A14. Inter-active and Cumulative Effects

A14.1 This Chapter replaces in its entirety Chapter 14 of the July 2016 ES. It outlines the inter-active and cumulative effects which may arise during the construction and operational stage of the development.

Inter-active effects

A14.2 An inter-active effect is one where one effect (ie an increase in traffic) impacts in different topic areas as set out in the technical Chapters may act in conjunction to either beneficial or detrimental effect. The only Chapters where interactive effects are identified are assessed in each topic Chapter, where appropriate.

A14.3 The greatest potential for inter-active effects is during the site demolition and construction phase. The greatest potential for the combination of effects is on existing sensitive receptors in terms of a combination of noise, air quality (including dust) and construction traffic. However, these are considered to be only of minor significance due to their relatively short and intermittent nature. Furthermore, tried and tested mitigation measures can be secured through standard planning conditions to reduce any impacts.

Cumulative effects

A14.4 A cumulative effect occurs between developments, which are those effects of the development that may interact in a beneficial or negative manner with the effects of other committed schemes that are not currently in existence but may be by the time the Proposed Development is implemented.

A14.5 The cumulative effects are considered in each topic Chapter where appropriate, the identified cumulative effects can be summarised as follows:

Table 14.1: Summary of Cumulative effects

Topic Chapter	Committed Scheme	Potential Cumulative Effects
Chapter A6 Socio-economic	Lindley Moor employment site and Slipper Lane employment site	**Major beneficial** Employment Productivity Business Rates
Chapter A7 Landscape and Visual Impact	Highways improvements to Junction 26 M62, Chainbar roundabout – as set out in the KMBC UDP	Visual impact
Chapter A8 Ground Conditions	No committed schemes of relevance identified	
Chapter A9 Ecology	No committed schemes of relevance identified	

Chapter A10 Flood risk and drainage	No committed schemes of relevance
Chapter A11 Highways	No committed schemes of relevance identified
Chapter A12 Noise	No committed schemes of relevance identified
Chapter A13 Air Quality	No committed schemes of relevance identified

A14.6 Chapter A7 – Landscape and Visual Impact considered the possible effect of the highway improvements to the Junction 26 of the M62 as set out in the Kirklees Councils Local Plan. These proposals have not been confirmed, and therefore it is difficult to assess the potential effect. Based on the potential line as set out in the Kirklees Plan it is considered that this would affect views into the site and provide additional planting. Apart from Chapter 6 – Socio-economics, there were no committed schemes of relevance to the other Chapters within the ES.

A14.7 No significant adverse effects are identified from the cumulative assessment.

A15. Summary of Mitigation Measures and Residual Effects

A15.1 This Chapter replaces in its entirety Chapter 15 of the July 2016 ES.

A15.2 The preparation of the ES has been undertaken in parallel with the design process. As a consequence, many measures to mitigation likely significant adverse environmental effects have been incorporated into the Proposed Development design in order to avoid, reduce or offset such effects. As such, many mitigation measures, have been "designed in" and these are set out in Chapter A4 Proposed Development, and addressed throughout the ESA.

A15.3 Additional mitigation measures have been proposed in relation to both construction and operation and these have been set out in each of the preceding technical chapters. These have been defined and clear and binding methods set out to ensure they are secured. A summary of these additional measures is set out below, **Table A15.1**.

Table A15.1 Summary of Additional Mitigation Measures

Topic Area	Measures	How it can be secured
Ground conditions, Air quality, Transport, Noise, Flood Risk and Drainage, Ecology	Construction Environmental Management Plan (CEMP)	Planning condition
Flood risk and drainage, and Ground Conditions	Drainage Strategy to secure detail of SUDs and foul drainage, with water efficiency measures to be included in detailed design	Planning condition
Ground conditions	Adherence to Remediation Strategy	Planning condition
Highways and Transport	Framework Travel Plan	Planning condition
Ecology	BEMP, lighting scheme and detailed design	Planning condition
Noise	Operational noise limits, traffic management plan, detailed design and detailed glazing design, noise assessment for 24hr operations including mitigation in detailed design	Planning condition
Air Quality	Framework Travel Plan and CEMP	Planning condition

Landscape and visual	Securing landscape scheme	Planning condition

A15.4 The residual effects of the Proposed Development have been assessed in the technical chapters, as outlined in the summary tables. **Table A15.2** summarises the main residual effects of the Proposed Development. To provide further clarification on the nature of the effects, each as been identified as:

- Local, regional or national in scale (L,R,N)
- Direct or indirect (D/I)
- Permanent or temporary (P/T)
- Short, medium or long term (ST,MT,LT)
- Reversible or Irreversible (R/I)

A15.5 **Table A15.2** below summarises the residual effects of the revised Proposed Development.

Table A15.2 Summary of Significant Residual Effects

Topic	Stage	Description	Significance	Extent (L/R)	Nature (D/I, T/P, ST/MT/LT, R/I)
Socio-economic	Construction	Employment – Local	Substantial beneficial	L	D/I, T,ST
		Economic Productivity - Local	Substantial beneficial	L	D/I, T,ST
	Operational	Business rates	Moderate beneficial	L	D/I, P,LT
Landscape and Visual	Construction	The Site	Moderate	L	D,T
		Batley Fringe Incised Valleys – Landscape Character area	Moderate adverse	L	D,T,LT,I
		Viewpoint 1 – Cliff Hollins Farm	Moderate adverse	L	D,T, LT, I
		Viewpoint 2 – Properties at grid references 417862 and 428084	Moderate adverse	L	D,T
		Viewpoint 3 – Bungalows on Cliff Hollins Lane	Moderate	L	D,T,LT,I
		Viewpoint 4 – Footpath with site / along access road	Major/moderate adverse	L	D,T,LT,I
	Operational	The Site	Moderate beneficial	L	D,P

	Batley Fringe Incised Valleys – Landscape Character area	Moderate adverse	L	D,P,LT,I
	Viewpoint 1 –Cliff Hollins Farm	Moderate neutral	L	D,P, LT,I
	Viewpoint 2 – Properties at grid references 417862 and 428084	Moderate/minor adverse	L	D,P,LT,I
	Viewpoint 3 – Bungalows at Cliff Hollins Lane	Moderate neutral	L	D,P,LT,I
	Viewpoint 4 – Footpath within site / along access road	Major/moderate adverse	L	D,P,LT,I
Ground conditions	No Significant effects identified			
Ecology	Invasive Species	Minor/moderate beneficial	L	D,T
	Invasive species	Minor moderate beneficial	L	D,P
Flood Risk and Drainage	No significant effects identified			
Highways and Transport	No significant effects identified			
Noise	No significant effects identified			
Air Quality	No significant effects identified			

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