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TABLES

21.0 SUMMARY OF SIGNIFICANT EFFECTS

21.1 Introduction

21.1.1 Chapters 8 to 20 of this Environmental Statement (ES) have considered the potential environmental impacts and effects of the Proposed Development. This chapter of the ES provides a summary of those adverse and beneficial environmental effects that are considered to be significant (*i.e.* moderate and major effects).

21.2 Significant Environmental Effects and Proposed Mitigation Measures

21.2.1 Table 21.1 summarises the significant environmental effects of the Proposed Development that have been identified, following implementation of the embedded mitigation or impact avoidance measures included in the design of the Proposed Development (as detailed in Chapters 8 to 20, where relevant). Table 21.1 also summarises any additional mitigation measures that have been identified in the technical assessments contained in the ES. Cumulative and combined effects are included separately at the end of the table.

21.2.2 As outlined in Chapter 2: Assessment Methodology, for the purposes of this ES an effect is considered to be 'significant' if it is assessed to be moderate (adverse or beneficial) or major (adverse or beneficial). Minor and neutral effects are only referenced in this chapter where a 'significant' effect has been reduced to a 'not significant' effect following mitigation.

21.2.3 To provide further clarification on the nature of the effects, each has been identified as:

- short term (St) – effects occurring only over a short period of time, *e.g.* an effect that only lasts for the duration of the construction period, or one that lasts for only part of the operational phase;
- medium term (Mt) – effects occurring for the duration of the development's operation, but which cease when operations cease; or
- long term (Lt) – effects occurring beyond the operation of the proposed scheme, for example the permanent change to archaeology;
- temporary (T) – effects that are not permanent because the effect would no longer occur if the impact was removed within the relevant timescale (for example the visual amenity impact of construction structures would be described as St, T as the impact goes when the structures are removed);
- permanent (P) – effects that are permanent and cannot be readily reversed within the relevant timescale (for example an environmental feature that is lost and cannot be replaced until after decommissioning would be Mt, P. In the event that it could not be replaced at all, this would be Lt, P); and
- direct (D) – effects that result from a direct impact, for example , the loss of ecological habitat; or
- indirect (In) – also known as secondary effects, are effects that result indirectly, for example, increased traffic could indirectly impact on air quality or creation of construction jobs can indirectly impact upon the local area through increased use of services/ goods.

Table 21.1: Summary of significant effects

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Chapter 8: Air Quality					
Construction	No significant effects identified.				
Opening	Increased atmospheric ammonia, nitrogen deposition and acid deposition at Thorne Moor Special Area for Conservation (SAC) (Note: only if Selective Catalytic Reduction (SCR) is concluded to be Best Available Technique (BAT) through the Environmental Permit process)	Major adverse (significant)	n/a	No significant effect if SCR not installed	Lt, P, D
Opening	Increased atmospheric ammonia and acid deposition at Skipwith Common SAC (Note: only if SCR is concluded to be BAT through the Environmental Permit process)	Moderate adverse (significant)	n/a	No significant effect if SCR not installed	Lt, P, D
Opening	Increased nitrogen deposition and acid deposition at Humber Estuary SAC (Note: only if SCR is concluded to be BAT through the Environmental Permit process)	Major adverse (significant)	n/a	No significant effect if SCR not installed	Lt, P, D
Decommissioning	No significant effects identified.				

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Chapter 9: Noise and Vibration					
Construction	Noise effect during concurrent demolition of the existing coal-fired power station and construction of the Proposed Development.	Up to moderate adverse at the nearest residential NSRs (significant).	Further detailed assessment and preparation of a construction noise control scheme (including agreed noise limits) once contractor appointed in accordance with a draft DCO Requirement.	Minor adverse or less, on the basis that BS 5228 ABC noise limits are met (not significant).	St, T, D
Construction	Noise effects during construction of the Proposed Borehole Water, Cooling Water and Gas Connection pipelines.	Up to moderate adverse at nearest residential NSRs during daytime (significant).	Further detailed assessment and preparation of a construction noise control scheme (including agreed noise limits) once contractor appointed in accordance with a draft DCO Requirement.	Minor adverse or less, on the basis that BS 5228 ABC noise limits are met (not significant).	St, T, D
Construction	Noise effects during works at cooling water abstraction point	Up to major adverse (during concrete breaking out, if required) at nearest residential NSRs during daytime	Further detailed assessment and preparation of a construction noise control scheme (including agreed noise limits) once contractor appointed in accordance with a draft DCO Requirement.	Minor/ moderate adverse (significant) or less during concrete breaking out, if required.	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
		(significant).			
Construction	Noise effects due to construction traffic on public highways	Negligible adverse (not significant), but up to moderate adverse (significant) largely during initial 2-week peak period.	Further detailed assessment and preparation of a construction noise control scheme (including agreed noise limits) once contractor appointed in accordance with a draft DCO Requirement.	Negligible adverse (not significant), but up to minor/ moderate adverse (significant) during initial two week peak period.	St, T, D
Operation	Operation of the Proposed Power Plant Site.	Negligible to minor/ moderate adverse – night-time (significant).	Reduction of SWL/ breakout noise from key plant/ buildings. Further assessment as design progresses and preparation of operational noise control scheme (including agreed noise limits) in accordance with the draft DCO Requirement.	Minor adverse/ negligible, on the basis that the excess of the rating level over the background sound level is ≤5dB (not significant).	Lt, T, D
Decommissioning	Noise effects during decommissioning of the Proposed Power Plant.	Up to moderate adverse at nearest residential NSRs	Further detailed assessment and DEMP, particularly regarding working outside of daytime working hours in	Minor adverse or less, on the basis that BS 5228 ABC noise	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
		during daytime (significant).	accordance with a draft DCO Requirement.	limits will be met (not significant).	
Chapter 10: Ecology and Nature Conservation					
Construction	No significant effects identified.				
Operation	No significant effects identified.				
Decommissioning	No significant effects identified.				
Chapter 11: Water Resources, Flood Risk and Drainage					
Construction	Potential increased flood risk during use of cofferdams for construction works at the Proposed Cooling Water abstraction and discharge points, in the event of a lower return period flood event.	Moderate adverse (significant)	None (but the likelihood of the effect occurring will be reduced by minimising the duration of cofferdam installations and timing the installations to avoid high flow periods).	Moderate adverse (significant)	St, T, D
Operation	No significant effects identified.				
Decommissioning	No significant effects identified.				
Chapter 12: Geology, Hydrogeology and Land Contamination					
Construction	No significant effects identified.				

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Operation	No significant effects identified.				
Decommissioning	No significant effects identified.				
Chapter 13: Cultural Heritage					
Construction	Construction of Proposed Gas Connection may entail the removal and permanent loss of archaeological deposits associated with enclosure **1318872.**	Moderate adverse (significant).	If impacts cannot be avoided by design, a programme of archaeological excavation and reporting will be undertaken prior to construction.	Minor adverse (not significant).	Lt, P, D
Construction	Construction of Proposed Gas Connection may entail the removal and permanent loss of archaeological deposits associated with field system **1318895.**	Moderate adverse (significant).	If impacts cannot be avoided by design, a programme of archaeological excavation and reporting will be undertaken prior to construction.	Minor adverse (not significant).	Lt, P, D
Construction	Construction of Proposed Gas Connection may entail the removal and permanent loss of archaeological deposits associated with ridge and furrow **1309762.**	Moderate adverse (significant).	If impacts cannot be avoided by design, a programme of archaeological excavation and reporting will be undertaken prior to construction.	Minor adverse (not significant).	Lt, P, D
Construction	Impacts on potential heritage assets within Proposed Gas	Moderate/major adverse	If impacts cannot be avoided by design, a programme of	Minor adverse	Lt, P, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
	Connection corridor of low or medium significance (heritage value)	(significant).	archaeological excavation and reporting will be undertaken prior to construction.	(not significant).	
Opening	Impacts on the Church of St Paul's (**NHLE 1295734**) associated with the visual prominence of the Proposed Development within the setting of the heritage asset.	Moderate adverse (significant)	If impacts cannot be avoided by design, then additional planting should be considered.	Moderate adverse (significant)	Lt, P, D
Opening	Impacts on the Red House (**NHLE 1148401**) associated with the visual prominence of the Proposed Development within the setting of the heritage asset.	Moderate adverse (significant)	If impacts cannot be avoided by design, then additional planting should be considered.	Moderate adverse (significant)	LT, P, D
Decommissioning	No significant effects identified.				
Chapter 14: Traffic and Transportation					
Construction	No significant effects identified.				
Opening	No significant effects identified.				
Decommissioning	No significant effects identified.				

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Chapter 15: Land Use, Agriculture and Socio-Economics					
Construction	Disruption to users of three Public Rights of Way (PRoWs) during construction of Proposed Cooling Water and Gas Connections.	Moderate adverse (significant)	Appropriate notice and signage will be installed to advise PRoW users of the temporary closures, to minimise disruption, and the PRoWs will be reinstated to their original condition following completion of the works	Moderate adverse (significant)	St, T, D
Construction	Net employment generated during construction.	Major beneficial (significant)	None required but an Employment and Skills Plan will be prepared to ensure local residents have opportunities to secure employment opportunities.	Major beneficial (significant)	St, P, D
Operation	No significant effects identified.				
Decommissioning	No significant effects identified.				
Chapter 16: Landscape and Visual Amenity					
Construction	Impact on the Site landscape due to removal of small areas of woodland/ trees	Moderate adverse (significant)	None	Moderate adverse (significant)	Lt, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Construction	Impact on visual amenity to residents at Viewpoint 1 during construction activities.	Moderate adverse (significant).	None	Moderate adverse (significant).	St, T, D
Construction	Impact on visual amenity to road users at Viewpoint 3 during construction activities.	Moderate adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Moderate adverse (significant).	St, T, D
Construction	Impact on visual amenity to residents at Viewpoint 3 during construction activities.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Major adverse (significant).	St, T, D
Construction	Impact on visual amenity to residents at Viewpoint 5 during construction activities.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D
Construction	Impact on visual amenity to footpath and road users at Viewpoint 6 during construction activities.	Major adverse (significant).	None.	Major adverse (significant).	St, T, D
Construction	Impact on visual amenity to road users at Viewpoint 10 during construction activities.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Construction	Impact on visual amenity to PRoW users and residents at Viewpoint 15 during construction activities	Major adverse (significant)	None	Major adverse (significant)	St, T, D
Opening	Impact on visual amenity to road users at Viewpoint 3 during opening.	Moderate adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Moderate adverse (significant).	St, T, D
Opening	Impact on visual amenity to residents at Viewpoint 3 during opening.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Major adverse (significant).	St, T, D
Opening	Impact on visual amenity to footpath and road users at Viewpoint 6 during opening.	Major adverse (significant).	None.	Major adverse (significant).	St, T, D
Opening	Impact on visual amenity to road users at Viewpoint 10 during opening.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D
Opening	Impact on visual amenity to PRoW users and residents at Viewpoint 15 during opening	Major adverse (significant)	None	Major adverse (significant)	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Operation	Impact on the River Aire Corridor LCA	Moderate adverse (significant)	None	Moderate adverse (significant)	Lt, P, D
Operation	Impact on the Site landscape due to enhancement of landscape screening	Moderate beneficial (significant)	None	Moderate beneficial (significant)	LT,P, D
Operation	Impact on visual amenity to residents at Viewpoint 1 during operation.	Major adverse (significant).	None.	Major adverse (significant).	Lt, P, D
Operation	Impact on visual amenity to road users at Viewpoint 1 during operation.	Moderate adverse (significant)	None	Moderate adverse (significant)	Lt, P, D
Operation	Impact on visual amenity to road users at Viewpoint 3 during operation.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Minor adverse (significant).	Lt, P, D
Operation	Impact on visual amenity to residents at Viewpoint 3 during operation.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Major adverse (significant).	Lt, P, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Operation	Impact on visual amenity to residents at Viewpoint 5 during operation.	Moderate adverse (significant).	None.	Moderate adverse (significant).	Lt, P, D
Operation	Impact on visual amenity to footpath and road users at Viewpoint 6 during operation.	Major adverse (significant).	None.	Major adverse (significant).	Lt, P, D
Operation	Impact on visual amenity to residents and church users at Viewpoint 7 during operation.	Moderate adverse (significant).	None.	Moderate adverse (significant).	Lt, P, D
Operation	Impact on visual amenity to residents at Viewpoint 9 during operation.	Moderate adverse (significant).	None.	Moderate adverse (significant).	LT, P, D
Operation	Impact on visual amenity to PRoW users and residents at Viewpoint 15 during operation	Major adverse (significant)	None	Major adverse (significant)	Lt, P, D
Operation	Impact on sequential views in proximity of the Site	Moderate adverse (significant)	None	Moderate adverse (significant)	LT, P, D
Decommissioning	Impact on visual amenity to residents at Viewpoint 1 during decommissioning.	Major adverse (significant).	None.	Major adverse (significant).	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Decommissioning	Impact on visual amenity to road users at Viewpoint 1 during decommissioning.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to residents at Viewpoint 3 during decommissioning.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Major adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to road users at Viewpoint 3 during decommissioning.	Major adverse (significant).	None assumed to take place (although offer further screen planting to rear of properties to assist with screening of views).	Major adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to residents at Viewpoint 5 during decommissioning.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to footpath and road users at Viewpoint 6 during decommissioning.	Major adverse (significant).	None	Major adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to residents and church users at Viewpoint 7 during	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
	decommissioning.				
Decommissioning	Impact on visual amenity to users of the footpath and canal at Viewpoint 9 during decommissioning.	Moderate adverse (significant).	None.	Moderate adverse (significant).	St, T, D
Decommissioning	Impact on visual amenity to PRoW users and residents at Viewpoint 15 during operation	Major adverse (significant)	None	Major adverse (significant)	St, T, D
Chapter 17: Waste Management					
Construction	No significant effects identified.				
Operation	No significant effects identified.				
Decommissioning	No significant effects identified.				
Chapter 18: Sustainability and Climate Change					
Construction	No significant effects identified beyond those described in other technical chapters, as discussed above.				
Operation	No significant effects identified beyond those described in other technical chapters, as discussed above.				
Decommissioning	No significant effects identified beyond those described in other technical chapters, as discussed above.				
Chapter 19: Human Health					
Construction	No significant effects identified beyond those described in other technical chapters, as discussed above.				

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Operation	No significant effects identified beyond those described in other technical chapters, as discussed above.				
Decommissioning	No significant effects identified beyond those described in other technical chapters, as discussed above.				
Chapter 20: Cumulative and Combined Effects					
Construction	Construction traffic emissions of other developments in close proximity and the Proposed Development (although the Proposed Development contribution is negligible).	Moderate adverse (significant).	EPL is not in a position to influence the timing or routing of traffic to other developments but will consider preparing a coordinated travel plan for demolition of the existing coal-fired power station and Proposed Development construction when timings are known.	Moderate adverse (significant)	St, P, In
Construction	Cumulative visual effects for road users at Viewpoint 1 during construction of Proposed Development, demolition of existing coal-fired power station and proposed Advanced Thermal Treatment Plant.	Moderate adverse (significant).	None	Moderate adverse (significant).	St, P, D
Construction	Cumulative visual effects for residents at Viewpoint 1 during	Major adverse (significant).	None	Major adverse (significant).	St, P, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
	construction of Proposed Development, demolition of existing coal-fired power station and proposed Advanced Thermal Treatment Plant.				
Construction	Cumulative visual effects for residents at Viewpoint 4 during construction of Proposed Development and demolition of existing coal-fired power station.	Moderate adverse (significant)	None	Moderate adverse (significant)	St, P, D
Construction	Cumulative visual effects for residents at Viewpoint 5 during construction of Proposed Development with demolition of the existing coal-fired power station, the proposed Advanced Thermal Treatment Plant, Knottingley Power Plant and Southmoor Energy Centre.	Major adverse (significant).	None	Major adverse (significant).	St, P, D
Opening	Cumulative visual effects for residents (proposed) at Viewpoint 1 at opening of Proposed Development with proposed Advanced Thermal Treatment Plant.	Major adverse (significant).	None	Major adverse (significant).	St, P, D

Development stage	Environmental effect (following development design and impact avoidance measures)	Classification of effect prior to mitigation	Mitigation/ enhancement (if identified)	Classification of residual effect after mitigation	Nature of effect(s) (Lt/ Mt/ St and P/ T and D/ In)
Opening	Cumulative visual effects for residents at Viewpoint 4 at opening with ongoing demolition of existing coal-fired power station.	Moderate adverse (significant)	None	Moderate adverse (significant)	St, P, D
Opening	Cumulative visual effects for residents at Viewpoint 5 during opening of Proposed Development with demolition of the existing coal-fired power station, the proposed Advanced Thermal Treatment Plant, Knottingley Power Plant and Southmoor Energy Centre.	Moderate adverse (significant).	None	Moderate adverse (significant).	St, P, D

Note: Lt = long term, Mt = medium term, St = short term, P = permanent, T = temporary, D = direct and In = indirect.

21.3 References

British Standards Institute (2009) *BS 5228 - Noise and Vibration Control on Construction and Open Proposed Developments*, BSI, London.