CONTENTS

TABLES

20.0 SUMMARY OF LIKELY SIGNIFICANT RESIDUAL EFFECTS

20.1 Introduction

20.1.1 **Chapters 8** to **19** of this Environmental Statement (ES) (ES Volume I - **Application Document Ref. 6.2**) have considered the potential environmental impacts and effects of the Proposed Development. This chapter provides a summary of those adverse and beneficial environmental effects that are considered to be significant (i.e. moderate and major effects).

20.2 Significant Environmental Effects and Proposed Mitigation Measures

20.2.1 Table 20.1 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 19** (ES Volume I - **Application Document Ref. 6.2**), where relevant). Table 20.1 also summarises any additional mitigation measures that have been identified in the technical assessments contained in the ES.

20.2.2 For each topic, the reasonable worst-case scenario is assessed, including the construction programme scenario and design parameters. Further details on the reasonable worst case (or 'the Rochdale Envelope') are set out in **Chapter 4:** The Proposed Development and **Chapter 5:** Construction Programme and Management (ES Volume I - **Application Document Ref. 6.2**). The specific worst-case for each assessment is described in **Chapters 8 to 19** (ES Volume - **Application Document Ref. 6.2**) as appropriate. Effects have been assessed for the construction, operation (including maintenance) and decommissioning scenarios.

20.2.3 As outlined in **Chapter 2**: Assessment Methodology (ES Volume I - **Application Document Ref. 6.2**), for the purposes of this EIA an effect is considered to be 'significant' if it is assessed to be moderate (adverse or beneficial) or major (adverse or beneficial)[1]. Minor and negligible effects are only referenced in this chapter where a 'significant' (moderate or major) effect has been reduced to a 'not significant' effect following mitigation.

20.2.4 To provide further clarification on the nature of the effects, each has been identified for the purposes of this summary 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;

[1] Assessment of significance in **Chapter 18**: Major Accidents and Disasters (ES Volume I - **Application Document Ref. 6.2**) differs from the majority of topics and follows current (IEMA 2020) guidance for assessing potential likely significant effects.

- medium term (Mt) – effects occurring for the duration of the Proposed Development's operation, but which cease when operations cease; or
- long term (Lt) – effects occurring beyond the operation of the Proposed Development, for example the permanent loss of habitat associated with the Proposed Development;
- 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 does not continue 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, effects that result indirectly, for example, increased traffic could indirectly impact on air quality.

Table 20.1: Summary of Likely Significant Residual 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 are predicted to occur.				
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 9: Noise and Vibration					
Construction	No significant vibration effects are predicted to occur				
Construction	No significant noise and vibration effects on ecological receptors within River Trent				
Construction	If construction works take place continuously over night-time periods, assuming the same intensity of working as for the daytime, there would be the potential for adverse noise effects on noise sensitive receptors (NSR 1, NSR 1A, NSR	Moderate/ major adverse (**significant**)	Construction activities taking place outside core working hours will be planned, managed and controlled appropriately so they do not exceed the significant observed adverse effect level (SOAEL) threshold values or relevant limit	Minor adverse (**not 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)**
	2, NSR 3, NSR 7, NSR 8, NSR 10) during construction of the Proposed PCC Site.		agreed with North Lincolnshire Council. It is proposed that this would be secured by a Requirement in the draft DCO (**Application Document Ref. 2.1**). Construction noise mitigation will be controlled by the Construction Environmental Management Plan (CEMP) which will be secured through a Requirement of the draft DCO. A Framework CEMP is included as **Application Document Ref. 7.1**.		
Construction	If construction works take place continuously over night-time periods, assuming the same intensity of working as for the daytime, there would be the potential for adverse noise effects on all NSR, with the exception of NSR 9 during topsoil stripping for laying the cable to the existing Northern Powergrid 132 kV Substation. Similarly, if works take place with the same intensity in the evening	Up to Moderate/ Major adverse (**significant**)		Minor adverse (**not 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)**
	period, there would be adverse effects at NSR 2 on Chapel Lane.		Further detailed assessment and CEMP once contractor appointed. Should the River Water Abstraction Option be selected, during cofferdam piling, additional mitigation may include, but not limited to, use of a temporary acoustic barrier alongside the River Trent, use of a partial enclosure around hammer, and the use of a non-metallic dolly between the hammer and the driving helmet (for driven piling) to prevent		
Construction	Daytime working in the vicinity of NSR 4 predicted to result in adverse effects in the short-term during sheet piling for cofferdam installation, in the event that the River Water Abstraction Option is selected. This effect is primarily due to the short distance between the closest of the properties in this NSR group to the noise source.	Moderate/ Major adverse (**significant**) at NSR4		Up to Minor adverse (**not significant**)	St, T, D
Construction	If construction works take place	Major adverse (**significant**)		Minor adverse (**not significant**).	S/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)
	continuously over night-time periods, assuming the same intensity of working as for the daytime, there would be the potential for adverse noise effects at NSR 11 in relation to continuous flight auger piling for Mabey Bridge replacement.		metal on metal impact sound.		
Operation	Based on the worst-case assessment for the CCP of a single absorber stack up to 107.6m AOD and CCGT without additional mitigation, the impact magnitude on residential NSR ranges from very low to high during daytime	Up to Major adverse (**significant**) subject to consideration of context.	Application of practical sound mitigation to reduce relevant noise at source for the CCP compressors, absorber stack casing, absorber stack exhaust, Heat Recovery Steam Generator (HRSG) walls and roof, all pumps, hybrid cooling	Negligible/ minor adverse (**not 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)
	and night-time assessment periods at the 11 NSR locations.		towers and turbine intake as shown in Table 9.35 of **Chapter 9**: Noise and Vibration (ES Volume I – **Application Document Ref. 6.2**). During detailed design, an operational noise control scheme (including agreed noise limits) will be prepared, secured by a Requirement of the draft DCO (**Application Document Ref 2.1**), which would demonstrate use of Best Available Techniques (BAT) for the control of noise for		

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)**
			the Environmental Permit.		
Decommissioning	Adverse noise effects at (NSR 4) during decommissioning of the Water Connection Corridor (if River Water Abstraction Option selected).	Up to Major adverse (**significant**).	This effect is primarily related to the distance between this NSR and the works. No additional mitigation for decommissioning of the Proposed Development is specified at this stage but would be considered in advance of decommissioning to use best practicable means (BPM) measures available at that time.	Minor adverse (**not significant**).	St, T, D
Chapter 10: Traffic and Transport					
Construction	No significant effects are predicted to occur.				
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				

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 11: Biodiversity and Nature Conservation					
Construction	No significant effects are predicted to occur.				
Operation	No significant direct effects on habitats and species are predicted to occur.				
Operation	Also, refer to **Chapter 8**: Air Quality (ES Volume I - **Application Document Ref. 6.2**) in relation to effects of ammonia, nutrient nitrogen deposition, and acid deposition at habitats sites.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 12: Water Environment					
Construction	No significant effects are predicted to occur.				
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 13: Geology, Hydrogeology and Land Contamination					
Construction	No significant effects are predicted to occur.				
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 14: Landscape and Visual Amenity					
Construction, Operation and Decommissioning	No significant effects on landscape character are predicted to occur				

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	Adverse visual amenity effects for residents at Viewpoint 1 (Chapel Lane West, Keadby), Viewpoint 2 (Gate Keepers Residence, Vazon Bridge, Keadby) and users of the canal and towpath at viewpoint 2 and users at viewpoint 4 (PRoW KEAD9, KEAD10 north of Keadby) during construction activities.	Moderate adverse (**significant**)	Opportunity for mitigation of visual amenity effects limited due to size and scale of Proposed Development and the plant required to construct it. An integrated design approach that considers massing and the disposition of taller structures within the Proposed PCC Site to minimise potential wall effects has the potential to reduce visual impacts of the Proposed Development. A Landscaping and Biodiversity Management and	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)**
			Enhancement Plan (LBMEP) (Application **Document Ref. 5.10**) accompanies the DCO application which presents proposals for planting, although such planting would not reduce the significance of visual effects at these locations.		
Opening	As construction	Moderate adverse (**significant**)	None; as construction.	Moderate adverse (**significant**)	Lt/T/D
Operation (with and without Keadby 1 Power Station)	As construction	Moderate adverse (**significant**)	None; as construction.	Moderate adverse (**significant**)	Lt/P/D
Operation (scenario 2 - with Keadby 1 Power	Adverse visual amenity effects on residents at viewpoint	Moderate adverse (**significant**)	Opportunity for mitigation of visual amenity effects limited due to size and scale of Proposed	Moderate 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)
Station structures not present)	6 (Truck Road, Keadby).		Development. An integrated design approach that considers massing and the disposition of taller structures within the Proposed PCC Site to minimise potential wall effects has the potential to reduce visual impacts of the Proposed Development. A Landscaping and Biodiversity Management and Enhancement Plan (LBMEP) (Application **Document Ref. 5.10**) accompanies the DCO application which presents proposals for		

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)**
			planting, although such planting would not reduce the significance of visual effects at these locations.		
Decommissioning	As construction	Moderate adverse (significant)	None; as construction.	Moderate adverse (**significant**)	Lt/P/D
Chapter 15: Cultural Heritage					
Construction	Loss of the possible partial enclosures [AECOM3333] and [AECOM3334] within the Main Site (Proposed PCC Site).	Major adverse (**significant**)	Mitigation is envisaged to comprise either preservation in situ (where reasonably practicable through detailed design); or if this is not reasonably practicable, excavation would provide mitigation in the form of preservation by record. Further stages of archaeological evaluation are	Minor adverse (**not 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)
			proposed to determine the final mitigation strategy. The mitigation measures will be controlled by the Outline Written Scheme of Investigation (OWSI) (**Application Document Ref. 7.4**) secured by a Requirement of the draft DCO (**Application Document Ref. 2.1**).		

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	The proposed A18 junction improvement option and proposed permanent security cabin and parking on the access road off the A18, together with distant views of the Proposed Development (Main Site) will bring out of character development closer in the view than Keadby 1 and Keadby 2 (under construction) Power Stations within the Isle of Axholme Area of Special Historic Landscape Interest.	Moderate adverse (**significant**)	Impacts on the setting of the Isle of Axholme Area of Special Historic Landscape Interest will be mitigated through the detailed design of the permanent security gatehouse on the Proposed Development Site access road, off the A18. Matters including 'siting, layout, scale and external appearance, including the colour, materials and surface finishes are proposed to be secured by a requirement of the draft DCO (**Application Document Ref. 2.1**).	Minor adverse (**not significant**)	Lt//P/D
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				

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 16: Socio-economics					
Construction	The effect of direct, indirect and induced employment created by the construction phase of the Proposed Development on the Scunthorpe Travel to Work Area (TTWA) and associated economy.	Major beneficial (**significant**)	As no significant adverse effects have been identified, no mitigation is required.	Major beneficial (**significant**)	St/T/D
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 17: Climate Change and Sustainability					
Construction	No significant effects are predicted to occur.				
Operation	No significant effects are predicted to occur.				
Decommissioning	No significant effects are predicted to occur.				
Chapter 18: Major Accidents and Disasters					
Construction	No significant effects are predicted to occur.				
Operation	No significant effects are predicted to occur.				

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	No significant effects are predicted to occur.				
Chapter 19: Cumulative and Combined Effects					
Construction	No new combined or cumulative significant effects are predicted to occur.				
Operation	No new combined or cumulative significant effects are predicted to occur.				
Decommissioning	No new combined or cumulative significant effects are predicted to occur.				

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