Appendices

Appendix 1: Flora

Notes to tables:

EPBC Act: CR - Critically Endangered EN - Endangered VU – Vulnerable PMST – Protected Matters Search Tool	**DSE 2005:** e - endangered v - vulnerable r - rare k – insufficiently known
FFG Act: L - listed as threatened under FFG Act	
Noxious weed status: SP - State prohibited species RP - Regionally prohibited species RC - Regionally controlled species RR - Regionally restricted species	# - Native species outside natural range

A1.1 Flora species recorded from the broader Green Fields Station

Table A1.1. Flora species recorded from the broader Green Field Station – not all species occur in the project area.

Status	Scientific Name	Common Name
	Indigenous species	
	Acacia implexa	Lightwood
	Acacia mearnsii	Black Wattle
	Acacia melanoxylon	Blackwood
	Acacia paradoxa	Hedge Wattle
#	*Acacia provincialis*	Wirilda
	Acaena echinata	Sheep's Burr
L	*Allocasuarina luehmannii*	Buloke
	Allocasuarina spp.	Sheoak
	Alternanthera denticulata s.s.	Lesser Joyweed
k	*Alternanthera* sp. 1 (Plains)	Plains Joyweed
	Amphibromus neesii	Southern Swamp Wallaby-grass
	Amphibromus nervosus	Common Swamp Wallaby-grass
v	*Amyema linophylla* subsp. *orientale*	Buloke Mistletoe
	Amyema miquelii	Box Mistletoe
	Anthosachne scabra s.l.	Common Wheat-grass
	Asperula conferta	Common Woodruff
r	*Asperula wimmerana*	Wimmera Woodruff
	Asplenium flabellifolium	Necklace Fern
	Atriplex semibaccata	Berry Saltbush
	Austrostipa bigeniculata	Kneed Spear-grass
	Austrostipa curticoma	Short-crown Spear-grass
	Austrostipa densiflora	Dense Spear-grass
	Austrostipa nodosa	Knotty Spear-grass
	Austrostipa scabra	Rough Spear-grass
	Austrostipa scabra subsp. *falcata*	Rough Spear-grass
	Austrostipa scabra subsp. *scabra*	Rough Spear-grass
	Bolboschoenus caldwellii	Salt Club-sedge
	Bothriochloa macra	Red-leg Grass

Status	Scientific Name	Common Name
	Bursaria spinosa	Sweet Bursaria
	Bursaria spinosa subsp. *spinosa*	Sweet Bursaria
	Callistemon sieberi	River Bottlebrush
	Calotis anthemoides	Cut-leaf Burr-daisy
	Carex inversa	Knob Sedge
	Cassinia arcuata	Drooping Cassinia
	Centipeda cunninghamii	Common Sneezeweed
	Cheilanthes austrotenuifolia	Green Rock-fern
	Cheilanthes distans	Bristly Cloak-fern
	Cheilanthes sieberi subsp. *sieberi*	Narrow Rock-fern
	Chenopodium desertorum subsp. *microphyllum*	Small-leaf Goosefoot
	Chloris truncata	Windmill Grass
k	*Clematis decipiens*	Slender Clematis
	Clematis microphylla s.l.	Small-leaved Clematis
	Convolvulus angustissimus	Blushing Bindweed
k	*Convolvulus angustissimus* subsp. *omnigracilis*	Slender Bindweed
	Convolvulus remotus	Grass Bindweed
	Convolvulus wimmerensis	Wimmera Bindweed
	Correa glabra var. *glabra*	Rock Correa
	Crassula decumbens var. *decumbens*	Spreading Crassula
	Crassula sieberiana s.s.	Sieber Crassula
	Cuscuta spp.	Dodder
e	*Cullen parvum*	Small Scurf-pea
	Cynoglossum suaveolens	Sweet Hound's-tongue
	Cyperus lhotskyanus	Creeping Flat-sedge
k	*Desmodium varians*	Slender Tick-trefoil
	Dianella admixta	Black-anther Flax-lily
	Dianella brevicaulis	Small-flower Flax-lily
v	*Dianella* sp. aff. *longifolia* (Benambra)	Arching Flax-lily
	Dichelachne spp.	Plume Grass
	Dichondra repens	Kidney-weed

Status	Scientific Name	Common Name
	Distichlis distichophylla	Australian Salt-grass
#	*Dysphania pumilio*	Clammy Goosefoot
	Echinopogon ovatus	Common Hedgehog-grass
	Einadia nutans subsp. *nutans* (s.s.)	Nodding Saltbush
	Eleocharis acuta	Common Spike-sedge
k	*Eleocharis pallens*	Pale Spike-sedge
v	*Eleocharis plana*	Flat Spike-sedge
	Eleocharis pusilla	Small Spike-sedge
	Eleocharis sphacelata	Tall Spike-sedge
	Enchylaena tomentosa var. *tomentosa*	Ruby Saltbush
	Enneapogon nigricans	Dark Bottle-washers
	Epilobium spp.	Willow Herb
	Eragrostis brownii	Common Love-grass
#	*Eriochloa pseudoacrotricha*	Early Spring-grass
	Erodium crinitum	Blue Heron's-bill
	Eryngium ovinum	Blue Devil
e	*Eucalyptus baueriana* subsp. *thalassina*	Werribee Blue-box
	Eucalyptus camaldulensis	River Red-gum
	Eucalyptus melliodora	Yellow Box
	Eucalyptus microcarpa	Grey Box
	Eucalyptus spp.	Eucalypt
#	*Euphorbia drummondii*	Flat Spurge
	Ficinia nodosa	Knobby Club-sedge
	Galium migrans spp. agg.	Wandering Bedstraw
	Geranium retrorsum s.s.	Grassland Crane's-bill
	Glycine tabacina s.s.	Vanilla Glycine
	Goodenia gracilis	Slender Goodenia
	Goodenia humilis	Swamp Goodenia
	Haloragis heterophylla	Varied Raspwort
	Helichrysum luteoalbum	Jersey Cudweed
	Isolepis cernua var. *platycarpa*	Broad-fruit Club-sedge
	Isolepis producta	Nutty Club-sedge

Status	Scientific Name	Common Name
	Juncus australis	Austral Rush
	Juncus spp.	Rush
	Juncus subsecundus	Finger Rush
	Lachnagrostis filiformis s.s.	Common Blown-grass
	Leptospermum lanigerum	Woolly Tea-tree
	Lobelia anceps	Angled Lobelia
	Lobelia pratioides	Poison Lobelia
	Lomandra filiformis	Wattle Mat-rush
	Lysiana exocarpi	Harlequin Mistletoe
	Lythrum hyssopifolia	Small Loosestrife
	Maireana decalvans	Black Cotton-bush
	Maireana enchylaenoides	Wingless Bluebush
	Marsilea costulifera	Narrow-leaf Nardoo
	Marsilea drummondii	Common Nardoo
	Melicytus dentatus s.s.	Tree Violet
	Mentha diemenica	Slender Mint
	Microlaena stipoides var. *stipoides*	Weeping Grass
	Muehlenbeckia florulenta	Tangled Lignum
r	*Nicotiana suaveolens*	Austral Tobacco
	Oxalis perennans	Grassland Wood-sorrel
	Panicum decompositum var. *decompositum*	Native Millet
	Panicum effusum	Hairy Panic
	Parietaria debilis s.s.	Shade Pellitory
	Pelargonium australe	Austral Stork's-bill
	Pellaea falcata s.s.	Sickle Fern
	Persicaria decipiens	Slender Knotweed
	Persicaria lapathifolia	Pale Knotweed
	Persicaria prostrata	Creeping Knotweed
	Phragmites australis	Common Reed
CR, L, e	*Pimelea spinescens* subsp. *spinescens*	Spiny Rice-flower
	Pleurosorus rutifolius s.s.	Blanket Fern

Status	Scientific Name	Common Name
	Poa labillardierei	Common Tussock-grass
k	*Poa labillardierei* var. (Volcanic Plains)	Basalt Tussock-grass
	Poa sieberiana var. *sieberiana*	Grey Tussock-grass
	Portulaca oleracea	Common Purslane
	Rhagodia candolleana subsp. *candolleana*	Seaberry Saltbush
#, r	*Rhagodia parabolica*	Fragrant Saltbush
	Rumex brownii	Slender Dock
	Rumex dumosus	Wiry Dock
	Rytidosperma auriculatum	Lobed Wallaby-grass
	Rytidosperma bipartitum s.s.	Leafy Wallaby-grass
	Rytidosperma caespitosum	Common Wallaby-grass
	Rytidosperma duttonianum	Brown-back Wallaby-grass
	Rytidosperma fulvum	Copper-awned Wallaby-grass
	Rytidosperma geniculatum	Kneed Wallaby-grass
	Rytidosperma racemosum var. *racemosum*	Slender Wallaby-grass
	Rytidosperma setaceum	Bristly Wallaby-grass
	Salsola tragus subsp. *tragus*	Prickly Saltwort
	Schoenoplectus tabernaemontani	River Club-sedge
k	*Sclerolaena muricata* var. *muricata*	Black Roly-poly
	Sclerolaena muricata var. *villosa*	Grey Roly-poly
	Solanum laciniatum	Large Kangaroo Apple
	Stackhousia subterranea	Plains Stackhousia
	Themeda triandra	Kangaroo Grass
	Tricoryne elatior	Yellow Rush-lily
	Triglochin striata	Streaked Arrowgrass
	Typha domingensis	Narrow-leaf Cumbungi
	Urtica incisa	Scrub Nettle
	Vittadinia cuneata	Fuzzy New Holland Daisy
	Vittadinia gracilis	Woolly New Holland Daisy
	Wahlenbergia communis s.s.	Tufted Bluebell
	Wahlenbergia gracilis	Sprawling Bluebell

Status	Scientific Name	Common Name
	Wahlenbergia luteola	Bronze Bluebell
	Walwhalleya proluta	Rigid Panic
Introduced species		
	Acetosella vulgaris	Sheep Sorrel
	Aira elegantissima	Delicate Hair-grass
	Amaranthus albus	Stiff Tumbleweed
	Aptenia cordifolia	Heart-leaf Ice-plant
	Arctotheca calendula	Cape Weed
RR	*Asparagus asparagoides*	Bridal Creeper
RR	*Asphodelus fistulosus*	Onion Weed
	Aster subulatus	Aster-weed
	Atriplex prostrata	Hastate Orache
	Avena barbata	Bearded Oat
	Avena fatua	Wild Oat
	Brassica fruticulosa	Twiggy Turnip
	Brassica tournefortii	Mediterranean Turnip
	Briza minor	Lesser Quaking-grass
	Bromus catharticus	Prairie Grass
	Bromus diandrus	Great Brome
	Bromus hordeaceus subsp. *hordeaceus*	Soft Brome
RC	*Carthamus lanatus*	Saffron Thistle
	Cenchrus clandestinus	Kikuyu
	Chenopodium album	Fat Hen
	Chenopodium murale	Sowbane
RP	*Chondrilla juncea*	Skeleton Weed
RC	*Cirsium vulgare*	Spear Thistle
	Conyza bonariensis	Flaxleaf Fleabane
	Cotula coronopifolia	Water Buttons
	Cucumis myriocarpus subsp. *leptodermis*	Paddy Melon
RC	*Cynara cardunculus* subsp. *flavescens*	Artichoke Thistle
	Cynodon dactylon var. *dactylon*	Couch
	Cyperus eragrostis	Drain Flat-sedge

Status	Scientific Name	Common Name
	Dactylis glomerata	Cocksfoot
RC	*Datura stramonium*	Common Thorn-apple
RC	*Diplotaxis tenuifolia*	Sand Rocket
RC	*Dipsacus fullonum* subsp. *fullonum*	Wild Teasel
	Ecballium elaterium	Squirting Cucumber
RC	*Echium plantagineum*	Paterson's Curse
RC	*Echium vulgare*	Viper's Bugloss
	Ehrharta erecta var. *erecta*	Panic Veldt-grass
	Ehrharta longiflora	Annual Veldt-grass
	Eleusine tristachya	American Crows-foot Grass
	Erodium botrys	Big Heron's-bill
	Erodium cicutarium	Common Heron's-bill
	Erodium malacoides	Oval Heron's-bill
	Erodium moschatum	Musky Heron's-bill
	Eucalyptus cladocalyx	Sugar Gum
	Euphorbia peplus	Petty Spurge
RR	*Foeniculum vulgare*	Fennel
	Fumaria spp.	Fumitory
	Galenia pubescens var. *pubescens*	Galenia
	Galium aparine	Cleavers
RC	*Genista monspessulana*	Montpellier Broom
	Heliotropium europaeum	Common Heliotrope
	Helminthotheca echioides	Ox-tongue
	Hordeum leporinum	Barley-grass
	Hordeum murinum s.l.	Barley-grass
	Hypochaeris radicata	Flatweed
	Kickxia elatine	Hairy Toadflax
	Lactuca serriola	Prickly Lettuce
	Leontodon taraxacoides subsp. *taraxacoides*	Hairy Hawkbit
	Lepidium africanum	Common Peppercress
	Lolium perenne	Perennial Rye-grass

Status	Scientific Name	Common Name
	Lolium rigidum	Wimmera Rye-grass
RC	*Lycium ferocissimum*	African Box-thorn
	Lysimachia arvensis	Pimpernel
	Malva nicaeensis	Mallow of Nice
	Malva parviflora	Small-flower Mallow
RC	*Marrubium vulgare*	Horehound
	Medicago polymorpha	Burr Medic
	Modiola caroliniana	Red-flower Mallow
	Nassella hyalina	Cane Needle-grass
	Nassella leucotricha	Texas Needle-grass
RR	*Nassella neesiana*	Chilean Needle-grass
RC	*Nassella trichotoma*	Serrated Tussock
	Nicotiana glauca	Tree Tobacco
	Opuntia spp.	Prickly Pear
RR	*Oxalis pes-caprae*	Soursob
	Paronychia brasiliana	Whitlow Wort
	Paspalum dilatatum	Paspalum
	Paspalum distichum	Water Couch
	Persicaria maculosa	Redshank
	Phalaris aquatica	Toowoomba Canary-grass
	Phalaris minor	Lesser Canary-grass
RC	*Physalis hederifolia*	Sticky Ground-cherry
	Phytolacca octandra	Red-ink Weed
	Pinus radiata	Radiata Pine
	Plantago coronopus	Buck's-horn Plantain
	Plantago lanceolata	Ribwort
	Polycarpon tetraphyllum	Four-leaved Allseed
	Polygala monspeliaca	Annual Milkwort
	Polygonum arenastrum	Wireweed
	Polygonum aviculare s.s.	Hogweed
	Polypogon monspeliensis	Annual Beard-grass
	Ranunculus sceleratus subsp. *sceleratus*	Celery Buttercup

Status	Scientific Name	Common Name
RR	*Reseda luteola*	Weld
	Romulea rosea	Onion Grass
	Rorippa palustris	Marsh Yellow-cress
RC	*Rosa rubiginosa*	Sweet Briar
	Rumex conglomeratus	Clustered Dock
	Rumex crispus	Curled Dock
RR	*Salix* spp.	Willow
	Salvia verbenaca	Wild Sage
	Schinus molle	Pepper Tree
RC	*Scolymus hispanicus*	Golden Thistle
	Setaria parviflora	Slender Pigeon Grass
	Setaria spp. (naturalised)	Pigeon Grass
RC	*Silybum marianum*	Variegated Thistle
RC	*Solanum linnaeanum*	Apple of Sodom
	Solanum nigrum s.s.	Black Nightshade
	Solanum pseudocapsicum	Madeira Winter-cherry
	Sonchus asper s.s.	Rough Sow-thistle
	Sonchus oleraceus	Common Sow-thistle
	Spergularia media s.s.	Greater Sea-spurrey
	Tradescantia fluminensis	Wandering Jew
	Trifolium angustifolium var. *angustifolium*	Narrow-leaf Clover
	Trifolium glomeratum	Cluster Clover
	Trifolium spp.	Clover
	Trifolium subterraneum	Subterranean Clover
RC	*Ulex europaeus*	Gorse
	Urtica urens	Small Nettle
RR	*Verbascum thapsus* subsp. *thapsus*	Great Mullein
	Verbascum virgatum	Twiggy Mullein
	Vicia sativa	Common Vetch
	Vulpia bromoides	Squirrel-tail Fescue
RC	*Xanthium spinosum*	Bathurst Burr

A1.2 Listed flora species

The following table includes the listed flora species that have potential to occur within the project area and broader Green Fields Station area. The list of species is sourced from the Victorian Flora Information System and the Protected Matters Search Tool.

Table A1.2. Listed flora species recorded / predicted to occur within 5 km of the project area.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
National significance							
Carex tasmanica	Curly Sedge	VU	v	L	#	Low	Curly Sedge is a small to medium size grass-like species which typically grows in seasonally damp grassland or grassy woodland (Carter 2010). This species may be found in such vegetation types within Green Fields Station, including drainage lines associated with the Werribee River, although it was not recorded during the current assessment. The species is otherwise only known from the Merri Creek and its tributaries near Craigieburn and in western Victoria near Portland.
Dianella amoena	Matted Flax-lily	EN	E	L	PMST	Low	Matted Flax-lily occurs in lowland grassland and grassy woodland, on well-drained to seasonally waterlogged fertile sandy loam soils to heavy cracking clays. It is mostly recorded north and north-east of Melbourne and in central and western Victoria in areas with higher average rainfall than Green Fields Station. Occasional records occur in the Werribee and Rockbank areas. This species is considered unlikely to occur in the dry grasslands in the Project Area.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Diuris basaltica	Small Golden Moths	EN	v	L	2006/#	Low	This orchid is endemic to Melbourne's west where it occurs in Plains Grassland dominated by tussock-forming perennial grasses (including Kangaroo Grass); often with embedded surface basalt (Backhouse & Lester 2009). Like most other terrestrial orchid species in Victoria, this species is summer deciduous. Its underground tuberoids may persist for several seasons but not produce leaves or flowers in the absence of suitable conditions. The largest known population occurs on private land at Rockbank (Backhouse and Lester 2009). Suitable habitat does occur within Green Fields Station although this species has not been recorded.
Glycine latrobeana	Clover Glycine	V	v	L	2006/#	Low	Clover Glycine is a small herb which occupies grassland and grassy woodland habitats throughout western Victoria as well as a number of other vegetation type elsewhere (Carter and Sutter 2010). Higher quality grassland within Green Fields Station may be regarded as suitable habitat for this species although it was not recorded during the current assessment. The record from Eynesbury woodland has been identified as a mistake although the species has been recorded from the eastern side of the Werribee River.
Pimelea spinescens subsp. *spinescens*	Spiny Rice-flower	CR	e		2011	Recorded	Within the Victorian Volcanic Plain this small shrub typically occurs in Plains Grassland between Keilor and Dunkeld in the state's west. It occurs in grassland of varying condition although it does not persist with ongoing soil disturbance such as ploughing. Areas where this species are more abundant tend to include Plains Grassland with a moderate diversity of other native species and some open spaces between grass tussocks. However, it has also been observed in grassland dominated by introduced perennial grasses provided that other conditions allow it to persist. This species was recorded from one location within the project area during the current assessment.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Prasophyllum frenchii	Maroon Leek-orchid	E	e	L	#	Low	This orchid occurs in a variety of grassland and grassy woodland environments throughout southern Victoria. The nearest record of this species is from west of Meredith on the other side of the Brisbane Ranges while it appears to be otherwise more common in eastern Victoria. Suitable habitat is present for this species but it is unlikely to be present in any but the least disturbed environments. This species was not recorded within Green Fields Station.
Rutidosis leptorhynchoides	Button Wrinklewort	EN	e	L	#/1979	Low	Button Wrinklewort occupies higher quality Plains Grassland and Grassy Woodland in Western Victoria and is quite scarce in the Melbourne region. Some Plains Grassland within the project area appear to be structurally suitable for this species but lacks the appropriate fire regime (DSE 2003) which is likely to be required for broader scale maintenance of this species' habitat requirements.
Senecio macrocarpus	Large-headed Fireweed	VU	e	L	#	Medium	This species grows on heavy soils in grassland, shrubland and woodland habitats but is typically associated with grasslands in western Melbourne (DSE 2009b). It has been previously recorded from Manor (just west of Werribee) and Rockbank. It is sensitive to inappropriate fire regimes and may persist in relatively long unburnt grassland. There are several areas of grassland within Green Fields Station that may be regarded as suitable habitat for this species although it was not recorded during the current assessment. Although this species was not detected by the current targeted survey it is a species that may lie dormant until stimulated by disturbance and may still occur on the site.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
State significant							
Acacia verniciflua (Bacchus Marsh variant)	Bacchus Marsh Varnish Wattle		v		2010	No habitat modeled by DEPI habitat importance model	This shrub typically grows in shrubland and woodland habitats around Bacchus Marsh. A single plant has been recorded from the Eynesbury Woodland adjacent to the Green Fields Station project area. It may persist in sheltered areas of Escarpment shrubland but is otherwise likely to have been eliminated by browsing by domestic stock and rabbits.
Allocasuarina luehmannii	Buloke			L	2010	Recorded. No habitat modeled by DEPI habitat importance model	Buloke is a medium size tree which occurs predominantly in the state's northwest. It occurs in scattered location on the volcanic plain west of Melbourne and has recorded from the project area.
Amyema linophylla subsp. *orientale*	Buloke Mistletoe		v		2010	See DEPI habitat importance model	This parasitic shrub is host specific to Buloke *Allocasuarina luehmannii*. It is likely to occur anywhere where its host is present and was recorded in a number of locations within Green Fields Station.
Asperula wimmerana	Wimmera Woodruff		r		2010	Recorded. See DEPI habitat importance model	This small herb has only recently been recognised as naturally occurring in grassland in outer eastern Melbourne, and is otherwise known from the mallee. It was recorded along a drainage line to the north west of the Eynesbury Woodland but has the potential to occur in any remnant grassland habitat. Other populations within the area may have been overlooked due to similarities with the more common *Asperula conferta*.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Austrostipa exilis	Heath Spear-grass		r		2006	See DEPI habitat importance model	Heath Spear-grass occurs predominately in drier Plains Grassland and grassy woodlands (Walsh and Entwisle 1994). This species may be found in Plains Grassland patches within the project area. Heath Spear-grass has been recorded from the Eynesbury woodland and the smaller Grey Box woodland in the north of the project area.
Austrostipa hemipogon	Half-beared Spear-grass		r		2006	No habitat modeled by DEPI habitat importance model	Half-bearded Spear-grass occurs predominately in drier Plains Grassland and grassy woodlands (Walsh and Entwisle 1994). This taxon may be found in Plains Grassland patches within the project area. Half-bearded Spear-grass has been recorded on the eastern side of the Werribee River but was not recorded during the current assessment.
Chenopodium desertorum subsp. *desertorum*	Frosted Goosefoot		r		2008	No habitat modeled by DEPI habitat importance model	Frosted Goosefoot is a prostrate or erect, annual or perennial herb which occurs predominantly in the north west of the state, with scattered records west of Melbourne. The closely related *Chenopodium desertorum* subsp. *microphyllum* has been recorded from within the project area. There is potential for Frosted Goosefoot to occur in areas of grassland and woodland within the project area.
Cullen parvum	Small Scurf-pea		e	L	2008	See DEPI habitat importance model	Small Scurf-pea is a small herb which typically occupies Plains Grassland. There are records of this species from the Golf Course at Inner Eynesbury (BL&A 2007) although the species was not recorded in the project area during the current assessment. Areas of suitable grassland habitat exist within Green Fields Station and it is plausible that the species is present in the rocky grassland environments of the project area.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Cullen tenax	Tough Scurf-pea		e	L	2010	See DEPI habitat importance model	Tough Scurf-pea is a medium size herb which typically occupies Plains Grassland. It has been recorded from within 5 km of the project area east of the Werribee River near Mount Cottrell.
Dianella sp. aff. *longifolia* (Benambra)	Arching Flax-lily		v		2011	Recorded. No habitat modelled by DEPI habitat importance model.	This species is scattered in grassland and woodland of varying condition within broader western Melbourne area and within the project area. It occurs in several locations within Green Fields Station including but predominantly in rocky grasslands and rocky outcrops. It has also been recorded from the Eynesbury Woodland. Any remnant grassland or woodland within the project area is habitat for this species. It is conspicuous and readily visible most times of the year.
Eleocharis plana	Flat Spike-sedge		v		2010	See DEPI habitat importance model	Flat Spike-sedge was recorded along most drainage lines and area supporting Plains Grassy Wetland. These medium non-tufted graminoids grow in seasonally inundated areas such as Plains Grassy Wetland patches. The species dies back during drier periods and are often heavily grazed during wetter periods.
Eucalyptus baueriana subsp. *thalassina* (Werribee)	Werribee Blue-box		e		2010	No habitat modelled by DEPI habitat importance model.	This endangered tree species is restricted to escarpments and rocky drainage line associated with the Werribee River and was recorded within a number of such places within the project area.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Geranium solanderi var. *solanderi s.s.*	Austral Crane's-bill		v		2010	See DEPI habitat importance model	This tufted scrambling herb is thought to have once been widespread in grassland and woodland areas but is now considered to be quire uncommon. It has been recorded east of the project area near Mount Cottrell. Grassland and grassy woodland areas within the project area may provide suitable habitat for the species.
Geranium sp. 3	Pale-flower Crane's-bill		r		2011	No habitat modelled by DEPI habitat importance model.	Medium herb sometimes found in grassy vegetation, but Pale-flower Crane's-bill tends to occupy somewhat wetter sites (Smith 1999). Given the relatively recent taxonomic revisions in this plant group, it is difficult to speculate further about the specific habitat requirements of each on the western basalt plain. As such, it is assumed that any grassland or grassy woodland is suitable habitat for this species within the project area (where hydrology is not a limiting factor).
Goodenia heterophylla subsp. *heterophylla*	Variable Goodenia		r		2008	No habitat modelled by DEPI habitat importance model.	This small herb has very few records within Victoria and only one to the west of Melbourne, just south of Green Fields Station. This species typically occurs in rocky environments and therefore has the potential to occur in many of the remnant patches of native vegetation within Green Fields Station.
Goodenia macbarronii	Narrow Goodenia		v	L	2008	No habitat modelled by DEPI habitat importance model.	This small annual herb has very few records within Victoria but has been recorded just south of Green Fields Station. This species typically occurs in damp or waterlogged soils near lakes or watercourses and has the potential to occur in plains grassy wetland areas within Green Fields Station.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Grevillea steiglitziana	Brisbane Range Grevillea		r		1925	No habitat modelled by DEPI habitat importance model.	This low growing shrub has a restricted range occurring chiefly in the vicinity of the Brisbane Ranges. An old record exists from Balliang East just to the west of the project area; however it has not been recorded from within 5 km of the project area since 1925.
Nicotiana suaveolens	Austral Tobacco		r		2011	No habitat modeled by DEPI habitat importance model.	This perennial herb it typically associated with drainage lines and has been recorded from escarpment shrublands draining into the Werribee River. There is potential for the species to occupy additional areas of escarpment shrubland along the Werribee River.
Pterostylis truncata	Brittle Greenhood		e		2000	No habitat modelled by DEPI habitat importance model.	This small terrestrial orchid occurs in grassland and grassy woodland habitats, largely to the west of Melbourne. It is known from the Eynesbury Woodland and could potentially persist in the less disturbed grassland environments of Green Fields Station. It is otherwise known from populations within the You Yangs.
Rhagodia parabolica	Fragrant Saltbush		r		2011	No habitat modelled by DEPI habitat importance model.	Fragrant Saltbush is a medium size shrub which is scattered in plains and escarpment grassland, shrubland and woodland. There are a number of records within the woodland and escarpment environments within Green Fields Station.

Scientific name	Common name	Conservation status			Most recent record	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG			
Tripogon loliiformis	Rye Beetle-grass		r		2008	See DEPI habitat importance model	Rye Beetle-grass has been recorded on private land all around the project area and is likely to occur in association with escarpments and rocky outcrops.

Appendix 2: Fauna

Notes to tables:

EPBC Act:	**DSE 2013:**
EX - Extinct CR - Critically Endangered EN - Endangered VU - Vulnerable CD - Conservation dependent PMST – Protected Matters Search Tool	ex - extinct cr - critically endangered en - endangered vu - vulnerable nt - near threatened dd - data deficient rx - regionally extinct
FFG Act: L - listed as threatened under FFG Act N - nominated for listing as threatened I - determined ineligible for listing	
PS - pest species listed under the CaLP Act	* - introduced species

Fauna species in these tables are listed in alphabetical order within their taxonomic group.

A2.1 Fauna species recorded from the broader Green Fields Station

Table A2.1. Vertebrate fauna recorded from the broader Green Fields Station – not all species occur in the project area.

Status	Scientific Name	Common Name
	Mammals	
*	*Felis catus*	Cat
*	*Lepus europeaus*	European Hare
	Macropus giganteus	Eastern Grey Kangaroo
*	*Mus musculus*	House Mouse
*	*Oryctolagus cuniculus*	European Rabbit
nt	*Sminthopsis crassicaudata*	Fat-tailed Dunnart
	Tadarida australis	White-striped Freetail Bat
	Trichosurus vulpecula	Common Brushtail Possum
*	*Vulpes vulpes*	Red Fox
	Wallabia bicolor	Swamp Wallaby
	Birds	
	Acanthiza chrysorrhoa	Yellow-rumped Thornbill
	Accipiter fasciatus	Brown Goshawk
*	*Sturnus tristis*	Common Myna
	Acrocephalus stentoreus	Clamorous Reed Warbler
*	*Alauda arvensis*	European Skylark
	Anas castanea	Chestnut Teal
	Anas gracilis	Grey Teal
v	*Anas rhynchotis*	Australasian Shoveler
	Anas superciliosa	Pacific Black Duck
	Anthochaera carunculata	Red Wattlebird
	Anthus novaeseelandiae	Australasian Pipit
	Aquila audax	Wedge-tailed Eagle
	Ardea pacifica	White-necked Heron
v	*Biziura lobata*	Musk Duck
	Cacatua galerita	Sulphur-crested Cockatoo
	Cacatua tenuirostris	Long-billed Corella
*	*Carduelis carduelis*	European Goldfinch

Status	Scientific Name	Common Name
*	*Carduelis chloris*	European Greenfinch
	Chenonetta jubata	Australian Wood Duck
	Cincloramphus cruralis	Brown Songlark
nt	*Circus assimilis*	Spotted Harrier
nt	*Climacteris picumnus victoriae*	Brown Treecreeper
	Coracina novaehollandiae	Black-faced Cuckoo-shrike
	Corvus mellori	Little Raven
	Coturnix pectoralis	Stubble Quail
	Coturnix ypsilophora	Brown Quail
	Cracticus tibicen	Australian Magpie
	Cygnus atratus	Black Swan
	Dacelo novaeguineae	Laughing Kookaburra
nt	*Dromaius novaehollandiae*	Emu
	Egretta novaehollandiae	White-faced Heron
	Elseyornis melanops	Black-fronted Dotterel
	Eolophus roseicapillus	Galah
	Epthianura albifrons	White-fronted Chat
	Falco berigora	Brown Falcon
	Falco cenchroides	Nankeen Kestrel
	Falco longipennis	Australian Hobby
	Fulica atra	Eurasian Coot
	Gallinula tenebrosa	Dusky Moorhen
	Glossopsitta porphyrocephala	Purple-crowned Lorikeet
	Glossopsitta pusilla	Little Lorikeet
	Grallina cyanoleuca	Magpie-lark
	Haliastur sphenurus	Whistling Kite
	Hieraaetus morphnoides	Little Eagle
	Hirundo neoxena	Welcome Swallow
	Lichenostomus penicillatus	White-plumed Honeyeater
	Malurus cyaneus	Superb Fairy-wren
	Manorina melanocephala	Noisy Miner
	Mirafra javanica	Horsfield's Bushlark

Status	Scientific Name	Common Name
	Myiagra inquieta	Restless Flycatcher
	Neochmia temporalis	Red-browed Finch
	Ninox novaeseelandiae	Southern Boobook
	Ocyphaps lophotes	Crested Pigeon
	Pardalotus striatus	Striated Pardalote
*	*Passer domesticus*	House Sparrow
	Pelecanus conspicillatus	Australian Pelican
	Petrochelidon nigricans	Tree Martin
	Phalacrocorax carbo	Great Cormorant
	Phylidonyris novaehollandiae	New Holland Honeyeater
	Platycercus eximius	Eastern Rosella
	Poliocephalus poliocephalus	Hoary-headed Grebe
	Porphyrio porphyrio	Purple Swamphen
	Psephotus haematonotus	Red-rumped Parrot
	Rhipidura albiscapa	Grey Fantail
	Rhipidura leucophrys	Willie Wagtail
	Sericornis frontalis	White-browed Scrubwren
*	*Streptopelia chinensis*	Spotted Turtle-Dove
*	*Sturnus vulgaris*	Common Starling
	Tachybaptus novaehollandiae	Australasian Grebe
	Tadorna tadornoides	Australian Shelduck
	Taeniopygia guttata	Zebra Finch
	Threskiornis molucca	Australian White Ibis
	Threskiornis spinicollis	Straw-necked Ibis
*	*Turdus merula*	Common Blackbird
	Tyto javanica	Pacific Barn Owl
	Vanellus miles	Masked Lapwing
	Reptiles	
	Amphibolurus muricatus	Tree Dragon
	Ctenotus robustus	Large Striped Skink
	Egernia cunninghami	Cunningham's Skink
	Lampropholis delicata	Delicate Skink

Status	Scientific Name	Common Name
	Lampropholis guichenoti	Garden Skink
	Lerista bougainvillii	Bougainville's Skink
	Tiliqua scincoides	Common Blue-tongued Lizard
	Pseudechis porphyriacus	Red-bellied Black Snake
	Pseudemoia pagenstecheri	Tussock Skink
	Suta flagellum	Little Whip Snake
	Frogs	
	Crinia signifera	Common Froglet
	Limnodynastes dumerilii	Southern Bullfrog
	Limnodynastes tasmaniensis	Spotted Marsh Frog
VU, en, L	*Litoria raniformis*	Growling Grass Frog
	Neobatrachus sudelli	Common Spadefoot Toad
	Fishes	
	Anguilla australis	Southern Shortfin Eel
*	*Cyprinus carpio*	European Carp
*	*Gambusia holbrooki*	Eastern Gambusia
*	*Perca fluviatilis*	Redfin
	Philypnodon grandiceps	Flathead Gudgeon
	Retropinna semoni	Australian Smelt
	Crustaceans	
	Amarinus lacustris	Freshwater Crab
	Euastacus yarraensis	Southern Victorian Spiny Cray
	Paratya australiensis	Freshwater Shrimp
	Invertebrates	
CR,cr, L	*Synemon plana*	Golden Sun Moth

A2.2 Listed fauna species

The following table includes a list of the listed fauna species that have potential to occur within the project area. The list of species is sourced from the Victorian Biodiversity Atlas and the Protected Matters Search Tool.

Table A2.2. Listed fauna species recorded, or predicted to occur, within 5 km of the project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Mammals								
Perameles gunnii	Eastern Barred Bandicoot	EN	ew	L	1881		Negligible	Historically inhabited native grassland and grassy woodland habitats. On the mainland, the species is extinct across much of its previous range and is now restricted to a few isolated populations in western Victoria. The project area is outside the current known range for this species.
Pteropus poliocephalus	Grey-headed Flying-fox	VU	vu	L	2002	PMST	Low	The Grey-headed Flying-fox is a large bat that feeds on the nectar, fruits and leaves of many different plants. The species is highly mobile and will regularly travel up to 50 km away from roost sites while foraging. While there is potential for individuals to fly over the project area and occasionally forage within remnant and/or planted trees, the project area is not considered to contain any critical habitat for the foraging and roosting requirements of the Grey-headed Flying-fox.
Sminthopsis crassicaudata	Fat-tailed Dunnart		nt		2011		No habitat modeled by DEPI habitat importance model	This small nocturnal marsupial is characteristically found in lowland grasslands and grassy woodlands. This species was recorded within the broader Green Fields Station project area and is likely to be present within the current project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Birds								
Accipiter novaehollandiae	Grey Goshawk		vu	L	2006		See DEPI habitat importance model	The Grey Goshawk occurs in forests and woodlands of coastal and sub coastal areas, with nest sites generally in the canopy of mature dense forest. They generally hunt within or near vegetated shelter. This species may occasionally use areas of Plains Woodland and Plains Grassy Woodland within the broader Green Fields Station project area.
Actitis hypoleucos	Common Sandpiper		vu		1990		No habitat modeled by DEPI habitat importance model	The Common Sandpiper inhabits a wide variety of coastal and inland wetlands with muddy margins. This migratory species arrives in Australia from Eurasia in August before departing north in March. Natural and artificial wetlands within the broader local area may contain suitable habitat for this species, however this species is highly unlikely to occur within the current project area.
Alcedo azurea	Azure Kingfisher		nt		1988		No habitat modeled by DEPI habitat importance model	Species is typically found in vegetation at the edge of wetlands, particularly well-vegetated rivers or creeks with slow flowing water. Widespread in eastern Victoria. Species has potential to occur along Werribee River but is highly unlikely to occur within the current project area.
Anas rhynchotis	Australasian Shoveler		vu		2002		See DEPI habitat importance model	Prefers large, deep permanent lakes and swamps with abundant aquatic vegetation. Less commonly recorded in small or shallow waters, such as billabongs, sewage ponds, freshwater rivers and densely vegetated farm dams. Open water is needed for foraging but birds nest in densely vegetated freshwater wetlands. This species was recorded in a large dam to the west of Werribee River during the assessment of the broader Green Fields Station project area, but is considered unlikely to occur within the current project area due to lack of suitable wetland habitat.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Anseranas semipalmata	Magpie Goose		nt	L	1977		No habitat modeled by DEPI habitat importance model	Inhabits large wetlands and to a lesser extent well-vegetated dams. Foraging occurs in wet pasture environments or on crop land. More common in tropical north Australia; considered unlikely to occur
Anthochaera phrygia	Regent Honeyeater	EN	cr	L	-	PMST	Negligible	Inhabits dry woodlands and forests dominated by box and ironbark eucalypts. Breeding is mostly confined to a small number of sites in north-eastern Victoria and along the inland slopes of the Great Dividing Range in New South Wales.
Ardea intermedia	Intermediate Egret		en	L	1980		No habitat modeled by DEPI habitat importance model	Intermediate Egrets occupy a wide range of wetlands and typically prefer the shallows of wetlands for foraging activities. Will forage in small waterways or wet grassland areas. This species has been previously recorded within the broader Green Fields Station study.
Ardea modesta	Eastern Great Egret		vu	L	2002	PMST	No habitat modeled by DEPI habitat importance model	Usually found in terrestrial wetland, estuarine and wet grassland habitats. The species prefers permanent well-vegetated waterbodies but also use freshwater meadows, channels and larger dams. Individuals tend to roost and breed in wetlands with fringing or flooded trees. Most Victorian breeding sites are in the Murray-Darling basin.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Ardeotis australis	Australian Bustard		cr	L	1911		No habitat modeled by DEPI habitat importance model	Occupies grasslands, grassy woodlands, low shrublands and pastoral lands. Distribution in Victoria is restricted to Mallee and Wimmera areas in the north-west. Highly unlikely to occur within the project area or surrounding region.
Aythya australis	Hardhead		vu		2006		See DEPI habitat importance model	A mainly aquatic species preferring large, deep freshwater environments with abundant aquatic vegetation, including slow moving areas of rivers. This species also occurs in brackish wetlands and can be found in deep dams and water storage ponds. Highly likely to utilise wetlands within the broader Green Fields Station project area but unlikely to occur within the current project area due to lack of suitable habitat.
Biziura lobata	Musk Duck		vu		2010		No habitat modeled by DEPI habitat importance model	A largely aquatic species preferring deep water on large, permanent swamps, lakes and estuaries with abundant aquatic vegetation. Occasional, transient visitor to dams and other small shallow waters. This species was recorded in a large dam to the west of Werribee River during the assessment of the broader Green Fields Station project area, but is considered unlikely to occur within the current project area due to lack of suitable wetland habitat.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Botaurus poiciloptilus	Australasian Bittern	EN	en	L	1990		See DEPI habitat importance model	Australasian Bittern is typically found in terrestrial wetlands in temperate regions. This species tends to prefer permanent freshwater wetlands surrounded by vegetation with a tall and dense structure, where individuals will forage within shallow water associated with the edges of pools or waterways. Permanent freshwater billabongs associated with the Werribee River that contain tall dense reed beds were identified as providing potential habitat for Australasian Bittern, however subsequent targeted survey undertaken as part of the broader Green Fields Station assessment failed to detect the species at these sites. The species is therefore considered to have a low likelihood of occurrence within the Green Fields Station project area.
Burhinus grallarius	Bush Stone-curlew		en	L	1905		See DEPI habitat importance model	Occupies open woodlands and partly cleared farmland with a sparse ground layer. In Victoria, species mainly found in the north. Occasionally recorded in the south of the state. Species is highly unlikely to occur within the project area or surrounding region.
Chlidonias hybrid	Whiskered Tern		nt		1990		No habitat modeled by DEPI habitat importance model	A breeding migrant to Australia from September to March where it occurs in wetlands, lakes, swamps, rivers, and other waterbodies with submerged and emergent vegetation such as grasses, sedges, reeds and rushes.
Chalcites osculans	Black-eared Cuckoo		nt		1988		No habitat modeled by DEPI habitat importance model	Typically occupies open vegetation communities such as open eucalypt woodlands and shrublands in lower rainfall areas. In Victoria, mainly found north of the Great Dividing Range and in Western Victoria.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Circus assimilis	Spotted Harrier		nt		2013		No habitat modeled by DEPI habitat importance model	Inhabits open and wooded country of inland and sub-inland Australia, where individuals hunt over flat or undulating country with low vegetation cover. In Victoria they are mostly common over the Murray Valley with occasional visits to coastal Victoria. This species was recorded during assessments of the broader Green Fields Station project area.
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern ssp.)		nt		2010		No habitat modeled by DEPI habitat importance model	This species is often observed feeding on insects as it spirals up trees or when hopping along the ground or on fallen litter. It generally inhabits open eucalypt forests, woodlands and mallee, often where there are stands of dead trees. This species was recorded within large areas of woodland in the broader Green Fields Station project area.
Dromaius novaehollandiae	Emu		nt		2013		No habitat modeled by DEPI habitat importance model	A nomadic species that moves in response to seasonal conditions. Emu occur in most environments from semi-arid grasslands to dense forests and alpine areas. While the species has been recorded within the broader Green Fields Station project area, it is unclear as to the origin of the individuals, which may be escapees.
Egretta garzetta	Little Egret		en	L	1990		No habitat modeled by DEPI habitat importance model	This species is usually found in terrestrial or saline wetlands as well as estuarine and wet grassland habitats. Prefers permanent well-vegetated waterbodies but will also use freshwater meadows, channels and farm dams. This species forages in shallow water and on exposed banks and mudflats with abundant aquatic vegetation. Roost and breed in wetlands with fringing or flooded trees.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Falco subniger	Black Falcon		vu		1989		See DEPI habitat importance model	This bird of prey mostly hunts over open plains and undulating land with large tracts of low vegetation, especially in arid and semi-arid zones. Mostly occurs in north, north-west and west of Victoria, although droughts and subsequent food shortages can force individuals into more coastal areas. The Black Falcon is also often associated with wetland areas, including rivers and creeks. In parts of its range the Black Falcon has probably benefitted from clearing for pasture and crops, and from the establishment of watering points. Previous records for this species exist from within 5 km of the project area. Extensive tracts of plains grassland provide suitable foraging habitat for Black Falcon.
Gallinago hardwickii	Latham's Snipe		nt		2006	PMST	No habitat modeled by DEPI habitat importance model	A migrant to Australia from July to April. Latham's Snipe occurs in a wide variety of wetlands with nearby cover. They forage in soft mud at edge of wetlands and roost in a variety of vegetation around wetlands including tussock grasslands, reeds and rushes, tea-tree scrub, woodlands and forests.
Geopelia cuneata	Diamond Dove		nt	L	1905		No habitat modeled by DEPI habitat importance model	Occupies grasslands, savannah and low open woodlands in arid and semi-arid regions. In Victoria, species mainly occurs in the Murray River Valley, though there has been a recent increase in the number of records in southern Victoria. Species only likely to occur as a rare visitor to the region.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Grantiella picta	Painted Honeyeater		vu	L	1920		See DEPI habitat importance model	This species occupies dry open woodlands and forests located on the inland foothills of the Great Diving Range. Individuals typically forage for fruit and nectar in fruiting and flowering mistletoes and in tree canopies. This species has previously been recorded in the local area and has potential to utilise woodland habitat within the broader Green Fields Station project area, however no such habitat exists within the current hydroponics precinct project area.
Grus rubicunda	Brolga		vu	L	1989		See DEPI habitat importance model	The Brolga is a rare species in the local area, although birds are often observed in small numbers at the Western Treatment Plant at Werribee. There is a record of Brolga from Inner Eynesbury (Beardsell 1991) and the species may visit areas of crop, pasture and wetlands (dams, Plains Grassy Wetland) within the broader Green Fields Station project area on occasion.
Haliaeetus leucogaster	White-bellied Sea-Eagle		vu	L	2008	PMST	No habitat modeled by DEPI habitat importance model	This species is mostly recorded along or near coastal areas in the east of the state, and around large inland rivers such as the Murray River.
Ixobrychus minutus	Little Bittern		en	L	1990		See DEPI habitat importance model	Little Bittern are typically found in terrestrial wetlands in temperate regions. This species tends to prefer permanent freshwater wetlands surrounded by vegetation with a tall and dense structure, where individuals will forage within shallow water associated with the edges of pools or waterways. The permanent freshwater billabongs associated with the Werribee River that contain tall dense reed beds provide potential habitat for Little Bittern, however the species was not recorded during targeted bittern surveys of these sites. Unlikely to occur within the current project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Lathamus discolor	Swift Parrot	EN	en	L	2007	PMST	Low	Swift Parrots are likely to occasionally forage in the one suitable flowering eucalypt (Grey Box) in the project area during the cooler part of the year, when the species inhabits the eastern Australian mainland. During the species' breeding season it is confined to Tasmania. On the mainland, Swift Parrots may occur anywhere from south-eastern Queensland, eastern New South Wales, most of Victoria and into far south eastern South Australia. Swift Parrots are highly dispersive and have capacity to utilise nectar producing eucalypts throughout this range in an unpredictable manner. The species has been previously recorded within the Eynesbury woodland (C. Tzaros, Birdlife Australia, pers. comm.).
Lewinia pectoralis	Lewin's Rail		vu	L	1889		No habitat modeled by DEPI habitat importance model	Lewin's Rail is a small waterbird that occupies a range of wetland habitats with dense fringing and emergent vegetation. Densely vegetated reed beds within Werribee River and associated billabongs and tributaries provide potential habitat for this species within the broader local area.
Melanodryas cucullata	Hooded Robin		nt	L	1999		No habitat modeled by DEPI habitat importance model	This species occupies lightly timbered habitats such as eucalypt or acacia dominated woodlands and shrublands. Prefers areas with plenty of dead and fallen timber which provide perching points for foraging activities.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Melithreptus gularis	Black-chinned Honeyeater		nt		1988		No habitat modeled by DEPI habitat importance model	Occupies dry eucalypt forests or woodland where individuals typically forage for nectar and invertebrates in the upper canopy. In Victoria, mainly found in the northern foothills of the Great Dividing Range.
Ninox connivens	Barking Owl		en	L	1986		No habitat modeled by DEPI habitat importance model	The Barking Owl inhabits open forests and woodlands that contain large hollow-bearing trees suitable for nesting. Hollows suitable for nesting are characterised by having large openings (20–45 cm) and contain deep cavities (20–250 cm). The species roosts in tree with dense foliage, including introduced trees such as Pine. This species is often located in forest clearings and at the interface between forests and cleared land due to the foraging behaviour of the species and abundance of prey items in cleared areas.
Ninox strenua	Powerful Owl		vu	L	1983		No habitat modeled by DEPI habitat importance model	The Powerful Owl is the largest species of owl in Australia. It prefers tall open sclerophyll forest and woodlands and requires large, hollow-bearing eucalypts for breeding. While the species has been recorded from a wide range of woodland habitats, preferred habitat typically contains a dense understorey and suitable roost trees with a dense canopy cover. The species is more commonly associated with large tracts of continuous forest, but will sometimes occur in more fragmented landscapes including suburban parklands.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Nycticorax caledonicus	Nankeen Night Heron		nt		1993		No habitat modeled by DEPI habitat importance model	Occur in rivers, lakes, wetlands and grasslands. They prefer to forage in shallow margins, on banks and mudflats and in swamp vegetation of these environments. They will also use wet meadows and pastures, urban wetlands and ponds. Roost and nest in dense trees and shrubs, including exotic trees such as Pines and Cypresses.
Oreoica gutturalis	Crested Bellbird		nt	L	1971		No habitat modeled by DEPI habitat importance model	Occupies dry acacia shrublands and woodlands in arid and semi-arid areas. Typically found in northern and central Victoria in Mallee woodlands and tall shrublands.
Oxyura australis	Blue-billed Duck		en	L	2006		No habitat modeled by DEPI habitat importance model	A largely aquatic species preferring deep, large permanent wetlands with abundant aquatic vegetation, including Melaleuca swamps. Can be found on large dams, generally with a good cover of rushes and sedges.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Pedionomus torquatus	Plains-wanderer	VU	cr	L	2009	KBR (2010)	Medium	The Plains-wanderer is a small ground-dwelling bird that occupies high quality native grassland with a sparse, open structure. Due to a range of threatening processes, the species has declined markedly across most of its range. Populations are now patchily distributed throughout south-west Queensland, the Riverina district of NSW and north-central Victoria. The VBA and Birdlife Australia contain a number of Plains-wanderer records for this species from the local area, particularly in grassland areas located to the south of Ballan Road. An additional Plains-wanderer record was obtained from grassland to the immediate east of the project area in 2009 (KBR 2010). While current targeted surveys failed to detect the species and failed to locate any areas of optimal habitat structure, individuals from the broader local area may occasionally utilise the site when and if conditions become suitable.
Phalacrocorax varius	Pied Cormorant		nt		2006		No habitat modeled by DEPI habitat importance model	Occur in mainly marine environments and coastal waters where they can be abundant in estuaries. They also inhabit inland lakes, rivers and billabongs. Breed and roost in trees or bushes along estuaries and the edge of waterbodies, as well as in artificial structures such as pylons.
Platalea regia	Royal Spoonbill		nt		2006		No habitat modeled by DEPI habitat importance model	Royal Spoonbills prefer terrestrial wetlands and wet grassland areas, particularly large expanses of water such as lakes, swamps or lagoons. They will also forage along rivers and have also been regularly recorded in coastal habitats such as estuaries, inlets and intertidal mudflats. This species has previously been recorded within the broader Green Fields Station project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Plegadis falcinellus	Glossy Ibis		nt		1970		No habitat modeled by DEPI habitat importance model	Occur in a variety of moist environments such as wetlands, wet pasture environments and low lying wetland areas. Rare occurrence in dry grassland and in emergent aquatic vegetation such as Phragmites.
Pomatostomus temporalis	Grey-crowned Babbler		en	L	1987		No habitat modeled by DEPI habitat importance model	This species occurs in breeding groups which typically occupy open forests and woodlands located north of the Great Dividing Range. Very few breeding groups remain in southern areas of Victoria.
Porzana pusilla	Baillon's Crake		vu	L	1990		See DEPI habitat importance model	Baillon's Crake is a small waterbird that occupies a range of wetland habitats with dense fringing and emergent vegetation. Densely vegetated reed beds within the Werribee River and associated billabongs and tributaries provide potential habitat for this species within the broader Green Fields Station project area.
Chthonicola sagittata	Speckled Warbler		vu	L	2007		No habitat modeled by DEPI habitat importance model	Speckled Warblers occur in open forest and woodland, usually with scattered shrubs and a cover of wattles. They are seldom seen far from dense patches of shrubs. As such, they are a poor disperser between fragmented habitats. Suitable habitat for this species in central and southern Victoria is becoming increasingly scarce. Loss of understorey cover and general habitat removal has reduced the population of this species in Victoria. A population of this species occurs within the core Eynesbury woodland (C Tzaros, Birdlife Australia, pers. comm.).

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Rostratula australis	Australian Painted Snipe	VU	cr	L	1989	PMST	Low	The Australian Painted Snipe is a stocky wading bird that occupies a wide range of permanent and ephemeral shallow inland wetlands. Australian Painted Snipe are found right across Australia; however the stronghold for the species is within the Murray-Darling basin. Ephemeral wetlands with low patchy surrounding vegetation and areas of exposed mudflats are believed to provide important breeding and foraging habitat for the species. Individuals may occasionally utilise shallow wetlands within the broader Green Fields Station but are unlikely to utilise the project area regularly.
Stagonopleura guttata	Diamond Firetail		nt	L	2008		No habitat modeled by DEPI habitat importance model	The Diamond Firetail occurs in lightly wooded environments such as woodlands, open forests and grasslands with scattered trees, often along watercourses. Typical understorey characteristics usually consist of a sparse cover of shrubs or regrowth and a grassy ground cover. This species is known to occur within the Eynesbury woodland and is therefore likely to make regular use of other patches of woodland within the local area.
Stictonetta naevosa	Freckled Duck		en	L	1996		No habitat modeled by DEPI habitat importance model	Inhabits terrestrial wetlands, particularly freshwater swamps with dense vegetation. This species is a filter feeder and prefers to feed in shallow waters, including creeks, channels and pools. When swamps dry up this species will move to large open waters.
Stiltia isabella	Australian Pratincole		nt		1992		No habitat modeled by DEPI habitat importance model	Inhabits open plains, sparsely wooded plains and tussock grasslands in arid and semi-arid environments. In Victoria, mostly found in the north-west regions of the state.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Tringa glareola	Wood Sandpiper		vu		1988		No habitat modeled by DEPI habitat importance model	The Wood Sandpiper inhabits well vegetated shallow freshwater wetlands with emergent aquatic plants and dense fringing vegetation. This species is a migratory species from Eurasia with only a small number reaching Australia. The species has been recorded within 5 km of the project area and has been recorded more recently at the Western Treatment Plant located to the south.
Turnix pyrrhothorax	Red-chested Button-quail		vu	L	2008		See DEPI habitat importance model	The Red-chested Button-quail is a small nocturnal bird that occurs in grasslands and grassy woodlands of temperate and tropical Australia. In south-eastern Australia they prefer dense and often damp grasslands with very little to no tree cover. Records of this species from within Victoria are rare and scattered. Areas containing dense native grassland within the project area may provide suitable habitat for Red-chested Button-quail, although at most it is only likely to be a rare to vagrant visitor.
Turnix velox	Little Button-quail		nt		1990		No habitat modeled by DEPI habitat importance model	Occurs in a variety of habitats including dense grasslands, grassy woodlands and the margins of wetlands. Also occurs in modified habitats such as pastures, crops and stubble. In Victoria, mainly found in the Northern, Mallee and Wimmera districts.
Tyto novaehollandiae	Masked Owl		en	L	1989		No habitat modeled by DEPI habitat importance model	Occupies a range of woodland and forest environments in Victoria. There is a record of this species from the core Eynesbury woodland from 1989 (Beardsell 1991). This species may occur either as a resident or visitor to the Werribee River where there are large hollow bearing trees and abundant mammalian food resources.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Reptiles								
Delma impar	Striped Legless Lizard	VU	en	L	1990	PMST	Low	The Striped Legless Lizard is a cryptic fossorial reptile that inhabits native and modified grasslands, where sufficient cover is available to provide protection from predators. Until recently, suitable habitat was thought to be confined to relatively undisturbed native grassland with good groundcover. However, recent observations have shown that this species also can occur in substantially altered and degraded grassy environments so long as the area retains a suitable tussock grass structure and the soil is of appropriate type, structure, and has not had major disturbances such as ploughing. Targeted survey undertaken for Striped Legless Lizard within the project area did not record this species, and it is therefore considered unlikely to occur.
Tympanocryptis pinguicolla	Grassland Earless Dragon	EN	cr	L	-	PMST	Low	The last confirmed sighting of the Grassland Earless Dragon in Victoria was at Little River in 1967. However, there have been unconfirmed sightings at the Craigieburn Grasslands in 1990 and from the Merri Creek corridor near Bald Hill in 1988. Subsequent (and substantial survey) in this area has failed to confirm or validate these observations. The species inhabits Plains Grassland and the extensive nature of the Plains Grassland in the broader Green Fields Station project area, together with the presence of patches of grassland with an open, sparse structure preferred by Grassland Earless Dragon, initially suggested that the species might occur there. Subsequent targeted survey failed to detect the species, and it is therefore considered to have a low likelihood of occurrence within Green Field Station and the current project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Fishes								
Galaxiella pusilla	Dwarf Galaxias	VU	en	L	-	PMST	Low	Dwarf Galaxias is a tiny fish species that usually occurs in still or slow flowing, often ephemeral waterbodies (streams, wetlands, drains) that in many instances partially dry up over summer. Dwarf Galaxias usually occurs in relatively shallow waterbodies and typically requires abundant marginal and aquatic vegetation. In waterways where the introduced Eastern Gambusia Gambusia holbrooki is present, anecdotal observations suggest that Dwarf Galaxias require deep, heavily shaded areas refuge areas and/or connected extensive ephemeral areas to ameliorate the predation/competition threats posed by this noxious species and enhance their prospects of long term survival. Otherwise, this species has fairly broad habitat requirements. Although Dwarf Galaxias is clearly under surveyed, the species has not been recorded from the Werribee River basin, or any of the other basins between Melbourne and Geelong (Moorabool, Maribyrnong & Yarra River basins).
Macquaria australasica	Macquarie Perch	EN	en	L	1926		Negligible	Macquarie Perch is a medium sized fish that is indigenous to the Murray Darling Basin. This species was extensively translocated outside of its natural distributional range in the 1920s but is not known and not likely to have resulted in the establishment of a self-sustaining population in most of these systems, including the Werribee River.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Nannoperca obscura	Yarra Pygmy Perch	VU	vu	L	-	PMST	Low	Yarra Pygmy Perch is a small fish that prefers heavily vegetated, slow flowing or still aquatic habitats. It has not been recorded from the Werribee River basin but has been recorded from both neighbouring basins, being long known to occur in the Maribyrnong basin (Deep Creek) and more recently discovered by Biosis in the Moorabool basin (Sutherland Creek). The closely related Southern Pygmy Perch *Nannoperca australis*, a species often found to occur with Yarra Pygmy Perch and with similar habitat requirements is known to occur in the Werribee River near Ballan (i.e. upstream of the Melton Reservoir). Both are exclusively freshwater, non-migratory fishes thought to have poor dispersal capabilities, however populations of both of these species are known to occur in tiny semi-permanent habitats and many such unsurveyed or poorly surveyed habitats exist within the catchment. Suitable habitat for this species exists within the Werribee River and in associated billabongs/wetlands within and downstream of the project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Prototroctes maraena	Australian Grayling	VU	vu	L	-	PMST	Negligible	Australian Grayling is a medium-sized diadromous fish species found in coastal rivers and large creeks of south eastern Australia. Larval and juvenile Australian Grayling inhabit estuaries and coastal seas, whilst adults occur in freshwater habitats, typically rivers and streams with cool, clear waters, gravel substrates, but occasionally also in turbid waters such as the Barwon River (Backhouse *et al*. 2008). Australian Grayling are thought to spawn in gravel beds and spawning appears to be strongly associated with increases in flow (Koster *et al*. 2013). Juvenile Australian Grayling are thought to migrate upstream between October and December while a downstream spawning migration may occur between March-May (Koster *et al*. 2013). Australian Grayling are not recorded from the Werribee River basin but are recorded from the neighbouring the neighbouring Maribyrnong River basin. The regulated flows of the Werribee River, together with major barriers to fish passage (e.g. weirs, dams) reduce the likelihood of this species occurring in the system, particularly above the Werribee Diversion Weir which is likely to be an impassable barrier to Australian Grayling and most diadromous species.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Frogs								
Litoria raniformis	Growling Grass Frog	VU	en	L	2013	PMST	High	The Growling Grass Frog occupies a variety of permanent and semi-permanent waterbodies which generally contain abundant submerged and emergent vegetation. The species will also occupy slow-moving sections of creeks and rivers. Individuals are capable of dispersing over large distances, traversing a variety of terrestrial and aquatic habitats while searching for suitable wetlands. Habitat connectivity is therefore important for this species to persist in the long-term. The Werribee River supports an important population of Growling Grass Frog and is therefore likely to also make use of associated tributaries and wetlands, including those occurring within or immediately adjacent to the current project area. The wetlands on the Werribee River floodplain were also found to support the species during targeted surveys undertaken in 2013.
Pseudophryne bibronii	Brown Toadlet		en	L	2004		See DEPI habitat importance model	The Brown Toadlet occurs in a variety of habitats at lower elevations that are damp and occasionally inundated, including watercourses and gullies in forest and woodland habitat, roadside ditches and table drains, wetlands, permanent ponds, and heaths and grasslands where they shelter in damp leaf litter. These habitats are not always located close to permanent water. Males dig burrows in which eggs are laid. During high rainfall events tadpoles are washed into larger pools and wetlands. Table drains and gullies containing abundant leaf litter were identified as providing potentially suitable habitat for this species, along with woodland patches and ephemeral drainage lines. However, subsequent targeted survey undertaken as part of the current assessment failed to detect the species. The species is therefore now considered to have a low likelihood of occurrence within the broader Green Fields Station project area.

Scientific name	Common name	Conservation status			Most recent record	Other sources	Likely occurrence in project area	Habitat description
		EPBC	DEPI	FFG				
Invertebrates								
Synemon plana	Golden Sun Moth	CR	cr	L	2014	PMST	Recorded	The Golden Sun Moth is a medium-sized diurnal moth that was formerly thought to be associated with grasslands that have a high cover of native Wallaby grasses (*Rytidosperma* sp). However, recent surveys around Melbourne have found that Golden Sun Moth also inhabit a range of grasslands as well as in areas supporting predominately introduced vegetation (Gilmore et al. 2008). Targeted surveys were undertaken within the current project area during the 2013-2014 season. The species was found to be present in the majority of areas surveyed.

A2.3 Migratory species (EPBC Act listed)

Table A2.3. Migratory fauna species recorded or predicted to occur within 5 km of the project area.

Scientific Name	Common Name	Most recent record
Charadrius bicinctus	Double-banded Plover	1995
Tringa glareola	Wood Sandpiper	1988
Actitis hypoleucos	Common Sandpiper	1990
Tringa nebularia	Common Greenshank	1990
Calidris ruficollis	Red-necked Stint	2007
Calidris acuminata	Sharp-tailed Sandpiper	1988
Gallinago hardwickii	Latham's Snipe	2006/#
Rostratula australis	Australian Painted Snipe	#/1989
Plegadis falcinellus	Glossy Ibis	1970
Ardea modesta	Eastern Great Egret	2002/#
Haliaeetus leucogaster	White-bellied Sea-Eagle	2008/#
Merops ornatus	Rainbow Bee-eater	#/1988
Hirundapus caudacutus	White-throated Needletail	#/1990
Apus pacificus	Fork-tailed Swift	#
Rhipidura rufifrons	Rufous Fantail	#/1977
Myiagra cyanoleuca	Satin Flycatcher	#/1986
Acrocephalus stentoreus	Clamorous Reed Warbler	2000
Anthochaera phrygia	Regent Honeyeater	#
Ardea ibis	Cattle Egret	2001/#

Appendix 3: Habitat hectare assessment results

Table A3.1 - Areas of proposed impact on each habitat zone within the proposed project area

HZ#	EVC	Area (ha)	Habitat score	Habitat Hectares
105A	Low-rainfall Plains Grassland	0.003539	0.5952	0.002107
160A	Low-rainfall Plains Grassland	1.121739	0.458	0.513756
161A	Low-rainfall Plains Grassland	3.426529	0.5188	1.777683
162A	Low-rainfall Plains Grassland	2.882146	0.5188	1.495258
163A	Low-rainfall Plains Grassland	0.116343	0.468	0.054449
164A	Low-rainfall Plains Grassland	0.947769	0.5088	0.482225
165A	Low-rainfall Plains Grassland	1.340106	0.5088	0.681846
171A	Low-rainfall Plains Grassland	0.494832	0.4544	0.224852
171B	Low-rainfall Plains Grassland	2.557443	0.4372	1.118114
173A	Low-rainfall Plains Grassland	4.135757	0.5072	2.097656
173B	Low-rainfall Plains Grassland	7.31228	0.5244	3.834559
173C	Low-rainfall Plains Grassland	0.615528	0.5244	0.322783
173D	Low-rainfall Plains Grassland	16.83475	0.5244	8.828145
174A	Low-rainfall Plains Grassland	9.559083	0.4944	4.726011
175A	Stony Knoll Shrubland	0.231128	0.5916	0.136735
175B	Plains Grassy Wetland	0.242272	0.5236	0.126854
175C	Stony Knoll Shrubland	0.744355	0.5916	0.440361
175D	Low-rainfall Plains Grassland	11.389	0.5644	6.427953
176A	Low-rainfall Plains Grassland	0.410278	0.4272	0.175271
501A	Low-rainfall Plains Grassland	0.046601	0.2948	0.013738
502A	Low-rainfall Plains Grassland	0.020306	0.2948	0.005986
503A	Low-rainfall Plains Grassland	0.044166	0.3084	0.013621
504A	Low-rainfall Plains Grassland	1.468148	0.4988	0.732312
505A	Low-rainfall Plains Grassland	0.13491	0.3592	0.04846
506A	Low-rainfall Plains Grassland	0.888304	0.4	0.355322
507A	Low-rainfall Plains Grassland	4.762591	0.722	3.43859

HZ#	EVC	Area (ha)	Habitat score	Habitat Hectares
508A	Low-rainfall Plains Grassland	0.560332	0.4	0.224133
509A	Low-rainfall Plains Grassland	1.449618	0.6004	0.87035
510A	Low-rainfall Plains Grassland	0.649865	0.5904	0.38368
511A	Low-rainfall Plains Grassland	0.076167	0.5904	0.044969
512A	Low-rainfall Plains Grassland	0.843029	0.5804	0.489294
513A	Low-rainfall Plains Grassland	1.07614	0.3628	0.390424
514A	Low-rainfall Plains Grassland	8.579197	0.4608	3.953294
515A	Low-rainfall Plains Grassland	0.247027	0.458	0.113138
516A	Low-rainfall Plains Grassland	0.880231	0.5704	0.502084
517A	Low-rainfall Plains Grassland	0.75143	0.448	0.336641
518A	Low-rainfall Plains Grassland	0.580426	0.4888	0.283712
524A	Low-rainfall Plains Grassland	0.24371	0.5052	0.123122
606A	Low-rainfall Plains Grassland	1.974296	0.4888	0.965036
606B	Low-rainfall Plains Grassland	0.040721	0.176	0.007167
606C	Plains Grassy Wetland	0.040044	0.3392	0.013583
606D	Low-rainfall Plains Grassland	0.137521	0.176	0.024204
606E	Low-rainfall Plains Grassland	1.067143	0.4888	0.52162
607A	Low-rainfall Plains Grassland	0.19959	0.5788	0.115523
608A	Low-rainfall Plains Grassland	0.083571	0.276	0.023066
608B	Low-rainfall Plains Grassland	0.169832	0.5788	0.098299
609A	Low-rainfall Plains Grassland	0.316937	0.5488	0.173935
610A	Low-rainfall Plains Grassland	0.118314	0.5488	0.064931
611A	Low-rainfall Plains Grassland	0.075204	0.4528	0.034052
611B	Low-rainfall Plains Grassland	0.427479	0.5888	0.2517
611C	Plains Grassy Wetland	0.028738	0.4392	0.012622
611E	Low-rainfall Plains Grassland	0.171281	0.5888	0.10085
611F	Low-rainfall Plains Grassland	0.080749	0.276	0.022287
611G	Plains Grassy Wetland	0.02793	0.4392	0.012267
612A	Low-rainfall Plains Grassland	0.039689	0.236	0.009366
612B	Plains Grassy Wetland	0.131654	0.3992	0.052556

HZ#	EVC	Area (ha)	Habitat score	Habitat Hectares
612C	Low-rainfall Plains Grassland	0.201794	0.5488	0.110744
612D	Plains Grassy Wetland	0.068533	0.3992	0.027358
612E	Low-rainfall Plains Grassland	0.389889	0.5488	0.213971
620C	Plains Woodland	0.011377	0.31	0.003527
703C	Low-rainfall Plains Grassland	0.147121	0.5804	0.085389
706A	Low-rainfall Plains Grassland	0.164015	0.39	0.063966
707A	Plains Woodland	0.081538	0.26	0.0212
708A	Low-rainfall Plains Grassland	0.127164	0.5052	0.064243
709A	Plains Woodland	0.035782	0.37	0.013239
710A	Plains Woodland	0.039624	0.37	0.014661
82B	Low-rainfall Plains Grassland	35.42766	0.5988	21.21408
82D	Low-rainfall Plains Grassland	5.424121	0.548	2.972418
82E	Low-rainfall Plains Grassland	0.879513	0.568	0.499563
82F	Low-rainfall Plains Grassland	0.712219	0.568	0.40454
82I	Low-rainfall Plains Grassland	0.455389	0.3404	0.155014
82J	Low-rainfall Plains Grassland	4.684852	0.5752	2.694727
82V	Low-rainfall Plains Grassland	0.010313	0.5064	0.005223
83A	Low-rainfall Plains Grassland	1.049716	0.5288	0.55509
84A	Low-rainfall Plains Grassland	4.779811	0.5288	2.527564
86A	Low-rainfall Plains Grassland	0.055038	0.5088	0.028003
87A	Low-rainfall Plains Grassland	0.26551	0.4408	0.117037
88E	Low-rainfall Plains Grassland	3.148177	0.5588	1.759201
89A	Low-rainfall Plains Grassland	1.581538	0.5088	0.804686
90A	Low-rainfall Plains Grassland	0.098362	0.4988	0.049063
91A	Low-rainfall Plains Grassland	0.374791	0.4988	0.186946
92A	Low-rainfall Plains Grassland	1.823614	0.478	0.871687
92B	Low-rainfall Plains Grassland	2.34097	0.5188	1.214495
93A	Low-rainfall Plains Grassland	0.059292	0.5088	0.030168
94A	Low-rainfall Plains Grassland	0.12274	0.5088	0.06245
95A	Low-rainfall Plains Grassland	0.359254	0.5088	0.182788

HZ#	EVC	Area (ha)	Habitat score	Habitat Hectares
96A	Low-rainfall Plains Grassland	1.042462	0.5188	0.540829
97A	Low-rainfall Plains Grassland	0.211067	0.468	0.09878
98A	Low-rainfall Plains Grassland	1.106019	0.478	0.528677
99A	Low-rainfall Plains Grassland	0.992968	0.468	0.464709
TOTAL		**161.07**		**86.88**

Table A3.2 - Scattered trees to be impacted by the proposed development

Tree no.	Species Name	Common Name	Size class
88	*Allocasuarina luehmannii*	Buloke	VL
89	*Allocasuarina luehmannii*	Buloke	MT
90	*Allocasuarina luehmannii*	Buloke	VL
91	*Allocasuarina luehmannii*	Buloke	LT
92	*Allocasuarina luehmannii*	Buloke	MT
93	*Allocasuarina luehmannii*	Buloke	LT
95	*Allocasuarina luehmannii*	Buloke	LT
395	*Allocasuarina luehmannii*	Buloke	VL
396	*Eucalyptus camaldulensis*	River Red Gum	MT
397	*Eucalyptus microcarpa*	Grey Box	MT

Appendix 4: Glossary

Items marked with 'A' are cited from DEPI (2013a) ; items marked with 'B' are cited from DSE (2007) and items marked with a 'C' are cited from DEPI (2014).

Avoid [A]

Avoiding removing any native vegetation when undertaking a use or development. This can be either by not permitting or not going ahead with the use or development, or locating it elsewhere so that removing native vegetation is not required.

Benchmark [B]

A standard vegetation –quality reference point, dependent on vegetation type, which is applied in Habitat hectare assessments. Represents the average characteristics of a mature and apparently long undisturbed state of the same vegetation type.

Biodiversity [A]

The variety of all life forms, the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part.

Biodiversity Interactive Map (BIM)

Web based interactive map available on the DSE website that provides information on the biodiversity of Victoria and displays flora and fauna data from the Victorian Biodiversity Atlas.

Bioregion [B]

Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values. A landscape based approach to classifying the land surface using a range of environmental attributes such as climate, geomorphology, lithology and vegetation.

BushBroker [A]

A program coordinated by DEPI to match parties that require native vegetation offsets with third party suppliers of native vegetation offsets.

Canopy Tree [C]

Is a mature tree greater than 3 m in height and is normally found in the upper layer of a vegetation type. Immature trees that are not yet able to flower and are less than three metres in height are considered part of the understorey (see definition of understorey).

Condition score

The score assigned to a habitat zone that indicates the quality of the vegetation relative to the ecological vegetation class benchmark, usually expressed as a percentage or on a scale of 0 to 1.

Degraded treeless vegetation [B]

Vegetation that is neither a wetland, a remnant patch nor scattered tree(s).

DBH (Diameter at Breast Height) [B]

The diameter of the main trunk of a tree measured 1.3 m above ground level.

Dispersed habitat [A]

Habitat for a rare or threatened species whose habitat is spread over a relatively broad geographic area.

Ecological vegetation class (EVC) [A]

A native vegetation type classified on the basis of a combination of its floristic, life form, environmental and ecological characteristics.

EVC (see Ecological vegetation class) [B]

Extent risk [A]

The level of risk to biodiversity from the removal of native vegetation based on the area and/or number of scattered trees to be removed.

Forb

A herbaceous flowering plant that is not a graminoid (grass, sedge or rush).

Gain [A]

Predicted improvement in the contribution to Victoria's biodiversity achieved from an offset, calculated by combining site gain with the strategic biodiversity score or habitat importance score of the site. Gain is measured with biodiversity equivalence scores or units.

Gain Target [B]

The amount of gain that needs to be achieved to offset a loss measured in Habitat hectares.

General biodiversity equivalence score / units [A]

Score or units used to quantify the relative overall contribution of a site to Victoria's biodiversity.

General offset [A]

An offset that is required when a proposal to remove native vegetation is not deemed, by application of the specific-general offset test, to have a significant impact on habitat for any rare or threatened species.

General provisions [A]

Operational requirements in planning schemes which are consistent across the state, relating to matters such as administrative provisions, ancillary activities and referral of applications.

Habitat hectares [A]

Combined measure of condition and extent of native vegetation. This measure is obtained by multiplying the site's condition score (measured between 0 and 1) with the area of the site (in hectares).

Habitat hectares benchmark [A]

A reference point for each vegetation type that represents the average condition of mature stands that are likely to reflect pre-settlement circumstances.

Habitat hectares site assessment [A]

A site-based measure of the condition of native vegetation with reference to the benchmark for the same type of native vegetation. The assessment generates a condition score of between 0 and 1.

Habitat importance map [A]

A map that indicates the importance of locations as habitat for a particular rare or threatened species. This map is based on modelled data.

Habitat importance score [A]

Measure of the importance of the habitat located on a site for a particular rare or threatened species.

Habitat zone [B]

A discrete area of native vegetation consisting of a single vegetation type (EVC) within an assumed similar quality. This is the base spatial unit for conducting a Habitat hectare assessment. Separate *Vegetation Quality Assessments* (or Habitat hectare assessments) are conducted for each habitat zone within the designated assessment area.

Highly localised habitat [A]

Habitat for rare or threatened species whose habitat is spread over a very restricted area (i.e. less than 2,000 ha). This can also be applied to a similarly limited sub-habitat that is disproportionately important for a wide-ranging rare or threatened species.

Improvement gain [B]

This is gain resulting from management commitments beyond existing obligations under legislation to improve the current vegetation quality. Achieving improvement gain is predicated on maintenance commitments being already in place. For example, control of any threats such as grazing that could otherwise damage the native vegetation must already be agreed. Typical actions leading to an improvement gain include reducing or eliminating environmental weeds, enhancement planting or revegetation over a 10-year management period. If the vegetation is to be used as an offset, a commitment to maintain the improvement gain (i.e. no subsequent decline in quality) will be required in perpetuity.

Incorporated document [A]

A document that is included in the list of incorporated documents in a planning scheme. These documents affect the operation of the planning scheme.

Indigenous vegetation [B]

The type of native vegetation that would have normally been expected to occur on the site prior to European settlement.

Landholder [A]

An owner, occupier, proprietor or holder of land.

Landowner [A]

Owner of land.

Landscape scale information [A]

Mapped or modelled information based on data collected across the landscape rather than just on a particular site.

Large Old Tree (LOT) [B]

A tree with a DBH equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

Listed species

A flora or fauna species listed under the Commonwealth *Environment Protection and Biodiversity Act 1999* or listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

Local Planning Policy Framework [A]

Framework outlining a Municipal Strategic Statement and the Local Planning Policies that apply to the local government area.

Location risk [A]

The risk that removing native vegetation in a particular location will have an impact on the persistence of a rare or threatened species.

Loss[A]

Loss in the contribution to Victoria's biodiversity when native vegetation is fully or partially removed, as measured in biodiversity equivalence scores or units.

Maintenance Gain [B]

This is gain from commitments that contribute to the maintenance of the current vegetation quality over time (i.e. avoiding any decline). Includes foregoing certain entitled activities that could otherwise damage or remove native vegetation, such as grazing or firewood collection. Also typically requires a commitment to ensure no further spread of environmental weeds that may otherwise result in the loss of vegetation quality over time. If the vegetation is to be used as an offset, a commitment to maintain the vegetation quality will be required in perpetuity.

Minimise [A]

Locating, designing or managing a use or development to reduce the impacts on biodiversity from the removal of native vegetation.

Native (indigenous) vegetation [B]

Native vegetation is plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses (as defined in Clause 72 of the planning scheme).

Native vegetation credit [A]

Gains in the contribution that native vegetation makes to Victoria's biodiversity that are registered on the native vegetation credit register. Native vegetation credits are offered for sale to parties who are required to offset the removal of native vegetation.

Native vegetation credit register [A]

A statewide register of native vegetation credits that meet minimum standards for security and management of sites. The register is administered by the Department of Environment and Primary Industries, and records the creation, trade and allocation of credits to meet specific offset requirements.

Native vegetation extent [A]

Area of land covered by native vegetation or the number of scattered trees.

Native Vegetation Information Management (NVIM) system [A]

An online tool used to access information about Victoria's native vegetation.

Native vegetation particular provision [A]

Clause 52.17 in the Victoria Planning Provisions that relates to the removing, destroying or lopping of native vegetation.

No net loss [A]

An outcome where a particular gain in the contribution to Victoria's biodiversity is equivalent to an associated loss in the contribution to Victoria's biodiversity from permitted clearing.

Offset [A]

Protection and management (including revegetation) of native vegetation at a site to generate a gain in the contribution that native vegetation makes to Victoria's biodiversity. An offset is used to compensate for the loss to Victoria's biodiversity from the removal of native vegetation.

Offset Management Plan (OMP)

A document which sets out the requirements for establishment, protection and management of an offset site.

Offset market [A]

A system which facilitates trade of native vegetation credits between parties requiring offsets and third party suppliers of offsets.

Old tree [B]

A tree with a DBH equal to or greater than 0.75 of the large tree diameter as specified in the relevant EVC benchmark. Includes medium old trees and large old trees (see separate definitions). Some Regional Native Vegetation Plans additionally define very large old trees (1.5 times large tree diameter).

On-site offset [B]

An offset located on the same property as the clearing.

Particular Provisions [A]

Provisions in the Victoria Planning Provisions that relate to specific activities (for example, native vegetation is a Particular Provision).

Patch (see Remnant Patch)

Permit[A]

A legal document that gives permission for a use or development on a particular piece of land.

Perennial [A]

A plant that lives for more than two years. Perennials include species that are always visible e.g. shrubs and trees, but also include species that are not always visible above ground.

Permitted clearing [A]

Removal of native vegetation for which a planning permit has been granted to remove native vegetation.

Permitted clearing regulations [A]

The rules in the planning system that regulate permits for the removal of native vegetation.

Planning provisions – See Victoria Planning Provisions.

Prior management gain

This gain acknowledges actions to manage vegetation since State-wide planning permit controls for native vegetation removal were introduced in 1989.

Planning scheme [A]

Policies and provisions for the use, development and protection of land in a local government area.

Planning system [A]

Victoria's land-use planning system that includes the Victoria Planning Provisions and each local government's planning scheme.

Property Vegetation Plan [B]

A plan which relates to the management of native vegetation within a property, and which is contained within an agreement made pursuant to section 69 of the Conservation, Forests and Lands Act 1987.

Protected species

A flora species protected under the *Victorian Flora and Fauna Guarantee Act 1988.*

Protection (of a tree) [B]

An area with twice the canopy diameter of the tree(s) fenced and protected from adverse impacts: grazing, burning and soil disturbance not permitted, fallen timber retained, weeds controlled, and other intervention and/or

management if necessary to ensure adequate natural regeneration or planting can occur.

Rare or threatened species [A]

A species that is listed in:

- DEPI's Advisory List of Rare or Threatened Plants in Victoria as 'endangered', 'vulnerable', or 'rare', but does not include the 'poorly known' category
- DEPI's Advisory List of Threatened Vertebrate Fauna in Victoria as 'critically endangered', 'endangered' or 'vulnerable', but does not include 'near threatened' or 'data deficient' categories
- DEPI's Advisory List of Threatened Invertebrate Fauna in Victoria as 'critically endangered', 'endangered' or 'vulnerable', but does not include 'near threatened' or 'data deficient' categories.

Recruitment [B]

The production of new generations of plants, either by allowing natural ecological processes to occur (regeneration etc), by facilitating such processes such as regeneration to occur, or by actively revegetating (replanting, reseeding). See Revegetation.

Referral authority [A]

An authority that a permit application is referred to for decision under Section 55 of the Planning and Environment Act 1987. All referral requirements are specified in Clause 66 of planning schemes.

Remnant patch of native vegetation [A]

Either:

- an area of native vegetation , with or without trees, where at least 25 per cent of the total perennial understorey plant cover is native plants
- an area with three or more indigenous canopy trees where the tree canopy cover is at least 20 per cent.

Remnant vegetation [B]

Native vegetation that is established or has regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance such as some clearing or cultivation (or even the activities of the nineteenth century gold rushes) but do not include man-made structures such as dam walls and quarry floors.

Responsible authority [A]

The authority charged with the responsibility for administering and enforcing particular aspects of a planning scheme.

Revegetation [B]

Establishment of native vegetation to a minimum standard in formerly cleared areas, outside of a remnant patch.

Scattered tree [C]

An indigenous canopy tree that does not form part of a remnant patch of native vegetation (see definition of remnant patch of native vegetation).

Section 173 agreements [B]

A management agreement primarily between a landowner and the responsible authority according to section 173 of the Planning and Environment Act 1987.

Security Gain

This is gain from actions to enhance security of the on-going management and protection of native vegetation at the offset site, either by entering into an on-title agreement (for example under Section 173 of the *Planning and Environment Act 1987*), or by locating the offset on land that has greater security than the clearing site, or by transferring private land to a secure public conservation reserve.

Site [A]

An area of land that contains contiguous patches of native vegetation or scattered trees, within the same ownership.

Site-based information [A]

Information that is collected at a site.

Site gain [A]

Predicted improvement in the condition, or the condition and extent, of native vegetation at a site (measured in Habitat hectares) generated by the landowner committing to active management and increased security.

Site loss [A]

Loss in the condition, or condition and extent, of native vegetation when native vegetation is fully or partially removed, measured in Habitat hectares.

sp.

Species (one species).

spp.

Species (more than one species).

Species persistence [A]

The continued existence of a species into the future.

Specific biodiversity equivalence score / units [A]

With reference to a specific species, a score or units used to quantify the relative contribution of a site to Victoria's biodiversity.

Specific-general offset test [A]

A test used to determine whether a general or specific offset is required based on the impact of native vegetation removal on the habitat for rare or threatened species.

Specific offset [A]

An offset that is targeted to a particular species (or multiple species) impacted by the removal of native vegetation.

State Planning Policy Framework [A]

A collection of clauses in the Victoria Planning Provisions that inform planning authorities and responsible authorities of those aspects of state planning policy which they are to take into account and give effect to in planning and administering their respective areas.

Strategic biodiversity map [A]

A map that shows the relative value of a location in the landscape with regard to its condition, extent, connectivity and the support function it plays for species. The map is based on modelled data.

Strategic biodiversity score [A]

A score that quantifies the relative value of a location in the landscape with regard to its condition, extent, connectivity and the support function it plays for species.

Strategic planning [A]

A coordinated approach to planning where areas for conservation and areas which can be cleared are strategically identified.

Supplementary planting

Establishment of overstorey and/or understorey plants within a remnant patch. Typically includes the planting or direct-seeding of understorey life forms.

Taxon (plural taxa)

A term used to describe any taxonomic unit. This term is typically used when referring broadly to any scientifically recognised species, subspecies or variety.

Third-party offset [B]

An offset located on a property owned by a person other than the landowner who incurs the native vegetation loss being offset.

Understorey

Understorey is all vegetation other than mature canopy trees – includes immature trees, shrubs, grasses, herbs, mosses, lichens and soil crust. It does not include dead plant material that is not attached to a living plant. More information on understorey life forms is set out in the Vegetation Quality Assessment Manual (DSE 2004).

Vegetation Quality Assessment

The standard DEPI method for assessing remnant patches of vegetation. Details of the method are outlined in the Vegetation Quality Assessment Method (DSE 2004). The results of the assessment are expressed in Habitat

hectares. Also referred to as a 'Habitat hectare assessment'

Victoria Planning Provisions [A]

A list of planning provisions that provides a standard template for individual planning schemes.

Zone [A]

A zone in the Victoria Planning Provisions is a set of permitted uses of land which are defined spatially.