

Appendix G: Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the Section 75W Modification Application to the Concept Plan Approval (MP 10_0229) for Stage 4 of Woollooware Bay Town Centre has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the Secretary's Environmental Assessment Requirements, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 1 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Table 1 presents the findings of the ERA for this project.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 1 – Risk Assessment Matrix

Table 1 – Environmental Risk Assessment for S75W Modification Application to Concept Plan Approval (MP 10_0229) for Woollooware Bay Town Centre

Identification of Potential Environmental Impacts				Risk Assessment		
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Safety and Security	C / O	<ul style="list-style-type: none"> Site security during the construction phase Impacts of urban design and architecture on actual and perceived safety and security of public and residents 	<ul style="list-style-type: none"> The construction management plan accompanying each future Development Application for physical works shall outline details of site security measures to be implemented during the construction phase. Council may require that future Development Applications for buildings and open space within the Site be accompanied by a Crime Prevention Through Environmental Design (CPTED) report prepared by a suitably qualified assessor. 	Low	Standard	Low
Overshadowing	O	<ul style="list-style-type: none"> Overshadowing of Woollooware Golf Course and Woollooware High School 	<ul style="list-style-type: none"> Shadow studies for the proposed master plan demonstrate an acceptable overshadowing impact assessment as outline in the S75W Modification Application planning report. Future Development Applications for buildings above the approved podium will be required to provide updated solar impact studies consistent with the Shadow Diagrams prepared by Turners submitted with this Modification Application, identifying any variance from the master plan to allow for assessment of any changes to the overshadowing impacts of the redevelopment of the Site. 	Low	Standard	Low
Contamination	C / O	<ul style="list-style-type: none"> Potential human health and environmental impacts associated with known and potential areas of contamination within the Site. 	<ul style="list-style-type: none"> The existing Project Approval included a Remedial Action Plan prepared by DLA Environmental dated February 2013. Condition B1 of the existing Project Approval requires the remediation of the site in accordance with that plan and the submission of a site audit statement following the completion of that remediation, in accordance with the requirements of State Environmental Planning Policy No.55 – Remediation of Land to ensure that the site is suitable for the proposed land uses. 	Moderate	Standard	Low/Medium
Traffic	C / O	<ul style="list-style-type: none"> Construction traffic and parking Impact of additional traffic loads on local and regional roads 	<ul style="list-style-type: none"> The construction management plan required to be provided with each Development Application shall also be required to address construction traffic management and construction worker parking. Wherever possible, parking for construction workers should be provided on-site so as to minimise disruption to local parking availability. 	Low	Standard	Low
Flora and Fauna	C / O	<ul style="list-style-type: none"> Disturbance caused by construction noise emissions. Potential disturbance of habitat by additional human activity, including noise and light emissions. Potential increase in bird strikes of proposed buildings. 	<ul style="list-style-type: none"> Existing planning approvals for the eastern and western precincts include measures to mitigate construction impacts on natural habitat as required. EcoLogical Australia have extensive experience of the site and surrounding ecological features, and have prepared an updated 'Review of Noise, Light and Bird Strike Potential' that outlines mitigation measures to be followed during construction and operation in order to ensure that no adverse impacts to identified flora, fauna and ecological communities occur. 	Minor	Elementary	Low/Medium

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Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Major Event Management	C / O	<ul style="list-style-type: none"> Disruption to local traffic flows and access to residential, visitor accommodation and retail centre. Potential disturbance of residential amenity during major events. 	<ul style="list-style-type: none"> The Project Approval for the Retail/Club precinct establishes protocols to minimise disruption of non-event activities within Woollooware Bay Town Centre during major events at Southern Cross Group Stadium. These protocols establish appropriate management measures to mitigate potential traffic and access impacts. Acoustic assessment indicates that noise generated from Southern Cross Group Stadium during major events is able to be readily mitigated through residential building design. Further acoustic studies to be undertaken in conjunction with detailed project design and submitted with planning applications for residential development within Eastern Precinct. 	Low	Elementary	Low/Medium
Electromagnetic Radiation	O	<ul style="list-style-type: none"> Potential impacts on human health arising from proximity of new dwellings to the electricity transmission lines. 	<ul style="list-style-type: none"> The EMR Assessment by Magshield indicates that the exposure levels to electromagnetic radiation in new dwellings would be well below the relevant ARPANSA standards for human health. If required by Sutherland Shire Council, supplementary EMR assessments will be provided with the Development Application(s) for future residential dwellings. 	Low	Standard	Low
Construction Impacts	C	<ul style="list-style-type: none"> Construction noise and vibration Dust and air quality Erosion and sediment run-off 	<ul style="list-style-type: none"> This Concept Plan Approval does not provide consent for construction activities. A construction management plan (CMP) has already been prepared and approved in relation to the Project Approval for the Retail/Club development. A supplementary CMP will be required to be provided with each future Development Application for physical works within the Site. 	Moderate	Standard	Low/Medium
Wind	O	<ul style="list-style-type: none"> Potential impacts of finished buildings on local wind conditions impacting on pedestrian comfort and safety. 	<ul style="list-style-type: none"> Preparation of further pedestrian wind assessment with future Development Applications for public domain, landscaping and tall building elements to ensure that detailed building design and landscaping measures are implemented to ensure an appropriate pedestrian wind environment within the Site and surrounds. 	Low	Standard	Low
Flooding	C / P	<ul style="list-style-type: none"> Potential flood affectation of land surrounding the Eastern Precinct. Potential flood affectation of Sharks Centre of Excellence 	<ul style="list-style-type: none"> Newly proposed development within the Eastern Precinct is located well above the identified flood planning levels. The Flood Management & Evacuation Plan prepared by WMA Water dated March 2013 may be updated in association with future Development Applications if required by Sutherland Shire Council. Detailed design of Sharks Centre of Excellence to take into account applicable flood planning levels, with Flood Report and Flood Management & Evacuation Plan to be submitted with future Development Application. 	Moderate	Standard	Low/Medium