundwater Quality Protection Policy (DLWC 1998)	
NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)	
National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ & ANZECC, 1995)	
Metropolitan Water Sharing Plan	http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Water-sharing
Bunding and Spill Management	
Storing and Handling Liquids: Environmental Protection - Participants Manual	http://www.environment.nsw.gov.au/resources/licensing/2007210liquidsManual.pdf
Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation	http://www.environment.nsw.gov.au/resources/licensing/ecrchemicalsb05590.pdf



Locked Bag 5123, Parramatta NSW 2124
Level 11, 10 Valentine Ave
Parramatta NSW 2150
www.waternsw.com.au
ABN 21 147 934 787

bianca.thornton@planning.nsw.gov.au

Department of Planning & Environment
Industry Assessments
GPO Box 39
SYDNEY NSW 2001

Contact: Wayne Conners

Phone: 02 8838 7531

Fax: 02 8838 7554

Email: wayne.conners@waternsw.com.au

Our ref: RM8 Ref: V16/7030#7

Your ref: SEAR 1107

Attention: Ms Bianca Thornton

Dear Ms Thornton

**Request for Secretary's Environmental Assessment Requirements – SEAR 1107 –
Poultry Farm (Livestock Intensive Industries) - 180 Mockingbird Road, Pheasants
Nest (Lot 264 DP 625326)**

Thank you for your email of 31 October 2016 concerning the request for Secretary's Environmental Assessment Requirements for the above project.

Water NSW on behalf of DPI Water has reviewed the supporting documentation accompanying the request for Secretary's Environmental Assessment Requirements (SEAR's) and provides the following comments below, and further detail in **Attachment A**.

It is recommended that the EIS be required to include, where applicable:

- Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Full technical details and data of all surface and groundwater modelling.

Level 11, 10 Valentine Avenue Parramatta 2150 | Locked Bag 5123 Parramatta NSW 2150
t 1800 353 104 | f (02) 8838 7554 | www.waternsw.com.au

- Proposed surface and groundwater monitoring activities and methodologies.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Consideration of relevant policies and guidelines.
- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).
- It is noted that proposed Shed 14 in the south-eastern corner of Lot 264 DP625326 will be located within 40 metres of a 1st order watercourse. The EIS will need to address the need for a controlled activity approval under the Water Management Act 2000.

Should you have any enquiries about this matter, please contact Wayne Conners at Water NSW's Parramatta office on (02) 8838-7531.

Yours sincerely

Wayne Conners

Wayne Conners
Senior Water Regulation Officer
Water Regulation Coastal
7 November, 2016

ATTACHMENT A

Water NSW General Assessment Requirements for general projects

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the DPI Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (WMA 2000), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)

Key points:

- Volumetric licensing in areas covered by water sharing plans
- Works within 40m of waterfront land
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979* (EP&A Act).
- No exemptions for volumetric licensing apply as a result of the EP&A Act.
- Basic landholder rights, including harvestable rights dams
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*
- Maximum penalties of \$2.2 million plus \$264,000 for each day an offence continues apply under the *WMA 2000*

Water Act 1912 (WA 1912)

Key points:

- Volumetric licensing in areas where no water sharing plan applies
- Monitoring bores
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000*.
- Flood management works
- No exemptions apply to licences or permits under the *WA 1912* as a result of the EP&A Act.
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011

Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Harvestable Rights Orders

Water Sharing Plans

It is important that the proponent understands and describes the ground and surface water sharing plans, water sources, and management zones that apply to the project. The relevant water sharing plans can be determined spatially at www.ourwater.nsw.gov.au. Multiple water sharing plans may apply and these must all be described.

The *Water Act 1912* applies to all water sources not yet covered by a commenced water sharing plan.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
 - Sufficient market depth to acquire the necessary entitlements for each water source.
 - Ability to carry out a “dealing” to transfer the water to relevant location under the rules of the WSP.
 - Daily and long-term access rules.
 - Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- State Environmental Policy (Sydney Drinking Water Catchment) 2011
- NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
- NSW Aquifer Interference Policy (NOW, 2012)

- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW Wetlands Policy (2010)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

The EIS will need to ensure that the project is consistent with Controlled Activity Approval guidelines and that any Controlled Activity Approval requirements are addressed. Guidelines for instream works on waterfront land can be found at:

http://www.water.nsw.gov.au/__data/assets/pdf_file/0020/547040/licensing_approvals_controlled_activities_instream_works.pdf

DPI Water policies can be accessed at the following links:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx>

<http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx>

An assessment framework for the NSW Aquifer Interference Policy can be found online at:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference>.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:

<http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff>

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.
- Identification of all surface water sources as described by the relevant water sharing plan.
- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
 - flow of surface water, sediment movement, channel stability, and hydraulic regime,
 - water quality,
 - flood regime,
 - dependent ecosystems,
 - existing surface water users, and
 - planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- The known or predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Identification of any predicted impacts on groundwater resulting from proposed earthworks at the construction phase.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to DPI Water by submitting a "Form A" template. DPI Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
 - the effect of the proposal on the recharge to groundwater systems;
 - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
 - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
 - wetlands/swamps, watercourses and top of bank;
 - riparian corridor widths to be established along the creeks;
 - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
 - the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
 - proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.

- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.
- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation

Where significant modification to landform is proposed, the EIS must include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project; and
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation.

Stream rehabilitation

The Environmental Impact Statement should include:

- A Stream Rehabilitation Plan and Vegetation Management Plan with details on how the watercourse and riparian corridor within the site would be progressively rehabilitated to mimic a natural system from the local area. The riparian corridor should be planted with suitable native species from the local vegetation community.
- An outline of measures to minimise erosion and sedimentation impacts to the local stream environment,
- An outline of measures to minimise impacts to bed and bank stability.
- An outline of measures to be put in place to ensure that sufficient resources are available to implement the proposed stream rehabilitation.
- Guidelines for Vegetation Management plans on waterfront land can be found at:

http://www.water.nsw.gov.au/data/assets/pdf_file/0010/547219/licensing_approvals_controlled_activities_veg_mgt_plans.pdf

Consultation and general enquiries

General licensing enquiries can be made to Advisory Services: water.enquiries@dpi.nsw.gov.au, 1800 353 104.

Assessment or state significant development enquiries, or requests for review or consultation should be directed to the Strategic Stakeholder Liaison Unit, water.referrals@dpi.nsw.gov.au.

A consultation guideline and further information is available online at:

www.water.nsw.gov.au/water-management/law-and-policy/planning-and-assessment

End Attachment A



TRIM: OUT16/43431

Bianca Thornton
Student Planner
Industry Assessments
Level 22, 320 Pitt Street | GPO Box 39 | Sydney NSW 2001
Bianca.Thornton@planning.nsw.gov.au

Dear Ms Thornton

**Proposal – SEAR 1107 – Poultry Farm (Livestock Intensive Industries)
180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326)**

Thank you for your correspondence of the 31 October 2016, DPI Agriculture provides recommendations for the SEAR in Attachment 1.

An important issue is that the proposed farm is within the 5km buffer distance recommendation of possibly two breeder farms. The proponent will need to determine if those breeder farms are still operating. The poultry industry has the buffer requirement to reduce the biosecurity risk which is noted in the DPI best practice guidelines.

DPI and Industry stakeholders have produced a range of publications that will support consent authorities, community and proponents in addressing the recommended SEAR (Attachment 2).

Should you require clarification on any of the information contained in this response, please contact Andrew Docking, Resource Management Officer 9842 8607.

Yours sincerely

A handwritten signature in blue ink that reads 'Liz Rogers'.

Liz Rogers
Manager Agriculture Land Use Planning
Department of Primary Industries
11 November 2016

NSW Department of Primary Industries, Agriculture Land Use Planning
Locked Bag 21, Orange NSW 2800
Tel: 02 6391 3391 Fax: 02 6391 3551
Email: landuse.ag@dpi.nsw.gov.au
www.dpi.nsw.gov.au | ABN: 72 189 919 072

PAGE 2 OF 5

Attachment 1: SEARs Recommendations

Issue and desired outcome	Detail / Requirement
Site Suitable for development	<ul style="list-style-type: none"> Determine if site is permissible in accordance with the Council Land and Environment Plan (LEP) and land zone. Determine whether the size of the site is adequate for the poultry sheds and feed silos, any amenity buildings, storage sheds, internal roads, litter composting and stockpile areas, dead bird management and storage areas and mitigation measures for odour, dust and noise impacts and general amenity. Issues such as topography and drainage can impact on the ability of a site to accommodate the farm and should be considered. Complete a Landuse Conflict Risk Assessment (LUCRA) to identify potential landuse conflict, in particular relating to separation distances and management practices to minimise odour, dust and noise from sensitive receptors. A LUCRA is described in the DPI Land Use Conflict Risk Assessment Guide. Include a map to scale showing the above operational and infrastructure details including separation distances from sensitive receptors.
Consideration for impacts to agricultural resources and land	<ul style="list-style-type: none"> Describe the current and potential <i>Important Agriculture Land</i> on the proposed development site and surrounding locality. Demonstrate that all significant impacts on current and potential agricultural developments and resources can be reasonably avoided or adequately mitigated. Consider possible cumulative effects to agricultural enterprises and landholders.
Appropriate and secure power supply	<ul style="list-style-type: none"> Power supply is to be reliable, adequate and sufficient for farm requirements. This includes access to 3 phase power, back up arrangements in the event of power failure and sufficient power for potential future farm expansion.
Bushfire risk identified and managed	<ul style="list-style-type: none"> Risk assessment level and mitigation plan developed to address bush fire risk.
Suitable and secure water supply	<ul style="list-style-type: none"> Estimated water demand and water availability should be clearly outlined in the proposal. Water supply is to be adequate, suitable and reliable for drinking, shed cooling, shed clean out, bush fire management and other facilities such as rest rooms, landscaping requirements etc. Water must meet standards detailed in the National Water Biosecurity Manual for Poultry Production and Model Code of Practice – Domestic Poultry (4th Edition). Poultry farms require back-up water supply or storage available equivalent to at least 2 days' total water requirement in case of a breakdown or loss of supply. The source of water and any sanitisation methods to be detailed in the application.
Surface & Groundwater protected	<ul style="list-style-type: none"> Proposed development design, operation and by-product management should be undertaken to avoid nutrient and sediment build up and minimise erosion, off site surface water movement and groundwater accession. The proposal should detail how design and operation will be undertaken for by-product management in accordance with best practice to prevent excess build-up of nutrients and salts in the soil profile and increase the risk of leaching. A monitoring program should be developed if spent litter is stored and applied on the subject property

Issue and desired outcome	Detail / Requirement
Biosecurity Standards met	<ul style="list-style-type: none"> • Separation distances from other poultry farms should meet minimum distances as detailed in Manual 1 of Best Practice Management for Meat Chicken Production • Include a biosecurity (pests, weeds and disease) risk assessment outlining the likely plant, animal and community risks as per guidelines in Attachment 2. • Develop a biosecurity response plan to deal with identified risks as well as contingency plans for any failures as described in the guidelines in Attachment 2. Including monitoring and mitigation measures in weed and pest management plans. • Dead animals must be effectively stored, handled and recycled or disposed of in a lawful manner that protects environmental values and biosecurity. Details of dead animal management and disposal must be fully detailed. If onsite disposal is proposed the management facility and operations must be fully documented. • Management Practices comply with the minimum standards described in: <ul style="list-style-type: none"> ○ Manual 1 & 2 of Best Practice Management for Meat Chicken Production in NSW ; ○ National Farm Biosecurity Manual for Poultry Production; ○ National Water Biosecurity Manual for Poultry Production
Effluent and spent litter disposal handled appropriately	<ul style="list-style-type: none"> • Effluent and spent litter must be effectively stored, handled and recycled or disposed of in a lawful manner that protects environmental values and biosecurity. • Any reuse areas should be appropriately designed on the basis of a nutrient budget that considers proposed annual volumes and nutrient loads, soil types, current soil nutrient levels and pasture or crop use rates via a reuse management plan.
Animal welfare compliance met	<ul style="list-style-type: none"> • Sheds and any range areas should be located, designed and managed to meet animal welfare standards and Best Practice Management as outlined in the guidelines in Attachment 2. • Demonstrated compliance with the Model Code of Practice - Domestic Poultry and the Model Code of Practice - Land transport of poultry
Suitable traffic movements	<ul style="list-style-type: none"> • Traffic movements (internal and public roads) should be suitable to provide all weather vehicle access to a suitable standard to accommodate the anticipated types and numbers of vehicles. • Consideration of the route for movements needs to be taken into account so that impacts on sensitive receptors are minimised (eg noise, dust, volume of traffic).
Visual amenity achieved	<ul style="list-style-type: none"> • Amenity impacts are assessed and any necessary response to mitigate visual impacts is described and illustrated.
Adequate consultation with community	<ul style="list-style-type: none"> • Consult with relevant agencies such as on the design, construction and operation of the proposed infrastructure. • Consult with the owners / managers of affected and adjoining neighbours and agricultural operations in a timely and appropriate manner about; the proposal, the likely impacts and suitable mitigation measures or compensation. • Establish a complaints register that includes reporting and investigating procedures and timelines, and liaison with Council in relation to complaint issues.
Contingency and Environmental Management Plan developed	<ul style="list-style-type: none"> • Contingency plans should be developed to enable the operation to deal with emergency situations. Commitment to the preparation of an Emergency Management plan that outlines procedures and responsibilities for responding to bushfire threats and possible mass mortality events which might result from extreme climatic conditions, routine or emergency animal disease outbreaks.

Appendix 2: Guidelines for assessment

Title	Location
Land Use Conflict Risk Assessment Guide	www.dpi.nsw.gov.au/content/agriculture/resources/lup/development-assessment/lucra
Better site selection for meat poultry developments	www.dpi.nsw.gov.au/agriculture/livestock/poultry/development
Best Practice Management for Meat Chicken Production in NSW, Manual 1 & 2	www.dpi.nsw.gov.au/agriculture/livestock/poultry/development http://www.dpi.nsw.gov.au/content/agriculture/resources/lup/development-assessment/lucra
Model Code of Practice for the Welfare of Animals - Poultry 4 th Edition	http://www.publish.csiro.au/book/3451/
National Farm Biosecurity Manual Poultry Production	www.farmbiosecurity.com.au/wp-content/uploads/2013/01/National-Farm-Biosecurity-Manual-Poultry-Production.pdf
National Water Biosecurity Manual Poultry Production	www.farmbiosecurity.com.au/wp-content/uploads/2012/11/National-Water-Biosecurity-Manual-Poultry-Production.pdf
Planning for Emergencies a guide for animal holding establishments	http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/209597/planning-for-emergencies-guide-for-animal-holding-establishments.pdf
Best practice guidelines for using poultry litter on pastures	www.dpi.nsw.gov.au/content/agriculture/pastures/pastures-and-rangelands/management/poultry-litter
National Environmental Management System for the Meat Chicken Industry - Version 2	www.rirdc.gov.au/research-programs/animal-industries/chicken-meat

Bianca Thornton

From: Carla Ganassin <carla.ganassin@dpi.nsw.gov.au>
Sent: Tuesday, 8 November 2016 2:04 PM
To: Bianca Thornton
Subject: Fwd: FW: HPRM: Proposal - SEAR 1107 - Poultry Farm (Livestock Intensive Industries), 180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326)
Attachments: Form A SEAR 1107.pdf

Hi Bianca,

No comment from Fisheries on this one.

It doesn't trigger any assessment under the *Fisheries Management Act*.

Regards,

Carla Ganassin | Fisheries Manager | Aquatic Ecosystems Unit
NSW Department of Primary Industries | Fisheries NSW
Block E, Level 3, 84 Crown Street, Wollongong NSW 2500
SEND MAIL TO: Locked Bag 1 | Nelson Bay NSW 2315
T: 02 4222 8342 | F: 02 4225 9056 | E: carla.ganassin@dpi.nsw.gov.au
W: www.dpi.nsw.gov.au

Conserve, Share, Provide

PERMIT APPLICATION FORMS & FISH HABITAT PROTECTION POLICIES AT:
www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats/toolkit
EMAIL COMPLETED APPLICATIONS TO: ahp.central@dpi.nsw.gov.au
APPLICATION PROCESSING TIMES (from date received): 28 days for Permits & Consultations; 40 days for IDA Referrals

----- Forwarded message -----

From: <ahp.central@dpi.nsw.gov.au>
Date: 3 November 2016 at 08:44
Subject: FW: HPRM: Proposal - SEAR 1107 - Poultry Farm (Livestock Intensive Industries), 180 Mockingbird Road, Pheasants Nest (Lot 264 DP 625326)
To: Carla Ganassin <carla.ganassin@dpi.nsw.gov.au>

FYI

| Rebecca Philps | Administration Officer - Aquatic Ecosystems |

Department of Primary Industries - Fisheries

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1243 Bruxner Hwy | Wollongbar NSW 2477 |

T: 026626 1269 | F: 02 6626 1377 | E: rebecca.philps@dpi.nsw.gov.au

W: www.industry.nsw.gov.au | www.dpi.nsw.gov.au

APPENDIX F

CORRESPONDENCE



The Royal
BOTANIC GARDENS
& Domain Trust

National Herbarium of New South Wales

Mr Daryl HARMAN
Wildthing Environmental Consultants
38c Stapleton Street
Wallsend, NSW 2287
AUSTRALIA

Enquiry No: 20132
Botanical.Is@rbgsyd.nsw.gov.au
Fax No: (02) 9251 1952
Ph No: (02) 9231 8111
Date: 5 June 2017

Dear Mr HARMAN,

Thank you for your enquiry of 23-May-17. We are happy to provide the following information:

Epacris probably *purpurascens* var. *purpurascens*, fertile material required to confirm det
S.F.McCune 29 May 2017

An invoice for \$44.00 (incl. GST) will be forwarded to you separately by our finance section to cover cost of identification.

Thank you for your enquiry.

Yours sincerely

Barbara Wiecek
Identification Botanist
Botanical Information Service



Go to our online Botanical Information Services at
plantnet.rbgsyd.nsw.gov.au to find out more about
plants of New South Wales



The Botanical Information Email address is Botanical.Is@rbgsyd.nsw.gov.au
Mrs Macquaries Road Sydney NSW 2000 Australia • Telephone (02) 9231 8111 • Fax (02) 9251 1952

An estate of the Royal Botanic Gardens and Domain Trust, a statutory body within the Office of Environment and Heritage, Department of Premier and Cabinet.

23 October 2017

Dear Daryl,

Thank you for your enquiry of 9 October 2017.

I have identified your specimens as:

Epacris purpurascens var. *purpurascens*

Both *persoonias* as *Persoonia linearis*.

We would like to keep your material of *E. purpurascens* so to that end require a precise locality ie lat/long or AMG and datum used please.

These identifications will not attract a fee if we are able to incorporate this material into the Herbarium.

Many thanks, Seanna

Seanna McCune
Senior Technical Officer - Botanical Information
National Herbarium of New South Wales



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http://www.rbgsyd.nsw.gov.au/plant_info/identifying_plants/plant_identification_service

The Royal Botanic Gardens and Domain Trust, which manages the Royal Botanic Garden, Sydney, the National Herbarium of New South Wales, the Australian Botanic Garden, Mount Annan, and the Blue Mountains Botanic Garden, Mount Tomah, is a statutory body within the Office of Environment and Heritage, Department of Premier and Cabinet.

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