APPENDIX 21.4

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
Construction Phase								
Construction of structures and working areas: Loss of saltmarsh and intertidal habitats	Birds in the Upper Estuary	Short term, part permanent, part temporary, Direct, High importance, Low magnitude	Low negative	Start construction before bird-breeding season or remove breeding habitat in winter. Prevent access to saltmarshes by fences. Monitor construction work and related activities.	Low Negative			
Presence and movements of structures, machinery and personnel: Disturbance to breeding, roosting,	Birds in the Upper Estuary	Short term, Temporary, Direct, High importance, Moderate magnitude	Moderate Negative	Restrict machinery, vehicles and personnel to working areas. Prevent access to saltmarshes	Low Negative Significance	Presence and movements of structures, machinery and personnel: Disturbance to breeding, roosting,	Low Negative (Short term, temporary)	The Terrestrial and Avian Ecology assessment (Chapter 10) considered the cumulative effects of developments close to the estuary, this included developments

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
feeding, loafing and migrating birds				by fences. Monitor construction work and related activities.		feeding, loafing and migrating birds		1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 28, 29, 30, 31, 52. The assessment considered the direct and indirect cumulative effects of the developments on the bird interests of the Upper Estuary. Although several of the development sites to the west of the Silver Jubilee Bridge were considered likely to result in potential effects on the European Site, it was concluded that there is not likely to be significant cumulative effects on the European Site. This is because the two populations are relatively discreet. The assessment concluded that development 3: The
Noise and pollution by machinery and lighting: Disturbance to breeding, roosting, feeding, loafing and migrating birds. Oiling of birds.	Birds in the Upper Estuary	Short term, Temporary, Direct, High importance, Low magnitude	Low Negative	Restrict machinery, vehicles and personnel to construction areas. Minimise access to saltmarshes by fencing. Monitor construction work and related activities.	Low Negative Significance	Noise and pollution by machinery and lighting: Disturbance to breeding, roosting, feeding, loafing and migrating birds.	Low Negative (Short term, temporary)	

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
								Widnes Waterfront, would result in cumulative effects on the Upper Estuary as a result of human disturbance.
Operational Phase								
Presence of the New Bridge structure: disturbance to breeding, feeding, roosting and flying birds	Birds in the Upper Mersey LWS	Long-term, Permanent, Direct, High importance, Moderate magnitude	Moderate Negative	None	Low Negative Significance	Presence of new structures and permanent lighting: disturbance to breeding, feeding, roosting and flying birds	Low Negative (Long-term, Permanent, Direct)	The Terrestrial and Avian Ecology assessment (Chapter 10) considered the direct and indirect cumulative effects of the developments on the bird interests of the Upper Estuary. Although several of the development sites to the west of the Silver Jubilee Bridge were considered likely to result in potential effects on the European Site, it was concluded that there is not likely to be significant cumulative effects on the European Site. This is because the two populations are

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
								relatively discreet. The assessment concluded that development 3: The Widnes Waterfront, would result in cumulative effects on the Upper Estuary as a result of human disturbance.
Pollution from oils and road run-off: Oiling of birds	Birds in the Upper Mersey LWS	Long-term, Permanent, Direct, High importance, Low magnitude	Low Negative	None	Low negative significance	None	-	Proposed developments 1, 2, 3 , 5, and 52 are in the vicinity of the Upper Estuary but are not considered to cumulative effects with the Project as discussed in in-combination effects discussion in The Terrestrial and Avian Ecology assessment (Chapter 10)
Presence of moving traffic, noise and artificial lighting Reduction in aesthetic appeal and	Wigg Island LWS and Local Nature Reserves	Long-term, Permanent, Direct and indirect, High importance, Moderate	Moderate significance		Low negative significance	None	-	Proposed development 10 is in close proximity to Pickerings Pasture LNR and proposed development 4 is in close proximity to Murdishaw Wood LNR.

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
tranquility of the Local Nature Reserve		magnitude						These LNRs are unlikely to be affected by the Project due to their distance from the works. Wigg Island LWS will not be affected by any other proposed developments.
Effect on Great Crested Newts	Great Crested Newts	Long-term, Permanent, Direct, High importance, Low magnitude	Not significant	Installation of a permanent amphibian exclusion fence to prevent access to the expressway giving greater protection than at present	Low positive	None	-	The only proposed development near to the ponds occupied by Great Crested Newts is development 7. This development is not located in proximity to any of the ponds and is already a developed area. Therefore there is considered to be a negligible potential for cumulative effects.

Table 21.4. Cumulative effects relating to Terrestrial and Avian Ecology arising from the Project