10 Effect Interactions

10.1 Background

10.1.1 This chapter of the ES summarises the likelihood for cumulative effects, known as 'effect interactions' to arise from the Development. Effect interactions can occur as a result of interactions between multiple individual effects arising from a single project on a particular receptor, i.e. where individual effects combine to affect a single receptor, for example in relation to noise, airborne dust and traffic effects.

10.1.2 Inter-project cumulative effects, effects that occur in combination with other cumulative schemes, have been discussed within each technical ES chapter, and are not re-stated within this chapter. Further details on the approach to the assessment of these cumulative effects is provided in Chapter 3: EIA Methodology.

10.2 Methodology

10.2.1 There is no established EIA methodology for assessing and quantifying the interaction of individual effects on sensitive receptors / resources. However, the European Commission has produced guidelines[1] for assessing effect interactions *"which are not intended to be formal or prescriptive, but are designed to assist EIA practitioners in developing an approach which is appropriate to a project…"*

10.2.2 These guidelines have been reviewed and an approach developed which uses the identified residual effects of the Development to determine the potential for effect interactions, i.e. reactions between the effects of the Development. An exercise which tabulates the residual effects against receptors or receptor groups has then been carried out in order to identify the potential for cumulative effects.

10.2.3 A quantitative approach has not been undertaken to the assessment of effect interactions. Instead, the cumulative effects are assessed qualitatively using professional judgement. A judgement has been applied to whether the effect interaction (i.e. combination of individual effects) would result in a significant cumulative effect on the receptor in question and whether this is likely to be any different (in terms of nature and scale of effect and so significant) from the individual effects identified in the topic assessment (technical chapters 7 to 9). Where effect interactions have been identified, consideration is given to whether additional mitigation measures are required.

Scope of the Assessment

10.2.4 For there to be effect interactions between individual residual effects on a receptor, the residual effects have to affect the receptor at the same time.

10.2.5 Only beneficial or adverse residual effects identified in the technical chapters classified as being Minor, Moderate and Major or Significant (Biodiversity) have been considered in relation to the potential for effect interactions. Negligible or Neutral residual effects have been excluded from this assessment as, by virtue of their definition, they are considered to be imperceptible effects to an environmental / socio-economic resource / receptor.

10.2.6 Minor beneficial or adverse effects are considered 'not significant' in EIA teams when considered in isolation. However, for the purposes of this assessment it is acknowledged that should a receptor be affected by numerous Minor effects simultaneously, there is the potential for the effect interaction to be of greater magnitude than the sum of the original effects (e.g. increase from Minor to Moderate). Minor effects are therefore also considered.

Nature of Effect

10.2.7 For some environmental effects, no interaction with other effects will occur and so no cumulative effect could arise. For example, effects on daylight and sunlight do not interact with transport effects. If no interaction can occur for an environmental effect, this is stated within the assessment with clear justification provided.

10.2.8 Construction effects are often temporary due to the transient nature of the works. As works progress across the Site, the location of an affected receptor would alter in relation to the works being undertaken. As a result, the magnitude and intensity of the effect experienced by a receptor would change with location and time. As such, these effects are likely to be temporary and short to medium term.

10.2.9 The completed Development effects are likely to be permanent and long-term.

Assumptions and Limitations

10.2.10 It has been assumed that a detailed CEMP and CTMP would be secured by planning condition, further details of which are provided in Chapter 6: Construction, and implemented throughout construction of the Development.

10.2.11 The Development would be also be subject to Travel Plans (included as Appendix 9.1), with further details provided in Chapter 9: Transport and Access.

10.3 Construction

Assessment of Effect

10.3.1 For the construction assessment, no residual effects classified as being Minor, Moderate and Major or Significant (Biodiversity) have been identified in relation to the Transport and Access, Biodiversity and Water Resources and Flood Risk. As a result, there is no potential for interaction of effects to occur between these technical topics.

10.4 Operational Development

Assessment of Effect

10.4.1 For the operational phase of the completed Development, no residual effects have been identified for Biodiversity and Water Resources and Flood Risk. As a result, there is no potential for interaction with these effects to occur with Transport and Access effects and are therefore not considered further within this assessment.

10.4.2 In addition, although the biodiversity benefits through habitat creation and enhancement works on Site is assessed as being beneficial, it is considered appropriate for this assessment to apply a residual effect of 'Negligible' to present a worst-case assessment. As a result, there is no potential for interaction with other effects to occur.

10.4.3 The EIA has identified a number of adverse residual effects during the completed Development as being of Minor significance. Table 10.1 presents the residual effects once the Development is complete and operational.

Table 10.1: Effect interactions – Operational Phase

Topic	Potential Effect	Residual Effect	Affected Receptor
Transport and Access	Severance	Minor Adverse (not significant) to Negligible	Pedestrians and cyclists
	Driver Delay	Minor Adverse (not significant)	Vehicle users
	Pedestrian and Cyclist Delay and Amenity	Minor Adverse (not significant) to Negligible	Pedestrians and cyclists
	Accidents and Safety	Minor Adverse (not significant)	Vehicle users, pedestrians and cyclists

10.4.4 Table 10.1 shows the likely environmental effects resulting from the operational phase are generally adverse (although not significant), long term in duration and are applicable throughout the life span of the Development and relate only to the slight increase in traffic flows on Wendlebury Road and the Vendee Drive Link as a result of the Development.

10.4.5 When these effects are combined, they could potentially create combined adverse effects on the identified receptor groups. The implementation of Travel Plans for land uses on the Site should result in a modal shift away from private car use to more sustainable transport modes, further reducing the potential for effect interactions to take place once the Development is complete and operational. As a result, the potential in-combination effect on identified receptor groups is deemed **not significant**.