

VMU	Priority (Red = low priority, Green = high priority, Amber = moderate priority)	Approx. area (Ha)	Target Community	Zone Type - recommended treatment (Installation / assisted regen / regrowth man/ remnant enhancement)	Other conditions	Biotic blocks to succession (weeds) : grass density	Biotic blocks to succession (weeds) : shrub / other	Site-specific additional suggested treatments	Estimated number of tubestock required	Estimated Direct Seeding required (km)
T		2.0	12.3.1	Regrowth management, installation.		Low setaria on edges	Low lantana and pine. While native to this community, the medium coverage of eucalypt / melaleuca may pose a threat in terms of more flammable vegetation	Clear melaleucas to the south, install indicative framework species to north as tubestock	400	0.4
U		11.4	12.9-10.14	Remnant enhancement		Small patch of Singapore daisy to north on track.	Small amount of lantana.	Weed control only.	2280	2.28
W		1.6	12.3.13	Remnant enhancement		Whiskey grass 10%.	Low pine wildlings.	Weed control with potential introduction of EVR adjacent to access trail.		
X		5.0	12.3.5	Assisted regeneration		Almost 100% setaria coverage		Graze or wick-wipe setaria, low intensity burn, observe - if no regeneration occurs consider direct seeding.	1020	1.02
Z		27.0	12.3.6	Assisted regeneration	Recently cleared - difficult to gauge full extent of seedbank	Whiskey grass 10%.		Allow regeneration to occur and if E.tereticornis does not occur consider installation at 1 stem / 30sqm.	9000	0

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2C		38.5	12.3.5, 12.3.6	Remnant enhancement			Low lantana / pine.	Weed treatment only.		
2D		19.0	12.3.6	Assisted regeneration		setaria, whiskey grass and signal at 50% coverage	Limited pine wildlings.	Weedy grass control only.	3960	3.96
2F		14.4	12.3.5	Remnant enhancement		10% setaria coverage	Limited lantana (5%)	Treat lantana. Wait until adjacent vegetation is 2m high then treat setaria.		
2G		68.9	12.3.5	Regrowth management / installation		Improved pastures are dominant in most areas.	Limited mature / wildling pines.	Graze or wick-wipe pastures, consider low intensity burn, observe - if no regeneration occurs consider direct seeding.		13.84
2H		23.0	12.3.5	Regrowth management / installation		Improved pastures are dominant in most areas.	Limited mature / wildling pines.	Graze or wick-wipe pastures, consider low intensity burn, observe - if no regeneration occurs consider direct seeding.		3.96
2I		18.9	12.3.4	Regrowth management / installation		Improved pastures are dominant in most areas.	Limited mature / wildling pines.	Graze or wick-wipe pastures, consider low intensity burn, observe - if no regeneration occurs consider direct seeding. Consider tubestock installation of	4200	4.2

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								<i>E.robusta</i> at 1/50sqm.		
2J		13.5	12.3.4	Remnant enhancement			Low lantana and pine wildlings / saplings.	Remove weeds and plant <i>E.robusta</i> on southern edge at 1 / 10 linear meters.	5580	5.58
2K		27.5	12.3.8, 12.3.12, 12.3.5	Remnant enhancement			Low lantana and pine wildlings / saplings.	None noted.		
BH1		2.3	12.3.5	Biohub		None noted.		Undertake EVNT- specific research for the site and implement results on-site. Install uncommon shrub and ground-layer species throughout site where microhabitat exists.	2500	

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BH2		2.2	12.3.5	Biohub		None noted.		Undertake EVNT- specific research for the site and implement results on-site. Install uncommon shrub and ground-layer species throughout site where microhabitat exists.	2400	
BH3		4.5	12.3.13, 12.3.5, 12.9-10.15	Biohub		None noted.		Undertake EVNT- specific research for the site and implement results on-site. Install uncommon shrub and ground-layer species throughout site where microhabitat exists.	4500	
BH4		2.9	12.3.5	Biohub		None noted.		Undertake EVNT- specific research for the site and implement results on-site. Install uncommon shrub and ground-layer species throughout site where microhabitat exists.	2900	

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BH5		2.7	12.3.4	Biohub		None noted.		Undertake EVNT- specific research for the site and implement results on-site. Install uncommon shrub and ground-layer species throughout site where microhabitat exists.	2900	
Open Space Buffer (west)		39.0	12.3.5/12.3.14/12.3.13/12.9- 10.22 / 12.9.5	Installation (recreational area with additional habitat benefit using native species).	Area not surveyed	Area not surveyed	Area not surveyed	Direct seed with dry 12.3.5 mix over most of site. Potential trial site.	39000	31.2

9 Appendix B: Seed Collection Information

The following table gives an indication of key species (as noted in the REDD RE descriptions), fruiting periods as sourced during the literature review and key collection points on-site. Fruiting periods and species information are based on text only and more detailed studies should be undertaken during ecological restoration plan development to determine supplementary species and more accurate fruiting periods.

Table 10 Seed Collection Information

Species indicative of key REs with potential to occur on-site	Common name	Potential collection areas on-site (VMUs)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Angophora leiocarpa</i>	rusty gum		No information sourced to date											
<i>Angophora woodsiana</i>														
<i>Argyrodendron trifoliolatum</i>	white booyong													
<i>Baeckea frutescens</i>		2C, 2K, N, Z												
<i>Balioskion tetraphyllum</i>	plume rush	2C, 2K, N, Z, W												
<i>Banksia aemula</i>	wallum banksia	2C, 2K, N, Z, W												
<i>Banksia robur</i>	swamp banksia	2C, 2K, N, Z, W												
<i>Baumea rubiginosa</i>	soft twig rush	2C, 2K, N, Z, W												
<i>Baumea</i> spp		2C, 2K, N, Z, W												
<i>Blechnum indicum</i>	swamp water fern	2C, 2K, N, Z, W												
<i>Casuarina glauca</i>	swamp oak	2C, 2K												
<i>Corymbia intermedia</i>	pink bloodwood	2C, 2K												
<i>Cryptocarya hypospodia</i>	rib-fruited pepperberry	S												
<i>Cryptocarya obovata</i>		S												
<i>Cryptocarya triplinervi</i>		S	No information sourced to date											
<i>Cyperus</i> spp		2C, 2K, N, Z	No information sourced to date											
<i>Eleocharis</i> spp		2C, 2K, N, Z												
<i>Endiandra sieberi</i>		2C, 2K, N, Z												
<i>Eucalyptus bancroftii</i>	orange gum	Not likely to occur	No information sourced to date											
<i>Eucalyptus latissinensis</i>		Not likely to occur	No information sourced to date											
<i>Eucalyptus microcarys</i>	tallow wood	Not likely to occur												
<i>Eucalyptus pilularis</i>	blackbutt	U												
<i>Eucalyptus robusta</i>	swamp mahogany	No mature specimens observed	No information sourced to date											
<i>Eucalyptus seeana</i>			No information sourced to date											
<i>Eucalyptus siderophloia</i>	grey ironbark	No mature specimens observed												
<i>Eucalyptus tereticornis</i>	forest red gum	2C												
<i>Eucalyptus tindalliae</i>		No mature specimens observed	No information sourced to date											

Species indicative of key REs with potential to occur on-Site	Common name	Potential collection areas on-Site (VMUs)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Ficus coronata</i>		No mature specimens observed	No information sourced to date											
<i>Ficus fraseri</i>		No mature specimens observed												
<i>Ficus macrophylla</i>	Moreton Bay fig	No mature specimens observed												
<i>Gahnia sieberiana</i> (plus other species)	red-fruit saw-edge	All drains within all VMUs												
<i>Glochidion sumatranum</i>	umbrella cheese tree	J, L, F, 2J, 2C, H												
<i>Hakea acities</i>	wallum hakea	2C, 2K, N, W												
<i>Imperata cylindrica</i>	blady grass	Open paddocks to south of property												
<i>Juncus</i> spp.		2C, 2K, N, W plus most drains on-Site												
<i>Leersia hexandra</i>	swamp ricegrass	2C, 2K, N, W plus most drains on-Site												
<i>Lepironia articulata</i>		2C, 2K, N, W plus most drains on-Site												
<i>Leptospermum</i> spp.		2C, 2K, N, W plus most drains on-Site												
<i>Livistona australis</i>	cabbage palm	No mature specimens observed												
<i>Livistona decora</i>	weeping cabbage palm	No mature specimens observed												
<i>Lophostemon confertus</i>	brush box	J, L, F, 2J, 2C, H												
<i>Lophostemon suaveolens</i>	swamp box	J, L, F, 2J, 2C, H												
<i>Lygodium microphyllum</i>	old world climbing fern	2C, 2K, N, W plus most drains on-Site												
<i>Mangrove</i> spp.		2K, Q	No information sourced to date											
<i>Melaleuca quinquenervia</i>	broad-leaved paperbark	All VMUs												
<i>Melaleuca salignus</i>	white bottle brush	2C, 2K, N, W												
<i>Melaleuca thymifolia</i>	thyme-leaf honey-myrtle	2C, 2K, N, W												
<i>Melaleuca viridiflora</i>	broad-leaved paperbark	2C, 2K, N, W												
<i>Melastoma malabathricum</i> subsp. malabathricum	blue tongue	J, L, F, 2J, 2C, H												
<i>Melicope elleryana</i>	pink flowered doughwood	None observed												
<i>Nymphoides indica</i>	water snowflake	2C, 2K, N, W plus most drains on-Site												

Species indicative of key REs with potential to occur on-Site	Common name	Potential collection areas on-Site (VMUs)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Persicaria</i> spp.		2C, 2K, N, W plus most drains on-Site												
<i>Philydrium lanuginosum</i>	frogmouth	2C, 2K, N, W plus most drains on-Site												
<i>Pteridium esculentum</i>	common bracken	2C, 2K, N, W plus most drains on-Site												
<i>Schoenoplectus</i> spp		2C, 2K, N, W plus most drains on-Site	No information sourced to date											
<i>Schoenus brevifolius</i>	zig-zag bog-rush	2C, 2K, N, W plus most drains on-Site												
<i>Schoenus scabripes</i>		2C, 2K, N, W plus most drains on-Site												
<i>Sporobolus virginicus</i>	sand couch	2C, 2K, N, W plus most drains on-Site												
<i>Syncarpia glomulifera</i> subsp. <i>Glomulifera</i>	turpentine	None observed	No information sourced to date											
<i>Syncarpia verecunda</i>		None observed												
<i>Triglochin procerum</i>	water ribbon	2C, 2K, N, W plus most drains on-Site												
<i>Typha</i> spp	bullrush	2C, 2K, N, W plus most drains on-Site												
<i>Waterhousea floribunda</i>	weeping lillypilly	None observed												
<i>Xanthorrhoea fulva</i>	swamp grass tree	2C, 2K, N, W												
<i>Zoysia macrantha</i> subsp. <i>macrantha</i>	prickly couch	2C, 2K, N, W												

10 APPENDIX C: TRIAL OUTLINE

The following table provides recommendations for critical trials that will determine the effectiveness and appropriateness of various recommended treatment options for the Site.

Table 11 Trial Outline

Trial study focus	Recommended VMU location (aim to run rectangular plot at right angle to nearby remnant vegetation)	Potential techniques to trial	Parameters to record
Enhanced regeneration in clean areas	P	Spot spraying of framework species to enhance shrub/ground layer; Spot spraying of shrub/ground layer to enable higher framework species coverage.	Time/resource allocation (do not include trial setup meetings or auditing); Impact on non-native and native vegetation; Implementation difficulties; Notes regarding enhancing success and reducing failure.
Direct seeding	M, Open Space Buffer to west	Direct seeding of framework, shrub layer and groundlayer components of 12.3.5 community (as listed in Table 3). Trial different rates if possible but utilise 2kg (200g of viable seed) of total seed per hectare as a base. Minimise use of acacia species. Undertake in wet and dry parts of Site.	

Enhanced regeneration in areas dominated by setaria and other improved pastures	2G	Low intensity fire in the late spring (<i>Melaleucas</i> may germinate in early autumn); Targeted control of setaria using of-label rates of flupropanate (e.g. 3 litres per hectare application) and other monocot-specific herbicides; Soil stimulation through shallow disking etc.	
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11 APPENDIX D: GLOSSARY

Abiotic filter – A process or state which prevents ecological or successional processes (e.g. soil composition).

Biotic filter – An organism which prevents ecological or successional processes (e.g. aggressive weed species).

DERM – Queensland Department of Environment and Resource Management

Endangered vegetation (End) – <10% of pre-European extent remains in an intact condition across the bioregion.

EPBC – Refers to the *Environment Protection and Biodiversity Conservation Act 1999*

Essential Habitat – Habitat considered vital for the ongoing survival of a species listed as rare, vulnerable or endangered.

EVNT – Endangered, Vulnerable or Near Threatened species under State or Federal legislation.

Floristic diversity – The variety and diversity of flora species within an ecosystem or vegetation community.

Landscape fragmentation – a condition where the remaining remnant vegetation across a region is fragmented into many smaller, non-connected remnants. Increased landscape fragmentation has a bearing on the ecological function of a region.

Land zone – an area of land consisting of land systems that are related in terms of one or more of the independent land features – land form, geological material and climate. In Queensland, a simplified geology/substrate-landform classification is utilised in the regional ecosystem framework.

NCA – Refers to the *Nature Conservation Act 1992*.

Not of Concern (NOC) – >30% of pre-European extent remains in an intact condition in that bioregion.

Non-Remnant – Vegetation shown on a regional ecosystem map as “white” or vegetation that is at any stage of regrowth, but which has not reached remnant status by having 50% of original canopy cover and/or 70% of original canopy height.

Of Concern (OC) – means a regional ecosystem that is prescribed under the VMA and has either – a) 10 to 30% of its pre-clearing extent remaining; or b) more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000ha.

Recruitment – The process whereby new vegetative reproductive material is brought into and germinates within a site.

Regional Ecosystem Description Database (REDD) – Queensland Herbarium (2009), Version 6.0b. Updated November 2009. This database provides detailed descriptions of REs, key reference sites and variables across the landscape.

Regional Ecosystem (RE) – is a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil. Often expressed as a series of three or more numerals (i.e. 11.3.4). Where the number 11 refers to the bioregion, the number 3 to the land zone and the number 4 to the vegetation type.

Remnant – Native vegetation that achieves more than 50% of the undisturbed predominant canopy, 70% of the vegetations” undisturbed height, composed of species characteristics of the vegetation undisturbed predominant canopy and marked as remnant on an RE map.

Stock exclusion – The total and permanent exclusion of stock from a site.

Stock management – The partial exclusion (management) of stock within a site, often controlled by the addition of fencing.

Site trajectory - Ecosystem typically move from one state to another based on biotic and abiotic factors. A site trajectory is the current path a vegetation unit or ecosystem is taking.

Vegetation structure – refers to the layering effect in a vegetation community (i.e. leaf litter, ground cover, understory, mid story, upper mid story and canopy)

VMA – *Vegetation Management Act 1999*

Vegetation Management Unit (VMU) – A management area that can support similar vegetation and requires similar management techniques to achieve site objectives.