Tables

17. Summary of Likely Significant Residual Effects

17.1 Introduction

17.1.1 **Chapters 6** to **16** of this Environmental Statement (ES) have considered the potential environmental impacts and effects of the Proposed Development during the construction, opening, operation (and maintenance) and decommissioning phases. This chapter of the ES provides a summary of predicted adverse or beneficial residual effects that are considered to be significant (i.e. moderate and major effects).

17.2 Significant Environmental Effects and Proposed Mitigation Measures

17.2.1 **Table 17-1** summarises the potential significant environmental effects of the Proposed Development that have been identified, following implementation of embedded mitigation and/or impact avoidance measures (as detailed in **Chapters 6** to **16**, where relevant). **Table 17-1** also summarises any additional mitigation measures that have been identified in the technical assessments contained in the ES.

17.2.2 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 additional mitigation.

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

- short term (st) – effects occurring only over a short period, for example an effect that only lasts for the duration of the construction phase, or one that lasts for only part of the operational phase;
- medium term (mt) – effects occurring for the duration of the Proposed Development's operation, but which would cease when operations cease; or
- long term (lt) – effects occurring beyond the operation of the Proposed Development, 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 17-1: 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 6: Air Quality					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 7: Traffic and Transport					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 8: Noise and Vibration					
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	Moderate adverse (significant)	Construction works occurring at night-time would be planned, managed and mitigated appropriately so as not to exceed the Significant Observed Adverse Effect Level (SOAEL) threshold	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)
	on some noise sensitive receptors (NSR).		values or relevant noise limit to be agreed with Bassetlaw District Council (BDC). 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 No.7.3.**		
Operation	Based on the worst-case assessment of up to five OCGT units without additional mitigation, the impact magnitude	Effects between minor (not significant) to major adverse (significant) could	Reduction of sound power levels (SWL)/breakout noise from key plant/buildings required. Potential	No greater than minor adverse (not significant) effect day-time and night-time, assuming that	Mt, P, R

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)
	ranges from low to high at the seven receptor locations.	occur, in the absence of mitigation at NSR.	mitigation measures considered include: • reducing the breakout noise from the gas turbines, generator and accessories through use of enhanced enclosures, or potentially containing them within a building; • reducing the air inlet noise emissions by the addition of further in-line attenuation; • reducing the stack outlet noise emissions by addition of silencers or sound proofing panels; • reducing fin fan	the threshold BS 4142 criterion of no greater than +5 dB is achieved at all NSR with the chosen site layout and technology.	

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)
			cooler noise emissions by screening, re-sizing, fitting low noise fans or attenuation; • screening or enclosing the transformers or other equipment; • use of screening or bunding to shield receptors from noise sources; or • orientation of plant within the Site to provide screening of low level noise sources by other buildings and structures, or orientating fans and the air inlet away from sensitive		

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)
			receptors. Assessment of an indicative mitigated scenario achieves the daytime and night-time LOAEL criterion of *rating level* no greater than +5 dB above the defined representative *background sound level* at each NSR. 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 the Environmental Permit.		

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 identified				
Chapter 9: Ecology					
Construction	Adverse effect on great crested newt populations at the Site during the construction phase due to the temporary and permanent loss of terrestrial habitat as a result of the Proposed Development.	Moderate adverse (significant)	Restoring and enhancing habitat for great crested newt, such as maintaining and diversifying mosaics of scrub, grassland and reedbed habitat and re-location of artificial hibernacula to areas to the north of the site. Additional habitat piles and hibernacula would also be constructed. Great crested newts to be translocated under a licence issued by Natural England. Ecological mitigation during construction will be controlled by the CEMP (a Framework CEMP is included as **Application**	Neutral (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)
			Document Ref No.7.3) and the Landscaping and Biodiversity Management and Enhancement Plan (**Application Doc Ref. 7.5**), which would be secured through Requirements of the draft DCO.		
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 10: Landscape and Visual Amenity					
Construction	Adverse visual amenity effects for users of the footpath at Viewpoint 4 during construction activities.	Moderate adverse (significant)	None	Moderate adverse (significant)	St, T, D
Operation	Adverse visual amenity effects for users of the footpath at Viewpoint 4 from the operational power station.	Moderate adverse (significant)	None	Moderate adverse (significant)	Mt, 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)
Decommissioning	Adverse visual amenity effects for users of the footpath at Viewpoint 4 during decommissioning and demolition activities.	Moderate adverse (significant)	None	Moderate adverse (significant)	St, T, D
Chapter 11: Ground Conditions and Hydrogeology					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 12: Flood Risk, Hydrology and Water Resources					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 13: Socio-Economics					
Construction	No significant effects identified				
Operation	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)
Decommissioning	No significant effects identified				
Chapter 14: Cultural Heritage					
Construction	Removal or damage of archaeological deposits (dating from the prehistoric to the medieval period) during construction, including where piling of foundations or earthworks along the northern or southern drainage connection corridor route (if chosen) are required.	Assuming worst-case that assets are of medium value and impact magnitude is up to medium, effect would be moderate adverse (significant)	Where mitigation is required, this is envisaged to comprise either preservation in situ or recording of archaeological finds. Mitigation by preservation in-situ (where reasonably practicably achievable through detailed design) would be considered. If this is not reasonably practicable, excavation would provide mitigation in the form of preservation by record. Archaeological survey, geoarchaeological and palaeoenvironmental sampling and assessment is likely to be	If preservation by record is the only reasonably practicable option, residual effects could range from negligible (not significant) – moderate adverse (significant) for assets of medium value. This is because in line with NPPF paragraph 199, preservation by record, where this is the reasonably practicable option, has not been assumed to reduce identified adverse effects.	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)
			most feasible across the Proposed Power Plant Site given the significant logistical and health and safety constraints related to the depths of PFA present. Archaeological supervision and recording is considered to be likely to be the most feasible option if one of the drainage connection corridors is selected for the Proposed Development given the shallower depth of PFA in the corridor locations. The mitigation measures will be controlled by the Outline Written Scheme of Investigation (OWSI) included as **Application Document Ref No.7.9**), secured by a	Preservation in-situ, where reasonably practicable, would reduce the significance of effect on potential buried archaeology to negligible - minor adverse (not significant).	

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)
			Requirement of the draft DCO.		
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 15: Sustainability and Climate Change					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				
Chapter 16: Cumulative and Combined Effects					
Construction	No significant effects identified				
Operation	No significant effects identified				
Decommissioning	No significant effects identified				

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