



HELIOS RENEWABLE
ENERGY
PROJECT

Preliminary Environmental Information Report

Volume 2: Main Text and Figures

Chapter 16: Summary & Residual
Effects

October 2023

16. Summary and Residual Effects

16.1. Introduction

16.1.1. This chapter summarises the mitigation measures and residual effects in each of the technical assessments included in this PEIR.

16.2. Mitigation Measures

16.2.1. As this design of the Proposed Development has progressed, measures have been incorporated into the Proposed Development in order to avoid, reduce or offset significant environmental effects. These include, but are not limited to:

Embedded Mitigation

- Planting, including trees, shrub, and hedgerows proposed across the Site for landscape, visual and biodiversity mitigation and enhancement;
- A buffer zone of at least 15m applied to areas of ancient woodland;
- The main project transformer substation compound will be enclosed by palisade fencing;
- The Proposed Development will not be permanently lit during the operational phase;
- Hedgerows will be restored along historic boundary lines to provide screening and reduce the scope for glint and glare impacts;
- Use of ground mounted footings, or 'No dig' foundations, with cables clipped to the underside of solar photovoltaic ('PV') panels to negate trenching, in areas of archeological potential;
- Construction of interception swales to intercept extreme flows and runoff and encourage depression storage within the features, promoting interception losses by infiltration and evapotranspiration;
- Maintaining access to all existing PROWs within the Site, with no diversions or closures;
- Providing suitable points of access for construction vehicles;

- The planting of landscaping and screening to conceal any reflections from the panels, which could affect drivers on the local highway network; and
- Location and siting of all noise generating plant, evenly distributed throughout the Site.

Measures to be Adopted by the Project

- Implementation of the following plans or strategies through DCO requirement:
 - Construction Environmental Management Plan ('CEMP');
 - Construction Transport Management Plan ('CTMP');
 - Archeological Mitigation Strategy ('AMS') with Archeological Watching Brief;
 - Landscape and Ecological Management Plan ('LEMP');
 - Landscape Strategy, including Landscape Strategy Plans;
 - Soil Management Plan;
 - Battery Energy Storage System ('BESS') Safety Management Plan; and
 - Decommissioning Environmental Management Plan ('DEMP').
- Existing vegetation on and around the Site will be protected from damage in accordance with BS 5837: 2012, this will include established mitigation planting during the decommissioning phase;
- Hours of work on the Site would be within the core working hours of 08:00 to 18:00 Monday to Friday; 08:00 to 13:00 on Saturdays and no time on Sundays, Bank Holidays or Public Holidays, thereby limiting the extent to which construction activities will affect receptors on a daily or weekly basis, agreed via the CEMP and DEMP. Works required outside of these hours would be agreed with NYC;
- All unloading/loading of construction/decommissioning materials and equipment would be provided within the Site boundary, limiting adverse effects on character and views due to activities outside of the Site, agreed via the CEMP and DEMP;

- Noise, dirt and dust levels would be kept to a minimum and local roads would be cleaned regularly where dirt is spread by construction traffic, limiting adverse effects on local character due to the perception of construction activities, agreed via the CEMP and DEMP; and
- Litter within and around the Site will be removed and the Site will be kept free from litter throughout construction / decommissioning activities, agreed via the CEMP and DEMP.

16.2.2. Following assessment of the likely significant effects of the Proposed Development, additional mitigation measures have been proposed to be secured and implemented. These are set out in Table 16.1 below along with the residual effects of the Proposed Development following mitigation.

Table 16.1: Significance Table

16.2.3. Where significant environmental effects from the Proposed Development have been identified, these are summarised in section 16.3 Summary.

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
Chapter 6: Cultural Heritage			
Construction	Effects on areas of archaeological potential identified through geophysical survey	Interpretation boards to be established at the Site describing archaeological context of area	Neutral
	Effects on below-ground archaeological deposits within underground cable route corridor due to excavation	Implementation of Archaeological Watching Brief during construction	Minor Adverse
	Effects to the setting of above-ground heritage assets as a result of construction activity and transport movements	None required	Neutral
Operational	Effects on the setting of Camblesforth Hall Grade I Listed Building (1173983)	None required	Neutral
	Effects on the setting of Carlton Towers Grade I Listed Building (1295955)	None required	Minor Adverse
	Effects on the setting of Manor Farmhouse – Grade II Listed Building (1148398)	None required	Neutral
Decommissioning	Effects on Carlton Towers – Grade I listed building (1295955)	None required	Neutral
Chapter 7: Landscape and Views			
Construction	Effects on Landscape Features	None required	No effect – Minor Negative

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	Effects on Landscape Character		Negligible – Moderate Negative
	Effects on Visual Receptors		Moderate Negative
Operation	Effects on Landscape Features	Maintenance and management of planting proposals carried out in compliance with the LEMP.	Moderate Negative and Positive
	Effects on Landscape Character		Moderate Negative and Positive
	Effects on Visual Receptors		Moderate to no effect Negative/Neutral
Decommissioning	Effects on Landscape Features	None required	No effect – Minor Negative
	Effects on Landscape Character		Negligible – Minor Negative
	Effects on Visual Receptors		No effect – Minor Negative
Chapter 8: Biodiversity			
Construction	Non-Statutory Designated Sites	None required	Negligible
	Habitats	None required	Major Beneficial
	Breeding Birds	None required	Minor Adverse
Operational	Non-Statutory Designated Sites	None required	Moderate Beneficial
	Habitats	None required	Major Beneficial
Decommissioning	Non-Statutory Designated Sites	None required	Negligible Adverse
	Habitats	None required	Negligible to Minor Adverse
	Breeding Birds	None required	Minor Adverse
Chapter 9: Water Environment			
Construction	Disruption to drainage regime (surface water runoff rates and volumes) and resultant elevated flood risk	None identified	Minor Adverse – Negligible
	Construction of new watercourse	None identified	Negligible

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	crossings and resultant elevated flood risk		
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting onsite watercourse / drainage ditches via direct flow	None identified	Minor Adverse – Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of Eskamhorn Meadows Site of Special Scientific Interest ('SSSI'), River Derwent Special Area of Conservation ('SAC') and SSSI, and Barlow Common Local Nature Reserve ('LNR')	None identified	Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of the River Ouse and River Aire via direct flow	None identified	Minor Adverse to Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of water quality of the Humber Estuary designated sites via direct flow	None identified	Minor Adverse
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting groundwater bodies via direct flow	Enhanced monitoring in addition to best practice measures outlined in CEMP and Hydrogeological Risk Assessment for Directional Drilling activities.	Moderate Adverse – Minor Adverse
Operational	Disruption to drainage regime (surface	None identified	Moderate Beneficial – Minor

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	water runoff and volume) and resultant elevated flood risk		Beneficial
	Disruption to flood hazards (combined fluvial and tidal, surface water and emergent groundwater)	Design of the equipment and floodplain compensation will be finalised following the results of the site-specific flood modelling.	Negligible
	Operation of new watercourse crossings and resultant elevated flood risk	None identified	Negligible
	Potentially polluting operational activities and spillage/leakage of polluting substances affecting on-Site watercourse/ drainage ditches via direct flow	None identified	Negligible
	Potentially polluting operational activities and spillage/leakage of polluting substances affecting water quality of the River Ouse and River Aire and Humber Estuary and its nature designations via direct flow via direct flow	None identified	Minor Adverse – Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting groundwater bodies via direct flow	None identified	Minor Adverse
Decommissioning	Disruption to drainage regime (surface water runoff rates and volumes) and resultant elevated flood risk	None identified	Minor Adverse – Negligible
	Construction of new watercourse crossings and resultant elevated flood risk	None identified	Negligible
	Potentially polluting construction activities	None identified	Minor Adverse – Negligible

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	and spillage/leakage of polluting substances affecting on-Site watercourse/ drainage ditches via direct flow		
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of Eskamhorn Meadows SSSI, River Derwent SAC and SSSI, and Barlow Common LNR	None identified	Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of water quality of the River Ouse and River Aire via direct flow	None identified	Minor Adverse to Negligible
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting water quality of the Humber Estuary designated sites via direct flow	None identified	Minor Adverse
	Potentially polluting construction activities and spillage/leakage of polluting substances affecting groundwater bodies via direct flow	Enhanced monitoring in addition to best practice measures outlined in the CEMP	Moderate Adverse – Minor Adverse
Chapter 10: Transport and Access			
Construction	Effects on Accidents and Safety	Implementation of Public Right of Way Management Plan and undertaking of a Stage 1 Road Safety Audit at all access junctions to recommend additional safety	Negligible
	Effects on Severance		Negligible
	Effects on Driver Delay		Negligible
	Effects on Pedestrian Delay (including Cyclist and Equestrian) Delay		Negligible

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	Effects on Pedestrian Amenity (including fear and intimidation and to include Cyclist and Equestrian) Amenity	measures at the access.	Minor Adverse
	Effects of Hazardous Loads		Negligible
Operational	Effects on Accidents and Safety	None required	Negligible
	Effects on Severance	None required	Negligible
	Effects on Driver Delay	None required	Negligible
	Effects on Pedestrian Delay (including Cyclist and Equestrian) Delay)	None required	Negligible
	Effects on Pedestrian Amenity (including fear and intimidation and to include Cyclist and Equestrian) Amenity	None required	Negligible
	Effects of Hazardous Loads	None required	Negligible
Decommissioning	Effects on Accidents and Safety	Implementation of Public Right of Way Management Plan and undertaking of a Stage 1 Road Safety Audit at all access junctions to recommend additional safety measures at the access.	Negligible
	Effects on Severance		Negligible
	Effects on Driver Delay		Negligible
	Effects on Pedestrian Delay (including Cyclist and Equestrian) Delay		Negligible
	Effects on Pedestrian Amenity (including fear and intimidation and to include Cyclist and Equestrian) Amenity		Minor Adverse
	Effects of Hazardous Loads		Negligible
Chapter 11: Noise and Vibration			
Construction	Effects from Construction Noise	None required further to implementation of embedded mitigation and measures to be adopted by the project.	Negligible
	Effects from Construction Road Traffic		Negligible
	Effects from Construction Vibration		Negligible
Operational	Effects from Operational Plant Noise	None required	Negligible

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
Decommissioning	Effects from Decommissioning	None required further to implementation of embedded mitigation and measures to be adopted by the project.	Negligible
	Effects from Decommissioning Vibration		Negligible
Chapter 12: Climate Change			
Construction	Effects resulting from the Proposed Development's construction vehicle emissions	CEMP to include a CTMP to be secured via the DCO	Minor Adverse
Operational	Effects resulting from the Proposed Development's provision of renewable energy to the grid	N/A	Major Beneficial
Climate Change Resilience	Effects of climate change on infrastructure	Design specifications of infrastructure including solar PV panels, the Substation, BESS, cabling etc. will be confirmed through DCO requirements.	Negligible – Moderate Beneficial
	Effects of climate change on future site users	Future site users to adhere to health & safety procedures whilst working on-Site.	Negligible
	Effects of climate change on the natural environment (Ecology, Landscaping and Planting)	Implementation of a LEMP. Flood design specifications.	Negligible – Minor Adverse
	Effects of climate change on flood risk	The design of the equipment and floodplain compensation will be finalised following the results of the site-specific flood modelling.	Moderate Beneficial (surface water drainage regime) Negligible (all other flood sources)
Chapter 13: Socio-Economics			
Construction	Job Creation	Not required	Negligible
	Economic Output	Not required	Negligible

Phase	Effect/ Receptor	Additional Mitigation/ Enhancement Measures	Residual Significance
	Workforce Expenditure	Not required	Minor Beneficial
	Local Amenity	Not required	Negligible to Minor Adverse
Operational	Renewable Energy Generation	Not required	Moderate Beneficial
	Local Amenity	Not required	Negligible
Decommissioning	Job Creation	Not required	Minor Beneficial
	Economic Output	Not required	Minor Beneficial
	Workforce Expenditure	Not required	Minor Beneficial
	Local Amenity	Not required	Negligible to Minor Adverse
Chapter 14: Soils and Agricultural Land			
Construction	Loss of BMV land	Not required	Moderate Adverse
	Effects on soils	Not required	Negligible
Operational	Effects on farm business	The Proposed Development will enable the diversification of the farm business including the opportunity for the grazing of sheep on the Site.	Minor or Moderate Adverse with regard to the area of land available to be farmed for crops but an overall beneficial effect due to the diversification of the farm business.
	Effects on BMV	None required	Neutral
	Effects on soils	None required	Moderate Beneficial
	Effect on food production	None required	Negligible
Decommissioning	Effect on soils	None required	None

16.3. Summary

- 16.3.1. Full results of significant residual effects will be determined following assessments to be undertaken as part of the ES. However, the PEIR finds that the Proposed Development is expected to result in the following significant beneficial effects:

Construction

- 16.3.2. The commitment to deliver measurable BNG gains through significant habitat enhancements and provision within the Site, during construction, will deliver clear habitat enhancements, resulting in biodiversity gains within the Site and the wider environment, resulting in a significant (major) beneficial effect.

Operational

- 16.3.3. Improved habitat connectivity within the Site as well as with habitats within the wider environment will create larger, stronger and more ecologically resilient natural corridors in the landscape during operation, resulting in a significant (moderate) beneficial effect.
- 16.3.4. During operation, created and existing semi-natural habitats within the Site will be subject to long-term management (informed by a regular ecological monitoring), which will result in a significant (major) beneficial effect).
- 16.3.5. The Proposed Development will result in the offset of carbon emissions through the generation of renewable electricity at a local level, resulting in a significant (major) beneficial effect.
- 16.3.6. The Proposed Development will have a significant (moderate) beneficial effect on renewable energy generation in the Yorkshire and Humber region during the operational phase.
- 16.3.7. Flood mitigation embedded into the scheme will improve infrastructure resilience to flood risk, from surface water and the drainage regime, resulting in a significant (moderate) beneficial effect.
- 16.3.8. The Proposed Development will result in reduced flood risk generally, resulting in a significant (moderate) beneficial effect.

Decommissioning

16.3.9. There are no significant beneficial effects anticipated during decommissioning.

16.3.10. The Proposed Development is expected to result in the following significant adverse effects:

Construction

16.3.11. There are no significant adverse effects anticipated during construction.

Operational

16.3.12. There are no significant adverse effects anticipated during operation.

Decommissioning

16.3.13. There are no significant adverse effects anticipated during decommissioning.