APPENDIX 12-B: IMPACT ASSESSMENT METHODOLOGY

IMPACT ASSESSMENT METHODOLOGY

Impacts may be direct or indirect, varying in their potential to occur, intensity (scale) and duration. Impacts may be either positive or negative, and separate components of the project may act synergistically to produce outcomes that may vary seasonally or with weather conditions, such as rainfall. These impacts and their species-specific consequences may be assessed both as unmitigated (preliminary) impacts and with consideration of certain mitigation actions or, where mitigation may not be possible or does not completely mitigate the impact, with appropriate and practical compensatory actions. Impacts subsequent to mitigation or compensatory measures are referred to here as 'residual impacts'.

Such assessment is a complex task. This complexity is addressed by concise and consistent summary within Tables 12-3, 12-6, 12-12 and 12-13, which set out each significant ecological element present in the Glebe Option Area, summarise the impact mechanisms and their potential effects on each element, provide appropriate mitigation measures, and show the assessed residual impact.

For flora and vegetation, assessment of the nature and scale of impacts are based on the known distribution and rarity of the ecosystem and the proportion affected, the presence or likely presence of significant species, and the likely environmental (physical, chemical, biological) changes resulting from construction and operational activities.

For fauna, assessment of the nature and scale of predicted impacts are based on known or likely occurrence, fecundity, dispersal abilities, home range, habitat specialisation, resilience to disturbance, and mobility.

The tables on the final page of this Appendix further clarify the impact assessment process applied to Tables 12-3, 12-6, 12-12 and 12-13.

The following terms are used in Tables 12-3, 12-6, 12-12 and 12-13 to describe impact types and scales:

Direct impact: Any impact that affects a species/community directly, e.g. the actual removal of vegetation or the loss of foraging habitat for a species due to development activities.

Indirect impact: Any impact that affects a species/community indirectly, which may be as a result of a direct impact on another species whose life history is interrelated with the species in question (e.g. the loss of certain hollow-bearing trees directly reduces potential sheltering and breeding sites for arboreal mammals, which in turn reduces prey availability for a predator foraging over a large area).

Preliminary impact: The predicted impact without any mitigation measures in place. While mitigation would be in place should the Glebe Option proceed, an assessment of unmitigated impact is necessary for the planning phase assessment.

Residual impact: The predicted remaining impact after mitigation actions are implemented. This represents the likely actual impact of the Glebe Option and should form the basis of discussions regarding compensations or offsets.

Levels of impact are assessed in relation to the following three factors:

1. Impact Likelihood: The likelihood of an identified impact occurring has been rated as either Certain, Probable, Possible, Unlikely or Very Unlikely.

2. Impact Consequence: Each impact is categorised as Catastrophic, Significant, Moderate, Minor or Negligible in terms of its effect on the element in question, taking into account the geographic extent of impact (area), the duration and intensity of impacts, and the ability of the impacted element to recover (resilience).
   a. Catastrophic impacts would result in the extinction of a species.
   b. Significant impacts may be notably detrimental or beneficial to the species or community on a population scale. Significant negative impacts may result in local extinction or catastrophic declines and a consequent substantial decrease in abundance and population viability at larger scales. Significant negative impacts may also be determined by the conservation status of a species being affected (e.g. NC Act or EPBC Act – listed species). Significant positive impacts may result in substantial increases in local populations, increasing the overall abundance of a species, or in influxes, in the case of more mobile species, into the area from surrounding regions.
   c. Moderate negative impacts may result in a substantial change to a local population, though which would not lead to extinction at any level. Moderate positive impacts may produce an increase in the local population sufficient, for breeding species, for the local area to act as a source population for nearby areas. This may not necessarily lead to an overall increase in the species' abundance.
   d. Minor negative impacts may result in small decreases to a local population that would be overcome without mitigation. A minor positive impact may result in small increases that would not facilitate substantive species emigration from nearby areas. Any changes from minor impacts would fall within natural fluctuations of a local population, i.e. within the normal carrying capacity of the area.
   e. Negligible impacts are those that are likely to be undetectable.

3. Impacts may be negative, neutral or positive. All impacts listed in the tables should be considered as negative, unless otherwise stated.

Impact Element	Element Features		PRELIMINARY (UNMITIGATED) IMPACTS					
			Likelihood of Impact Occurring					Highest Impact Level Predicted
			Certain	Probable	Possible	Unlikely	Rare	
Area of national, state, regional or local conservation significance, species or communities that are endangered, vulnerable, rare, of concern, of important to state or regional biodiversity (fauna corridors, environmental weeds), or subject to international agreements (JAMBA, CAMBA, Ramsar).	Size of area/ habitat affected	Minor	Minor	Minor	Negligible	Negligible	Negligible	Minor
		Moderate	Significant	Moderate	Moderate	Minor	Negligible	Significant
		Significant	Catastrophic	Catastrophic	Significant	Moderate	Negligible	Catastrophic
	Duration and intensity of impact	Minor	Significant	Moderate	Minor	Negligible	Negligible	Significant
		Moderate	Catastrophic	Significant	Moderate	Minor	Negligible	Catastrophic
		Significant	Catastrophic	Catastrophic	Significant	Moderate	Negligible	Catastrophic
	Ability of impact element to recover	Low	Catastrophic	Catastrophic	Significant	Minor	Minor	Catastrophic
		Medium	Significant	Significant	Moderate	Minor	Minor	Significant
		High	Moderate	Moderate	Moderate	Minor	Minor	Moderate

Impact Element	Mitigation Effectiveness		MITIGATED IMPACTS																				Highest Impact Level Predicted
			Likelihood of Impact Occurring & Predicted Unmitigated Impact Level																				
			Certain				Probable				Possible				Unlikely				Rare				
			C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	
Area of national, state, regional or local conservation significance, species or communities that are endangered, vulnerable, rare, of concern, of important to state or regional biodiversity (fauna corridors, environmental weeds), or subject to international agreements (JAMBA, CAMBA, Ramsar).	Level to which mitigation measure alleviates impact	Slightly	C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	C	S	Mo	M	C
		Moderately	S	Mo	M	N	S	Mo	M	M	S	Mo	M	M	Mo	M	M	N	Mo	M	M	N	S
		Significantly	Mo	M	M	N	Mo	M	M	N	Mo	Mo	M	N	M	M	N	N	M	N	N	N	Mo
		Completely	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N