HUMBERHEAD SOLAR

Environmental Impact Assessment Scoping Report

EN0110032

Contents

1 Introduction 1
1.1 The Scheme and Site Overview 1
1.2 Legislative Context and Need for Environmental Impact Assessment 2
1.3 Consultation 8
1.4 Scoping Consultation 9
1.5 Structure of Scoping Report 10
1.6 Purpose of Scoping Report 10
1.7 The Applicant 12
1.8 ISEP Quality Mark 13
2 Methodology 14
2.1 Introduction 14
2.2 Legislation, Policy and Guidance 15
2.3 Baseline Conditions 16
2.4 Mitigation Measures 16
2.5 Spatial Scope 17
2.6 Timescales and Assessment Years 18
2.7 Assessment of Impacts and Significance of Effects 18
2.8 Residual Effects 21
2.9 Cumulative and In-Combination Effects 22
2.10 Transboundary Effects 26
2.11 Consideration of Alternatives 26
2.12 Rochdale Envelope 27
3 The Scoping Site Boundary and Surrounding Area 29
3.1 Introduction 29
3.2 Surrounding Area 29
3.3 Site Description 30
4 Scheme Description 39
4.1 Introduction 39
4.2 Scheme Design 39
4.3 Design Parameters 39
4.4 Components of the Scheme 45
4.5 Construction 58
4.6 Operation and Maintenance 60
4.7 Decommissioning and Reinstatement 62

4.8 Commitments Register 62
5 Health 63
5.1 Introduction 63
5.2 Legislation, Planning Policy Context and Guidance 63
5.3 Consultation 65
5.4 Study Area 65
5.5 Baseline Conditions 65
5.6 Potential Effects and Mitigation 67
5.7 Methodology 82
5.8 Assumptions, Limitations and Uncertainties 87
5.9 Summary of Elements Scoped In and Scoped Out 88
6 Climate Change 94
6.1 Introduction 94
6.2 Legislation, Planning Policy Context and Guidance 94
6.3 Consultation 96
6.4 Study Area 96
6.5 Baseline Conditions 97
6.6 Potential Effects and Mitigation 99
6.7 Methodology 105
6.8 Assumptions, Limitations and Uncertainties 110
6.9 Summary of Elements Scoped In and Scoped Out 110
7 Landscape and Visual 112
7.1 Introduction 112
7.2 Legislation, Planning Policy Context and Guidance 113
7.3 Consultation 115
7.4 Study Area 115
7.5 Baseline Conditions 117
7.6 Potential Effects and Mitigation 149
7.7 Methodology 154
7.8 Assumptions, Limitations and Uncertainties 157
7.9 Summary of Elements Scoped In and Scoped Out 158
8 Biodiversity 165
8.1 Introduction 165
8.2 Legislation, Planning Policy Context and Guidance 165
8.3 Consultation 168
8.4 Study Area 169

8.5 Baseline Conditions 170
8.6 Potential Effects and Mitigation 190
8.7 Methodology 225
8.8 Assumptions, Limitations and Uncertainties 231
8.9 Summary of Elements Scoped In and Scoped Out 231
9 Water Environment 236
9.1 Introduction 236
9.2 Legislation, Planning Policy Context and Guidance 236
9.3 Consultation 238
9.4 Study Area 239
9.5 Baseline Conditions 240
9.6 Potential Effects and Mitigation 268
9.7 Methodology 274
9.8 Assumptions, Limitations and Uncertainties 285
9.9 Summary of Elements Scoped In and Scoped Out 286
10 Cultural Heritage 290
10.1 Introduction 290
10.2 Legislation, Planning Policy Context and Guidance 290
10.3 Consultation 291
10.4 Study Area 292
10.5 Baseline Conditions 293
10.6 Potential Effects and Mitigation 296
10.7 Methodology 297
10.8 Assumptions, Limitations and Uncertainties 302
10.9 Summary of Elements Scoped In and Scoped Out 303
11 Transport and Access 305
11.1 Introduction 305
11.2 Legislation, Planning Policy Context and Guidance 305
11.3 Consultation 308
11.4 Study Area 308
11.5 Baseline Conditions 310
11.6 Potential Effects and Mitigation 321
11.7 Methodology 324
11.8 Assumptions, Limitations and Uncertainties 332
11.9 Conclusions on Scoping 332
11.10 Summary of Scope 334

12 Noise and Vibration 336
12.1 Introduction 336
12.2 Legislation, Planning Policy Context and Guidance 336
12.3 Consultation 337
12.4 Study Area 337
12.5 Baseline Conditions 338
12.6 Potential Effects and Mitigation 339
12.7 Methodology 342
12.8 Assumptions, Limitations and Uncertainties 345
12.9 Summary of Elements Scoped In and Scoped Out 346
13 Socio-Economics 348
13.1 Introduction 348
13.2 Legislation, Planning Policy Context and Guidance 348
13.3 Consultation 349
13.4 Study Area 349
13.5 Baseline Conditions 350
13.6 Potential Effects and Mitigation 355
13.7 Methodology 357
13.8 Assumptions, Limitations and Uncertainties 360
13.9 Summary of Elements Scoped In and Scoped Out 360
14 Other Environmental Matters 363
14.1 Air Quality 363
14.2 Soils and Agriculture 375
14.3 Materials and Waste 393
14.4 Glint and Glare 413
14.5 EMF 426
14.6 Ground Conditions 436
14.7 Major Accidents and Disasters 447
14.8 Arboriculture 461
14.9 Telecommunications and Utilities 473
15 Proposed Structure of the ES 480
16 Summary and Conclusions 482
16.1 Overview 482
16.2 Proposed Topics Scoped Out of the ES 482
17 Glossary 524
17.1 Glossary of Abbreviations 524

17.2 Definitions of Frequently Used Terms 532

References **540**

List of tables

Table 1-1 Contents for the Scoping Report based on the Planning Inspectorate's Advice Note Seven. 11
Table 2-1 Example matrix classifying environmental effect significance 20
Table 2-2 Significance effect definitions 20
Table 2-3 Categories of certainty for other existing and or approved development 24
Table 2-4 Reporting of cumulative and in-combination effects 26
Table 4-1 Design Parameters used for EIA Scoping 40
Table 5-1 Human health profile 66
Table 5-2 Potential effects during the construction and decommissioning phases 69
Table 5-3 Potential effects during the operational phase 76
Table 5-4 Human health sensitivity criteria 85
Table 5-5 Human health magnitude of impact criteria 86
Table 5-6 Impact assessment and significance 86
Table 5-7 Elements scoped in and out of the assessment of Human Health 88
Table 6-1 Historical climate data (1981-2010) from the UK Met Climate Portal for a 12x12km grid west of Market Weighton 98
Table 6-2 Potential sources of GHG emissions 101
Table 6-3 Climate Parameters for the CCRA of the Scheme 103
Table 6-4 Climate parameters for the in-combination climate change impact 104
Table 6-5 Significance Criteria 108
Table 6-6 Elements scoped in and out of the assessment of Climate Change 111
Table 7-1 List of viewpoints 146
Table 7-2 Elements scoped in and out of the assessment of Landscape and Visual 158
Table 7-3 Landscape receptors scoping 159
Table 7-4 Visual receptors scoped in (within 1 km / 2 km Study Area) 162
Table 8-1 Statutory sites within 20 km of the Scheme 174
Table 8-2 Non-statutory sites within and adjacent to the CRSC 177
Table 8-3 Non-statutory sites adjacent to the Humberhead Sites 177
Table 8-4 Waterbird Species Peak Counts and Occupancy Across Survey Visits within the Site during walkover surveys. (*denotes overlap of designated species, - unique to Humber estuary and –- unique to lower Derwent valley SPA). 183
Table 8-5 Waterbird Species Peak Counts and Occupancy Across Survey Visits within the Wider Survey Area during walkover surveys. 185
Table 8-6 Grounded Waterbird Species Peak Counts Across Survey Visits during the Vantage Point Surveys 186
Table 8-7 Ecology Scoping Summary 196
Table 8-8 Ornithology Scoping Summary 220
Table 8-9 Ecological Importance 226
Table 8-10 Magnitude of Impact 228
Table 8-11 Effect (EIA significance) 229
Table 8-12 Elements scoped in and out of the assessment of Ecology and Ornithology 231
Table 9-1 Surface Water Features within the Study Area or potentially impacted by the Scheme 243
Table 9-2 WFD Classification (2022 data) for WFD Surface Water Bodies underlying the Study Area. 252
Table 9-3 Available water quality data within, and immediately outside of the Study Area 256
Table 9-4 Flood Risk from all source (Humberhead Sites) 261
Table 9-5 Flood Risk from all source (CRSC) 262

Table 9-6 Criteria to determine receptor importance (adapted from DMRB LA 113) 281
Table 9-7 Magnitude of impact criteria (adapted from DMRB LA 113) 284
Table 9-8 Matrix for assessment of significance (DMRB LA 104) 284
Table 9-9 Elements scoped in and out of the water environment assessment 286
Table 10-1 Criteria for assessing the value of heritage assets 298
Table 10-2 Factors influencing the assessment of magnitude of impacts 299
Table 10-3 Elements scoped in and out of the assessment of Cultural Heritage 303
Table 11-1 Public Rights of Way: Humberhead Sites 317
Table 11-2 Public Rights of Way: Cable Route Search Corridor 319
Table 11-3 Sensitivity/Importance of Identified Receptor 329
Table 11-4 Magnitude of Impact 329
Table 11-5 Significance of Impact 331
Table 11-6 Summary of Elements Scoped in and Scoped Out 334
Table 12-1 Thresholds of potential effects of construction and decommissioning noise at residential buildings 343
Table 12-2 Thresholds of potential effects of construction and decommissioning vibration (human response) 344
Table 12-3 Construction traffic noise assessment criteria 344
Table 12-4 Operational noise assessment criteria 345
Table 12-5 Elements scoped in and out of the assessment of noise and vibration 346
Table 13-1 Impact Assessment and Effect Significance 359
Table 13-2 Elements scoped in and out of the assessment of Socio-economics 360
Table 14-1 Projected annual mean background concentrations in 2025 367
Table 14-2 Elements scoped in and out of the assessment of air quality 374
Table 14-3 ALC Grades determined by the predictive ALC model within the Humberhead Sites 379
Table 14-4 Area per Humberhead Site of agricultural land according to the predictive ALC model 380
Table 14-5 Preliminary ALC survey results (2026) 382
Table 14-6 Soil associations within the Site 383
Table 14-7 Sensitivity of receptor: agricultural land resource 389
Table 14-8 Magnitude of change: agricultural land resource 389
Table 14-9 Sensitivity of receptor: soil resources 389
Table 14-10 Magnitude of change criteria: soil resources 390
Table 14-11 Elements scoped in and out of the assessment of Soils and Agriculture 391
Table 14-12 Consumption and demand for key construction materials 397
Table 14-13 Potential recycled content 398
Table 14-14 Landfill capacity in Yorkshire & the Humber region (2025) 399
Table 14-15 Standard, Good and Best Practice Recovery rates by material 401
Table 14-16 Material receptor sensitivity 406
Table 14-17 Inert and non-hazardous landfill capacity sensitivity 407
Table 14-18 Hazardous landfill capacity sensitivity 408
Table 14-19 Materials magnitude of impact 408
Table 14-20 Inert and non-hazardous waste magnitude of impact 409
Table 14-21 Hazardous waste management magnitude of impact 409
Table 14-22 Effect thresholds 410
Table 14-23 Significance of effect 410
Table 14-24 Elements scoped in and out of the materials and waste assessment 412
Table 14-25 Elements scoped in and out of the assessment of glint and glare 424
Table 14-26 ICNIRP Exposure Limits 1998 433
Table 14-27 Elements scoped in and out of the assessment of EMF 435
Table 14-28 Elements scoped out of the assessment of Ground Conditions 446

Table 14-29 Construction Major Accidents and Disasters to be considered Further 453
Table 14-30 Decommissioning Major Accidents and Disasters to be considered Further 454
Table 14-31 Operation and Maintenance Phase Major Accidents and Disasters to be considered Further 456
Table 14-32 Elements scoped in and out of the assessment of Major Accidents and Disasters 461
Table 14-33 Utilities within the Humberhead Sites 473
Table 14-34 Utilities within the Cable Route Search Corridor 477
Table 16-1 Summary of ES Scope 484

List of Plates

Plate 4-1 Typical Tracker Solar Panels in an Angled Orientation 46
Plate 4-2 Typical Tracker Solar Panels in a Near Flat Orientation 47
Plate 4-3 Illustration Tracker Solar Panels following the sun position 47
Plate 4-4 Typical Fixed Panels (with a Conversion Unit) 48
Plate 4-5 Sub-distribution Switch Room 49
Plate 4-6 Typical Equipment Making Up a Disaggregated Conversion Unit 50
Plate 4-7 Typical Integrated Conversion Unit 50
Plate 4-8 Typical (large 400kV) power transformer 51
Plate 4-9 Typical 132kV Substation compound 52
Plate 4-10 Typical BESS Compound 53
Plate 4-11 Typical Deer Fencing 54
Plate 5-1 Determinants of Health 84
Plate 5-2 Determinants of health in neighbourhoods 84
Plate 14-1 The Waste Hierarchy, from Defra's Guidance on Applying the Waste Hierarchy, recreated by AECOM 402

1 Introduction

1.1 The Scheme and Site Overview

1.1.1 Humberhead Solar Limited ('the Applicant') has commissioned this Environment Impact Assessment ('EIA') Scoping Report (the 'Scoping Report'), in respect of the proposed Humberhead Solar (hereafter referred as the 'Scheme').

1.1.2 The Scheme comprises the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic ('PV') electricity generating station, and associated development including a Battery Energy Storage System ('BESS'), electrical and grid connection infrastructure and landscaping and biodiversity enhancements.

1.1.3 The Scheme is approximately 3 km to the south-west of Market Weighton and 1 km to the south-east of Pocklington, within the administrative boundary of East Riding of Yorkshire Council ('ERYC').

1.1.4 The Scheme is proposed on approximately 1,595 hectares ('ha') of land across four main sites ('Humberhead Sites') in addition to a Cable Route Corridor ('CRC'). The Humberhead Sites are described as Humberhead 1 to 4, each of which comprise a series of sub-sites. The Humberhead Sites are described in more detail in **Chapter 3: The Scoping Site Boundary and Surrounding Area** and shown on **Figures 3-1-1** to **3-1-5**.

1.1.5 The CRC is the area within which underground cables will be located to connect the Humberhead Sites to each other and to the Point of Connection ('PoC') at National Grid Thornton Substation. The PoC is located approximately 1.36 km to the southwest of the Humberhead 1-1. The CRC will sit within the wider Cable Route Search Corridor ('CRSC'), which will be refined as the development of the project progresses.

1.1.6 As the Scheme would have a generating capacity in excess of 100 MW, it is considered to be a Nationally Significant Infrastructure Project ('NSIP') under the Planning Act 2008 ('PA 2008') (Ref 1) and therefore requires a Development Consent Order ('DCO').

1.1.7 The Scoping Site Boundary (also referred to as 'the Site', see **Figure 1-1**) illustrates the maximum extent of land anticipated to be required for the Scheme. It comprises the Humberhead Sites and the full extent of the CRSC. The Site may be refined to accommodate access requirements as these are further developed.

1.1.8 The Applicant will undertake an EIA and provide an Environmental Statement ('ES') in respect of the Scheme as part of the application for development

consent. This EIA Scoping Report sets out the proposed scope of the EIA and forms a formal request for a Scoping Opinion under Regulation 10(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') (Ref 2).

1.2 Legislative Context and Need for Environmental Impact Assessment

Need for Environmental Impact Assessment

1.2.1 EIA is the process of compiling, evaluating and presenting all the likely significant environmental effects of a project, prior to major decisions being made. It is born out of Directive 85/337/EC (as amended) (Ref 3) on the assessment of the effects of certain public and private projects on the environment. Following a series of amendments, a new Directive, EIA Directive 2014/52/EU (Ref 4) came into force on 15 May 2014.

1.2.2 Directive 2014/52/EU was transposed into English law by a suite of EIA regulations. As the Scheme comprises the construction of a generating station with a capacity of over 100 MW it is defined as a NSIP under Sections 14(1)(a) and 15(2) of the PA 2008 and therefore must be consented by way of a DCO. The EIA Regulations transpose Directive 2014/52/EU for the Planning Act 2008 DCO consenting regime and therefore applies to the Scheme.

1.2.3 To ensure that the EIA Regulations continue to operate following the UK's withdrawal from the European Union, the EIA Regulations were amended under the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018 (SI 2018/1232) (Ref 5) to replace references to EU Directives and legislation and to uphold international obligations through domestic legislation.

1.2.4 The EIA Regulations stipulate that developments listed under Schedule 1 must be subject to EIA, while Schedule 2 lists development which will be subject to EIA if considered *"likely to have significant effects on the environment by virtue of factors such as its nature, size or location"*. The criteria on which this judgement should be made are set out in Schedule 3 of the EIA Regulations.

1.2.5 The Scheme is a Schedule 2 development under paragraph 3(a) of the EIA Regulations as it constitutes "*industrial installations for the production of electricity, steam, water and hot water*".

1.2.6 The Applicant confirms that it will be providing an ES to accompany its application for development consent, and this Scoping Report therefore constitutes notice under Regulation 8(1)(b) of the EIA Regulations. Owing to

the size, nature, and location of the Scheme, it is likely to have significant effects on the environment and as such, constitutes EIA development.

1.2.7 Following the completion of surveys, assessments and the consultation processes outlined in this EIA Scoping Report, and taking into account the Scoping Opinion, an application for development consent will be made to the Secretary of State ('SoS') for determination in accordance with the PA 2008. The DCO application will be accompanied by an ES, in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 ('APFP Regulations') (Ref 6).

1.2.8 The Planning Act 2008 prescribes that the SoS is responsible for determining the DCO application, with the power to appoint an Examining Authority of appointed persons to manage and examine the application. In this role, the appointed Examining Authority, normally appointed through the Planning Inspectorate (the government agency responsible for operating the DCO process for NSIPs as appointed through the Localism Act 2011 (Ref 7)), will make procedural decisions and examine the DCO application and make a recommendation to the SoS who will then decide whether to grant a DCO.

National Policy Statements

1.2.9 Part 6 of the PA 2008 sets out the procedure for determining applications for development consent.

1.2.10 Part 6, Section 104(2) of the PA 2008 sets out the basis for determining an application for a DCO where a National Policy Statement ('NPS') has effect. This includes the SoS having regard to:

- Any relevant NPSs;
- The appropriate marine policy documents (if any);
- Any local impact report;
- Any matters prescribed in relation to development of the description to which the application relates; and
- Any other matters which the SoS thinks are both important and relevant to their decision.

1.2.11 The relevant NPSs for determination of the DCO Application in accordance with Section 104 (2) of the PA 2008 are:

- Overarching NPS for Energy ('EN-1') (Ref 8);
- NPS for Renewable Energy Infrastructure ('EN-3') (Ref 9); and
- NPS for Electricity Networks Infrastructure ('EN-5') (Ref 10).

Overarching National Policy Statement for Energy (EN-1)

1.2.12 NPS EN-1 comprises the overarching national policy statement for energy. It needs to be considered alongside relevant technology-specific NPSs, which combined form the primary policy for decision making by the Secretary of State.

1.2.13 Part 2 of NPS EN-1 sets out the legislative and wider policy context for energy infrastructure development. This includes reaffirming that the UK has legally binding targets to hit net zero Greenhouse Gas ('GHG') emissions by 2050 and its commitment to reduce GHG emissions by 78% by 2035 compared to 1990 levels as set out in the Sixth Carbon Budget ('CB6').

1.2.14 The most recent policy paper setting out the pathway to net zero was the publication of the Clean Power 2030 Action Plan in December 2024. This provides a roadmap for the decarbonisation of electricity through setting out the extent of clean power generation required to be derived from clean sources to support the UK in meeting CB6 and achieving net zero by 2050. The Clean Power 2030 Action Plan also reaffirms the importance of ensuring that the supply of energy remains secure, reliable and affordable. Paragraph 2.3.6 states:

"Securing affordable, homegrown and abundant renewable resources means we will be able to run our power system for increasing periods on clean, low carbon generation, with renewables providing the vast majority of generation, and nuclear continuing to deliver a backbone of vital low carbon power."

1.2.15 Against this positive legislative and policy context, NPS EN-1 confirms that solar development constitutes Critical National Priority ('CNP') infrastructure. This engages a presumption to grant development consent due to the urgent need to deliver clean power as set out above.

1.2.16 It is important to note that the CNP policy applies following the consideration of the need case, the impacts of the project and the application of the mitigation hierarchy. **Chapter 2: Methodology** of this Scoping Report sets out how the ES will assess and consider the impacts of the project and how the mitigation hierarchy will be applied demonstrating how significant effects will be avoided, reduced, mitigated or compensated.

1.2.17 Further, Section 4.3 of NPS EN-1 sets out the policy requirements with respect to the consideration of environmental effects. This includes ensuring that the ES assesses the likely worst-case effects and parameters ('Rochdale Envelope'), includes sufficient environmental information to determine the likely significant environmental, social and economic effects of the project and that in accordance with the EIA Regulations and certain policy requirements that reasonable alternatives are also considered. **Chapter 2:**

Methodology of this Scoping Report sets out the proposed methodology for the preparation of the ES ensuring compliance with this policy.

1.2.18 NPS EN-1 also sets out topic-specific 'assessment principles' and 'generic impacts' associated with energy projects and how energy NSIP applications should be prepared by the Applicant and considered by the SoS. **Chapters 5** to **14** (technical topics) of this Scoping Report set out how the ES will assess the likely impacts of the Scheme in relation to technical topics.

National Policy Statement on Renewable Energy Infrastructure (EN-3)

1.2.19 NPS EN-3 is a technology-specific NPS, that sets out the policy for renewable energy infrastructure. It is considered alongside NPS EN-1.

1.2.20 Section 2.10 of NPS EN-3 sets out policy specific to solar NSIP development. This recognises the temporary project lifetime of solar development, the need to replace panels during this lifetime and consideration of decommissioning at the end of the operational life of the project. NPS EN-3 also acknowledges the need for solar to obtain a flexible consent due to the continued rapid changes in technology with the ES needing to assess the likely worst-case. The Applicant's approach to these matters is set out in **Chapter 2: Methodology** of this Scoping Report.

1.2.21 Section 2.10 of NPS EN-3 also sets out the likely environmental impacts associated with solar development and how these impacts should be assessed and mitigated against. **Chapter 16: Summary and Conclusions** of this Scoping Report sets out topics to be scoped in and scoped out of the ES having regard to the likely significant effects of the Scheme as set out in NPS EN-1 and Section 2.10 of NPS EN-3.

National Policy Statement for Electricity Networks Infrastructure (EN-5)

1.2.22 NPS EN-5 sets out the policy of electricity transmission systems and associated infrastructure, to be read in conjunction with NPS EN-1. NPS EN-5 relates to the Scheme with respect to policy associated with underground cables and associated infrastructure, which includes substations that link the generating station to the transmission network.

1.2.23 NPS EN-5 comprises additional policy for electricity networks infrastructure as set out within paragraph 2.1.3 with respect to:

a) Factors influencing site selection and design;
b) Biodiversity and geological conservation;
c) Landscape and visual;
d) Noise and vibration;

e) Electric and Magnetic Fields; and
f) Sulphur Hexafluoride.

1.2.24 With respect to site selection, paragraph 2.2.2 of NPS EN-5 confirms that the applicant is not in control of the PoC of a proposed generating station and as such, a scheme's siting in proximity to available grid capacity is a key factor influencing site selection and design.

National Planning Policy Framework

1.2.25 The National Planning Policy Framework ('NPPF') (Ref 11), revised December 2024, sets out the government's planning policies for England and how these are expected to be applied. The NPPF must be taken into account in the preparation of a development plan and is a material consideration in determining planning applications under the Town and Country Planning Act 1990 (as amended).

1.2.26 Section 1, Paragraph 5 of the NPPF confirms that it does not contain specific policies for NSIPs, which must be determined in accordance with the decision-making framework set out in the PA 2008 and relevant NPSs, as well as any other matters that are considered both important and relevant to the decision. The NPPF may therefore constitute a relevant consideration where appropriate, the EIA for the Scheme will therefore have regard to any relevant NPPF policy where it is considered pertinent to the assessment of environmental effects.

1.2.27 Important and relevant policy within the NPPF includes policy associated with flood risk and drainage, which is supplemented by further guidance set out within the flood risk and coastal change National Planning Practice Guidance ('NPPG') (Ref 12). The EIA for the Scheme will have regard to this policy and guidance.

Local Policy

1.2.28 The Site is located within the administrative area of the East Riding of Yorkshire Council ('ERYC'), who is the host authority.

1.2.29 Policies within the Development Plan can be 'important and relevant' in decision making in accordance with Section 104(2)(d) of the PA 2008. In addition, the host authority is likely to set out how it considers the Scheme complies with the Development Plan in its Local Impact Report, which the SoS must have regard to when determining the DCO application.

1.2.30 The following documents form the Development Plan within which the Scheme is located:

- East Riding Local Plan Strategy, adopted 2025 (Ref 13);
- East Riding Local Plan Allocations, adopted 2025 (Ref 14);

- East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan, adopted 2019 (Ref 15);
- East Rising of Yorkshire and Kingston upon Hull Joint Waste Plan, adopted 2004 (Ref 16);
- Allerthorpe Neighbourhood Plan 2019-2034, made 2020 (Ref 17); and
- Pocklington Neighbourhood Plan 2022-2039, made 2023 (Ref 18).

Policy and EIA

1.2.31 The purpose of considering the planning policy context set out above at the Scoping stage of the EIA is twofold:

- To identify policy that could influence the sensitivity of receptors (and therefore the significance of effects) and any requirements for mitigation; and
- To identify planning policy that could influence the methodology of the EIA. For example, a planning policy may require the assessment of a particular impact or the use of a particular methodology.

1.2.32 A summary of national and local planning policy relevant to each technical assessment is provided for each environmental topic in the subsequent chapters of this Scoping Report.

1.3 Consultation

1.3.1 The Applicant will consult and publicise the Scheme in accordance with Sections 42, 47, 48 and 49 of the PA 2008 and Regulations 12 and 13 of the EIA Regulations. In addition, regard will be had to the Nationally Significant Infrastructure Projects guidance and advice notes with respect to engagement with public bodies (Ref 19, Ref 20), the carrying out of statutory consultation (Ref 21) and pre-application consultation (Ref 22).

1.3.2 The Applicant will consult with prescribed consultees (section 42), the community (section 47) and publicise the proposed application (section 48) ahead of commencement of statutory consultation. A preliminary environmental information report ('PEIR') will be published and consulted upon as part of the statutory consultation process in accordance with Regulation 12 of the EIA Regulations. The Applicant will also have regard to consultation responses (section 49) and have regard to the government's guidance on the pre-application stage of the Scheme (section 50).

1.3.3 Consultation is a fundamental component of the pre-application phase informing the production of the ES demonstrating that the mitigation hierarchy is applied at the outset. Early and timely engagement with statutory bodies, the host authority and stakeholders will enable environmental issues to be identified early and through good design to minimise and reduce significant environmental effects as far as practicable.

1.3.4 Early and ongoing engagement with consultees will also be important to influence the design process of the Scheme by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in Scheme design.

1.3.5 At the time of writing, amendments are proposed to the PA 2008 which may remove the statutory consultation requirement. As transitional arrangements, secondary legislation and advice/guidance are yet to be published, the Scheme will follow the current statutory consultation procedure under S42 and S47 of the PA 2008, and produce a PEIR.

Engagement to date and on-going

1.3.6 Initial engagement with a number of stakeholders commenced in March 2026 (refer to paragraph 1.3.9). This engagement will continue over the coming months.

1.3.7 On-going technical engagement with the host authority and statutory bodies will take place, to discuss and agree on the methodology associated with environmental surveys and assessment methodologies. This will also enable parties to engage with the design process and identify the main issues associated with the Scheme. The Applicant will collaborate with these key

stakeholders to resolve issues where possible with this technical engagement work informing the Potential Main Issues for Examination document submitted as part of the DCO application.

1.3.8 Engagement with landowners, near neighbours and key stakeholders will also take place throughout 2026 and early 2027. Public consultation will commence in November 2026. Following consultation, feedback and comments will be utilised to inform ongoing engagement and the design of the Scheme, if appropriate.

1.3.9 The Applicant has sought to engage with key stakeholders from an early stage to brief them on the Scheme, focus the environmental studies and to identify specific issues. Engagement is on-going but at the time of writing, contact has been made and where possible, meetings have occurred with the following stakeholders to introduce the Scheme and commence discussions on detailed matters relating to the Scheme:

- Host Authority (ERYC);
- The Planning Inspectorate;
- Historic England;
- Natural England;
- Environment Agency; and
- National Highways.

1.3.10 The Applicant will undertake on-going consultation with the ERYC, the stakeholders identified above and other relevant consultees and stakeholders such as Parish Councils, Local Members of Parliament, and relevant local trusts throughout the duration of the Scheme development and preparation of the ES.

1.3.11 A Programme Document will be available on the Scheme's website, setting out the timetable for the development of the Scheme during the pre-application phase of the project, including key milestones and dates where statutory consultation is planned.

1.4 Scoping Consultation

1.4.1 The Planning Inspectorate acting on behalf of the SoS will consult on this Scoping Report in accordance with Regulation 10(6) of the EIA Regulations. Consultees include statutory consultation bodies such as the Environment Agency and Historic England, as well as relevant planning authorities. Comments received from consultees will be considered and included within the Scoping Opinion issued by the Planning Inspectorate.

1.5 Structure of Scoping Report

1.5.1 This Scoping Report is structured as follows:

- Chapter 1: Introduces the Scheme and the Scoping Report;
- Chapter 2: Outlines the EIA methodology and the EIA processes that will be followed to produce the ES;
- Chapter 3: Provides a description of the Site and its surrounding area, highlighting key environmental constraints;
- Chapter 4: Provides a description of the Scheme based upon current planning and design work;
- Chapter 5 – 14: Cover technical environmental topics that will be scoped in or scoped out of the ES;
- Chapter 15: Proposed structure of the ES;
- Chapter 16: Summary and Conclusions of this Scoping Report; and
- Supporting Appendices and Figures.

1.6 Purpose of Scoping Report

1.6.1 In accordance with Regulation 10(1) of the EIA Regulations, a person who is minded to make an application for development consent may ask the SoS to confirm in writing their opinion as to the information to be provided in the ES (a 'scoping opinion').

1.6.2 Regulation 10(3) of the EIA Regulations states that a scoping request must be accompanied by:

- A plan sufficient to identify the land (**Figure 1-1**);
- A description of the Scheme, including its location and technical capacity (**Chapter 3: The Scoping Site Boundary and Surrounding Area** and **Chapter 4: Scheme Description**);
- An explanation of the likely significant effects of the development on the environment (**Chapters 5** to **14** (technical topics)); and
- Such other information or representations as the person making the request may wish to provide or make.

1.6.3 This Scoping Report has also taken into account the guidance highlighted in the Planning Inspectorate Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping ('Advice Note Seven') (Ref 23) and Nationally Significant Infrastructure Projects: Commitments Register (Ref 24).

1.6.4 **Table 1-1** lists the suggested scoping report contents as set out in Advice Note Seven and confirms where these topics are considered within this Scoping Report.

1.6.5 In line with best practice, this scoping exercise aims to achieve the following objectives:

- Establish the availability of existing baseline data;
- Define a survey and assessment framework from which a comprehensive EIA spanning those environmental topics which are likely to experience significant environmental effects can be undertaken; and
- Invite consultees to comment on the proposed EIA, in terms of:
  - The potential significant environmental effects which require assessment;
  - The assessment methodology for each environmental topic proposed to be scoped into the EIA process;
  - Sources of information;
  - Issues of perceived concern; and
  - Any other areas which should be addressed in the EIA.

Table 1-1 Contents for the Scoping Report based on the Planning Inspectorate's Advice Note Seven.

Suggested Scoping Report Contents	Location in this Scoping Report
Commitments Register	Appendix 1-A: Commitments Register
Transboundary Screening Matrix	Appendix 1-B: Transboundary Effects Screening Matrix
The Scheme	
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Scheme e.g. design parameters	Chapter 4: Scheme Description
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Scheme	Figure 1-1: Site Location and Scoping Site Boundary Figure 1-2: Site Boundary and Land Use Figure 3-1: Humberhead Sites Field Boundaries Figure 3-2: Environmental Constraints
EIA Approach and Topic Areas	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option	Chapter 2: Methodology
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues	Chapter 16: Summary and Conclusions

Suggested Scoping Report Contents	Location in this Scoping Report
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided	Chapter 5 to 14 (technical topics)
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters	Chapter 5 to 14 (technical topics) Appendix 7-B to Appendix 7-D Appendix 9-A: Water Framework Directive ('WFD') Screening
Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude	Chapter 5 to 14 (technical topics) Appendix 9-A: WFD Screening
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects	Chapter 5 to 14 (technical topics) Appendix 9-A: WFD Screening
Information Sources	
References to any guidance and best practice to be relied upon	Chapter 5 to 14 (technical topics) Appendix 7-A: LVIA Methodology Appendix 9-A: WFD Screening
Evidence of agreements reached with consultation bodies (for example the statutory nature conservation bodies or local planning authorities)	Chapter 5 to 14 (technical topics) Appendix 9-A: WFD Screening
An outline of the structure of the proposed ES	Chapter 15: Proposed Structure of the ES

1.7 The Applicant

1.7.1 The Scheme is being promoted by Humberhead Solar Limited (the 'Applicant'), part of Island Green Power ('IGP'). IGP is a leading developer of renewable energy projects, established in 2013.

1.7.2 IGP has successfully delivered nearly 40 projects worldwide that have generated more than 3GW of energy capacity. This includes 21 solar and storage projects in the UK. Its projects include the consented NSIPs Cottam Solar Project and West Burton Solar Project, located in Lincolnshire and Nottinghamshire. Its mission is to be the leading innovator in sustainable, clean energy development by pioneering solutions that facilitate the energy transition and conserve the planet's ecosystems.

1.8 ISEP Quality Mark

1.8.1 AECOM has prepared this Scoping Report on behalf of the Applicant. AECOM is a Registered Impact Assessor with the Institute of Sustainability and Environmental Professionals ('ISEP') (formerly known as Institute of Environmental Management and Assessment ('IEMA') and holds the ISEP EIA Quality Mark as recognition of the quality of its EIA product and continuous training of its environmental consultants. A Statement of Competence will be included within the ES, outlining the relevant expertise or qualifications of the experts who prepared the ES.

2 Methodology

2.1 Introduction

2.1.1 Environmental Impact Assessment ('EIA') is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any likely significant adverse effects. The EIA should be informed by consultation with statutory consultees, other interested bodies, and members of the public. The purpose of identifying the likely significant effects is to ensure decision makers can make an informed judgement on the environmental impacts of a proposal.

2.1.2 This chapter of the Scoping Report explains the approach that will be taken to assess and understand the likely significant effects of the Scheme. Where topic-specific methodologies are proposed, these will be introduced in the relevant technical chapter of this Scoping Report.

2.1.3 The Environmental Statement ('ES') must contain the information specified in Regulation 14(2) of the EIA Regulations (Ref 2) and must meet the requirements of Regulation 14(3) of the EIA Regulations. It must also include any additional information specified in Schedule 4 of the EIA Regulations which is relevant to the specific characteristics of the particular development or type of development and the environmental features likely to be significantly affected.

2.1.4 The EIA is being undertaken based on a number of related activities which will include the following:

- Establishing existing baseline conditions;
- Consultation with the relevant statutory and non-statutory consultees throughout the process;
- Consideration of local, regional and national planning policies, legislation and guidelines as relevant to EIA;
- Consideration of technical standards for the development of significance criteria;
- Review of secondary sources, previous environmental studies and publicly accessible databases and information;
- Physical surveys and monitoring;
- Desk based assessment;
- Computer modelling (where appropriate and proportionate); and
- Expert opinion.

2.1.5 The following advice from the Planning Inspectorate has been considered for the preparation of this report, and will be considered as the EIA progresses:

- Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 25);
- Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation (Ref 26);
- Nationally Significant Infrastructure Projects Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements March 2025 (Ref 23);
- Nationally Significant Infrastructure Projects Advice Note Nine: Rochdale Envelope March 2025 (Ref 27);
- Nationally Significant Infrastructure Projects: Advice on Working with Public Bodies in the Infrastructure Planning Process March 2025 (Ref 19); and
- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment March 2025 (Ref 28).

2.1.6 The main objective of the EIA process is to present a clear, impartial assessment of the likely significant beneficial and adverse environmental impacts of the Scheme, including direct and indirect effects, informing the design of the project and documenting the application of the mitigation hierarchy to minimise residual environmental effects.

2.1.7 Each environmental topic to be considered in the ES will be given a separate chapter.

2.1.8 Each of the technical assessments for the environmental topics will use the following approach and structure.

- Introduction;
- Legislation, Planning Policy Context, and Guidance;
- Consultation;
- Assessment Methodology;
- Baseline Conditions;
- Embedded Mitigation Measures;
- Assessment of Likely Effects;
- Additional Mitigation and Enhancement;
- Residual Effects;
- In-Combination Effects; and
- Conclusion.

2.1.9 The environmental topics to be scoped out in their entirety are considered within **Chapter 15: Proposed Structure of the ES** of this Scoping Report.

2.2 Legislation, Policy and Guidance

2.2.1 Each of the chapters in this Scoping Report includes a section on legislation, policy and guidance relevant to the chapter topic. This ensures legal

compliance and the setting of clear criteria and procedures for environmental assessments, as applicable to each topic.

2.3 Baseline Conditions

2.3.1 In order to predict the potential environmental impacts of the Scheme, it is necessary to determine the environmental conditions that currently exist within the Site and surrounding area in the absence of the Scheme. These are known as 'baseline conditions'.

2.3.2 The data collected to establish the baseline conditions for the purposes of this Scoping Report have been gathered from a variety of sources, including the following:

- Physical surveys and monitoring;
- Publicly accessible records and databases; and
- Environmental survey information that has been submitted for other developments in the area.

2.3.3 As set out in Section 1.3, the methods of data collection have been discussed with the relevant statutory and non-statutory consultees where appropriate. These discussions will continue through to submission of the Development Consent Order ('DCO') application as the EIA progresses.

2.3.4 Consideration will also be given to how the baseline conditions would evolve in the absence of the Scheme, known as the 'future baseline'. As described in Section 2.11 Consideration of Alternatives, this involves the consideration of a 'no development' or 'do nothing' scenario and, where required, allows impact assessments to consider and compare the scale of environmental changes, such as noise levels, with and without the Scheme in place during both the construction and operational phases

2.4 Mitigation Measures

2.4.1 Paragraph 7 of Schedule 4 of the EIA Regulations notes that an ES should include *"a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset and should cover both the construction and operation phases."*

2.4.2 Mitigation will adopt a standard hierarchical approach to identifying mitigation requirements as follows:

- **Avoid or prevent:** in the first instance, mitigation should seek to avoid or prevent the adverse effect at source;
- **Reduce:** if an effect is unavoidable, mitigation measures should be implemented which seek to reduce the significance of effect; and
- **Offset**: if the effect can neither be avoided nor reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation.

2.4.3 Mitigation measures fall into two categories: 'embedded mitigation measures' and 'additional mitigation measures'. Embedded mitigation measures are built into the design of the Scheme or are industry standard control measures which are common practice on construction sites. The ES will assess the environmental effects of the Scheme with embedded mitigation measures in place. Where significant adverse environmental effects are identified to remain after considering these embedded measures, additional mitigation measures will be proposed to further avoid or reduce the identified adverse environmental effects.

2.4.4 The following management plans are typically submitted as part of the DCO application and secure the implementation of mitigation measures:

- Outline Construction Environmental Management Plan ('oCEMP');
- Outline Operational Environmental Management Plan ('oOEMP');
- Outline Decommissioning Environmental Management Plan ('oDEMP');
- Outline Masterplan;
- Outline Landscape and Ecological Management Plan ('oLEMP');
- Outline Battery Safety Management Plan ('oBSMP');
- Outline Soil Management Plan ('oSMP');
- Outline Construction Traffic Management Plan (oCTMP');
- Outline Public Rights of Way Management Plan ('oPRoWMP'); and
- Outline Site Waste Management Plan ('oSWMP').

2.5 Spatial Scope

2.5.1 The individual topic chapters in this Scoping Report (**Chapters 5** to **14** (technical topics)) describe and identify the Study Areas, within which that assessment is focused. The Study Areas are in most cases defined by the nature of potential impacts and the location of potentially affected environmental resources or receptors.

2.6 Timescales and Assessment Years

Construction Phase Effects

2.6.1 Construction effects are those that begin and end during the construction phase and do not continue once construction is complete. Most construction effects are expected to be temporary and reversible, although their duration may vary depending on the activity.

Operational Phase Effects

2.6.2 Operational effects are those associated with the presence, operation, use and maintenance of the Scheme. These effects may begin during construction but are expected to continue beyond it, either for a substantial period or for the lifetime of the Scheme. Operational effects may be short-term, medium-term, long-term, reversible over the Scheme's lifetime, or permanent if they cannot be reversed after decommissioning.

Decommissioning Period Effects

2.6.3 For the decommissioning assessment, these effects will be taken to be those for which the source begins and end during the decommissioning phase, and the effects do not endure beyond the completion of the decommissioning phase. As with construction phase effects, some aspects of decommissioning will endure for longer than others.

Temporal Scope

2.6.4 Within this Scoping Report, the individual chapters assess the potential impacts over the anticipated project-specific time periods set out below. These timescales represent the expected durations for each stage of the Scheme and will be used as the basis for the environmental assessment:

- Construction – phased over 24 months;
- Operation – up to 60 years; and
- Decommissioning – phased over 12-24 months.

2.7 Assessment of Impacts and Significance of Effects

2.7.1 The evaluation of significance of an effect is important, since it is the significance that determines the resources that should be deployed in avoiding or mitigating a significant effect, or conversely, the actual value of a beneficial effect. The overall environmental acceptability of the Scheme is a matter for the Secretary of State ('SoS') to determine, having taken into account, amongst other matters, the environmental information that is set out in the ES, including all likely beneficial and adverse environmental effects.

Where it has not been possible to quantify effects, qualitative assessments will be carried out, based on available knowledge and professional judgment. Where uncertainty exists, this will be noted in the relevant topic chapter and if necessary any assumptions made will be clearly stated (and are likely to comprise a reasonable worst case scenario).

General Assessment Methodology

2.7.2 The following section outlines the standard EIA methodology and defines the standardised terminology to be used throughout the ES for a consistent identification of likely significant environmental effects. For those environmental topics scoped into the EIA, details relating to the specific assessment methodology to be used in the ES are provided within the technical sections of this EIA Scoping Report. In summary, each technical chapter of the ES will follow a three-stage approach, as set out below.

Determining the value / sensitivity of the receptor or environmental resource

2.7.3 The technical ES chapters will define the baseline conditions against which the likely significant environmental effects of the Scheme are determined and identify receptors and environmental resources that may be impacted. Each receptor and/or environmental resource will be assigned a value on the basis of its importance or sensitivity to potential impacts, according to the methodology set out in the relevant technical chapter.

2.7.4 The sensitivity, value or importance of a resource or receptor is defined by specific criteria for each technical discipline and is normally derived from:

- Designated status within the land use planning system;
- Reference to standards in environmental assessment guidance;
- The number of individual receptors, such as residents;
- An empirical assessment on the basis of characteristics such as rarity or condition; and
- Its ability to absorb change.

2.7.5 The terminology that will be used to categorise the sensitivity of resources/receptors is outlined in **Table 2-1**.

Determining the magnitude and attributes of impacts

2.7.6 The technical ES chapters will identify the potential impacts of the Scheme from the construction phase, operation and maintenance phase, and decommissioning. The magnitude of the impact or scale of change in comparison to baseline conditions will be determined in line with the topic

specific methodology, while taking into account any embedded mitigation that forms an inherent part of the Scheme.

2.7.7 The terminology that will be used to categorise the magnitude of impact is outlined in **Table 2-1**.

Classification of the effect significance

2.7.8 In each technical ES chapter, the assessment will consider the sensitivity of the resources/receptors that could be affected and the magnitude of impacts in order to classify the effect. Each technical topic has its own method for classifying effects, based on industry standards and accepted criteria and legislation where available. A generic example of how this might be undertaken is given in **Table 2-1**. Where topic-specific classification of effect significance has been applied, this will be set out in the relevant technical chapter.

Table 2-1 Example matrix classifying environmental effect significance

Magnitude of Impact	Sensitivity of Receptor			
	High	**Medium**	**Low**	**Very Low**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

2.7.9 As a general rule, major and moderate effects are considered to be significant, as shown by the shaded cells in **Table 2-1**. However, professional judgment will be applied, accounting for other factors that may influence significance e.g. permanence, duration and likelihood of occurrence.

2.7.10 Generic definitions for the classification of effects are provided in **Table 2-2**.

Table 2-2 Significance effect definitions

Level of Significance	Description
Major	Considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards; considered significant. These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.

Level of Significance	Description
Moderate	Noticeable effect (by extent, duration or magnitude) which may be considered significant. These effects are likely to be important at a local scale and on their own could have an important and relevant influence on decision making.
Minor	Slight, very short or highly localised effect of no significant consequence. These effects may be raised as local issues and may be of relevance in the detailed design of the project but are unlikely to be critical in the decision-making process.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error and are of no significant consequence. These effects are unlikely to influence decision making, irrespective of other effects.

2.7.11 Following the classification of an effect, clear statements will be made within the topic chapters as to whether that effect is significant or not significant. Where significant effects are identified, additional mitigation measures will be proposed to further avoid or reduce the identified adverse environmental effects.

2.7.12 For any effects identified, the following terminology will be used:

- **Adverse**: detrimental or negative effects to an environmental/socio-economic resource or receptor;
- **Negligible** (also referred to as 'neutral' for some topics): imperceptible effects to an environmental/socio-economic resource or receptor;
- **No effect**: where there would be no effects upon the environmental/socio-economic resource or receptor; or
  Beneficial: advantageous or positive effect to an environmental/socio-economic resource or receptor.

2.8 Residual Effects

2.8.1 Residual effects are those that remain after the implementation of defined mitigation measures. Each technical chapter of the ES will have a residual effects section that will outline the significance of each environmental effect resulting, after the implementation of the embedded and additional mitigation measures.

2.9 Cumulative and In-Combination Effects

2.9.1 Paragraph (5) of Schedule 4 to the EIA Regulations states that the ES should include *"a description of the likely significant effects of the development on the environment resulting from… (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources*".

2.9.2 As the Scheme is classified as a Nationally Significant Infrastructure Project ('NSIP'), the approach to the assessment of cumulative effects follows the guidance set out in the Planning Inspectorate's 'Advice on Cumulative Effects Assessment' (Ref 28).

2.9.3 For the cumulative impact assessment presented in the ES, two types of effect are considered:

- In-Combination effects: the combined effect of individual impacts from the Scheme, for example, where a single receptor is affected by noise and traffic disruption during the construction of the Scheme; and
- Cumulative effects: the combined effects of other development(s) which may interact cumulatively with the Scheme. The effect of these developments may be insignificant on an individual basis, but cumulatively with the Scheme have a new or different likely significant effect.

In-Combination Effects

2.9.4 There is no established methodology for assessing and quantifying effect interactions that lead to combined effects on sensitive receptors/resources. However, the European Commission has produced guidelines for assessing interactions "*which are not intended to be formal or prescriptive, but are designed to assist EIA practitioners in developing an approach which is appropriate to a project…"* (Ref 29).

2.9.5 These guidelines have been reviewed, and an approach will be developed which uses the defined residual effects of the Scheme to determine the potential for effect interactions that lead to combined effects. This approach was followed on Sunnica Energy Farm, Longfield Solar Farm, Gate Burton Energy Park, Fenwick Solar Farm, East Yorkshire Solar Farm and Tillbridge Solar Project, all of which are solar NSIPs that have been consented.

2.9.6 The EIA will predict beneficial and adverse combined effects during Scheme construction, operation and decommissioning – these will be classified as minor, moderate or major. Several effects on one receptor, resource or receptor group could theoretically interact or combine to produce a combined overall significant effect.

2.9.7 An exercise which tabulates the effects on receptors, resources or receptor groups will be undertaken to determine the potential for effect interactions and, therefore, any combined effects. Only adverse or beneficial residual effects classified as minor, moderate, or major will be considered in relation to potential effect interactions. Residual effects which are classified as negligible will be excluded from assessment by virtue of their definition as they are considered to be imperceptible effects to an environmental/socio-economic receptor or resource.

Cumulative Effects

2.9.8 The ES will contain an assessment of cumulative effects generated by the Scheme and other projects and developments. The proposed methodology for consideration of cumulative effects will be in accordance with the Planning Inspectorate's Advice Note 17 on the assessment of cumulative effects. This sets out a four-stage approach and will be adopted as part of the EIA.

Stage 1 – Establishing the Long List of 'Other Existing Development and/or Approved Development'

2.9.9 A review of other developments will be undertaken, initially encompassing a Zone of Influence ('ZoI') defined by relevant technical specialists in order to prepare a long list of 'other development' or 'cumulative developments'. The ZoI for each discipline will be set out in the ES and will provide a clear justification for the extent. At this stage, it is anticipated that the long list will be based on up to a 5 km area of search, which aligns with the Study Area for landscape and visual amenity and is likely to be the maximum range of potential significant effects. Some technical disciplines may have a larger ZoI for specific aspects, e.g. 20 km for statutory designated internation sites relating to ornithology. These ZoIs will be set out within each technical chapter of the ES.

2.9.10 The long list of 'other developments' to be included within the assessment of cumulative effects will be reviewed throughout the pre-application phase of the Scheme up to the design freeze associated with the preparation of the ES. The long list will be shared and developed in consultation with the host authority.

Cumulative Developments

2.9.11 An initial long list has already been developed of other developments surrounding the Scheme. Key Schemes which have been identified at this stage include:

- East Yorkshire Solar Farm (EN010143) permitted NSIP located within 10 km of Humberhead Solar;
- Mylen Leah Solar Farm (EN0110002) NSIP on the Planning Inspectorate's programme of works with submission expected in August 2026 and within 10 km of Humberhead Solar; and
- Eastern Green Link 2 ('EGL2') permitted planning permission ref 22/01990/STPLFE (as amended) (Town and Country Planning Act ('TCPA') regime), consented March 2023, overlaps with Humberhead 4-3 and the Cable Route Seach Corridor ('CRSC'), construction has begun (linear scheme across East Yorkshire).

2.9.12 Cumulative developments will be categorised into three tiers as described in **Table 2-3** below, in accordance with the Planning Inspectorate advice. These tiers are based on the level of certainty of an identified development coming forward or being built out, and the level of published detail of proposed developments or projects at the time of the ES's production.

Table 2-3 Categories of certainty for other existing and or approved development

Tier	Description
Tier 1 (most certain)	Under construction; Permitted application(s), whether under the Planning Act 2008 ('PA 2008') (Ref 1) or other regimes, but not yet implemented; Submitted application(s) whether under the PA 2008 or other regimes but not yet determined.
Tier 2	Projects on the Planning Inspectorate's programme of projects
Tier 3 (least certain)	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted. Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals; Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

Stage 2 - Establishing a Short List of 'Other Existing Development and/or Approved Development'

2.9.13 At Stage 2, any developments of a nature or scale without the potential to result in cumulative impacts will be excluded, following discussion with the host authority and consideration of the likely ZoI for each environmental

topic. The justification for including or excluding developments from the long list will be provided in a matrix, modelled on the example given within Matrix 1 (Appendix 1) of the Planning Inspectorate's Advice on Cumulative Effects Assessments.

Stage 3 – Information Gathering

2.9.14 Information relating to other developments will be collected from the appropriate source (which may include the local planning authorities, the Planning Inspectorate or directly from the relevant applicant/developer) and will include, but not be limited to:

- Proposed design and location information;
- Proposed programme of demolition, construction, operation and/ or decommissioning; and
- Environmental assessments that set out baseline data and effects arising from 'other development'.

Stage 4 – Assessment

2.9.15 The assessment will include a list of those developments considered to have the potential to generate a cumulative effect together with the Scheme, and this will be documented in a matrix, in line with Appendix 2 of the Planning Inspectorate's advice which includes the following:

- A brief description of the development;
- An assessment of the cumulative effect(s) with the Scheme;
- Proposed mitigation applicable to the Scheme including any apportionment; and
- The likely residual cumulative effect(s).

2.9.16 The criteria for determining the significance of any cumulative effect will be based upon:

- The duration of effect, i.e. will it be temporary or permanent;
- The extent of effect, e.g. the geographical area of an effect;
- The type of effect, e.g. whether additive or synergistic;
- The frequency of the effect;
- The 'value' and resilience of the receptor affected'; and
- The likely success of mitigation.

2.9.17 In reporting the overall significance of cumulative effects, it is appropriate to also acknowledge the relative contributions different projects make to a cumulative effect and carefully consider whether the cumulative effect is significant. For example, where a large-scale project is predicted to result in significant effects and a smaller proposed development would not have significant effects, the cumulative assessment should only conclude there is a

significant cumulative effect if effects from both projects together are of greater significance than the larger project in isolation. Consequently, care will be taken to not simply define such effects as being cumulative, but rather to focus on the nature and scale to which genuine cumulative effects might result.

2.9.18 Particular consideration will be given to other solar and BESS developments proposed within the 5 km area of search and information available at the time of assessment will be used to inform the assessment of cumulative effects.

2.9.19 Where significant cumulative effects are identified, the assessment will identify any mitigation measures to avoid or reduce these, as well as any necessary monitoring arrangements.

Summary

2.9.20 **Table 2-4** summarises how cumulative and in-combination effects will be reported in the ES.

Table 2-4 Reporting of cumulative and in-combination effects

Effects	Reporting
In-Combination Effects - The interaction and combination of different environmental residual (post-additional mitigation) effects from within the Scheme affecting a single receptor	Will be assessed within a separate chapter of the ES.
Cumulative Effects – The combined residual (post additional mitigation) effects of the Scheme and another project or projects on a single receptor	Will be assessed within the environmental technical chapters within the ES.

2.10 Transboundary Effects

2.10.1 No impacts are likely to extend beyond the jurisdiction of the UK, with the exception of potential greenhouse gas emissions ('GHG'). GHG emissions will be minimal given the nature of the Scheme, which will not emit GHG emissions during its operation except for limited emissions associated with maintenance vehicles and repair works.

2.10.2 A Transboundary Effects Screening Matrix is provided at **Appendix 1-B**.

2.11 Consideration of Alternatives

2.11.1 Regulation 14(2)(d) of the EIA Regulations states that the environmental statement should include "*a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option*

chosen, taking into account the effects of the development on the environment."

2.11.2 Moreover, paragraph 2 of Schedule 4 of the EIA Regulations notes that an ES should include: "*a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*."

2.11.3 NPS EN-1 (Ref 8) confirms that while there is no general requirement to consider alternatives or to establish whether a development represents the best option, *"where there is a policy or legal requirement to consider alternatives, the applicant should describe the alternatives considered in compliance with these requirements"* (Paragraph 4.3.17 of NPS EN-1).

2.11.4 NPS EN-1 at 4.3.22 states that *"the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner" and "only alternatives that can meet the objectives of the proposed development need to be considered"*.

2.11.5 The design of the Scheme will evolve and develop through the pre-application phase. This will be informed by technical design input, the outcome of environmental surveys and by engagement with stakeholders including that undertaken as part of the statutory consultation process. The ES will set out the design evolution process and how alternatives were considered in selecting the preferred option.

2.11.6 The ES will include a chapter setting out the alternatives considered and the main reasons for selecting the chosen option. The alternatives analysis in the ES will likely include site selection, different layouts and alternative technologies.

2.11.7 The consideration of "*no development*" as an alternative to the Scheme will not be explored in the ES. This is due to the consideration of "*no development*" being unreasonable as it would not deliver the generation of renewable electrical power and energy storage proposed, which is designated as critical national priority infrastructure by the UK government and strongly supported by national energy and climate change legislation and policy.

2.12 Rochdale Envelope

2.12.1 Planning Inspectorate Advice Note Nine (Ref 27) provides guidance on the degree of flexibility that may be considered appropriate within an application for development consent under the PA 2008 and the application of the 'Rochdale Envelope' to ensure robust assessment of the likely significant

environment effects of the Scheme. Several technical parameters have yet to be finalised for the Scheme.

2.12.2 The amount of flexibility required will depend upon the progress of the design at the stage that the detailed EIA work is undertaken. Certain aspects of the Scheme still require design flexibility. It is therefore necessary for the technical assessments to assess an 'envelope' within which the works will take place. As such, the DCO application and EIA will be based on maximum and, if relevant, minimum design parameters or limits of deviation. To remain in accordance with the EIA Regulations, it will be essential that the parameters are as 'limited' as possible to ensure that the 'likely significant' effects are identified, rather than unrealistically amplified effects, which could be deemed to be unlikely. It is proposed to use the defined parameters for the Scheme in each relevant technical assessment, with each technical assessment defining their reasonable worst-case basis of assessment.

2.12.3 The Applicant will seek to utilise developments in technology as this becomes available, and as such will utilise flexibility within the DCO where this is possible. The amount of flexibility required depends upon the progress of the design at the stage that the detailed EIA work is undertaken. The aspects of the Scheme that require design flexibility will be confirmed in the ES.

3 The Scoping Site Boundary and Surrounding Area

3.1 Introduction

3.1.1 This chapter provides a description of Scoping Site Boundary comprising the Humberhead Sites and Cable Route Seach Corridor ('CRSC') which contain the Scheme, along with the surrounding area. The boundary for the Scheme will be refined as the design progresses. Any changes between Scoping and the Environmental Statement ('ES') will be detailed in the ES.

3.1.2 For ease of reference, the Humberhead Sites have been numbered Humberhead 1 to 4 and each of the Humberhead Sites comprise a series of sub-sites as presented in **Figure 3-1-1**. For example, a sub-site of Humberhead 1 would be Humberhead 1-1 or 1-2. To assist in referencing specific areas, a numbering system has been applied to the fields within each of the Humberhead Sites. This field numbering system is presented in **Figures 3-1-2 to 3-1-5**.

3.1.3 The CRSC represents the area of search for the Cable Route Corridor ('CRC') to connect the Humberhead Sites to each other and to and the National Grid Thornton Substation. The search area will be refined as the design of the Scheme is developed and technical and environmental surveys are undertaken in addition to landowner negotiations and consultation input. The CRC will therefore be reduced in extent to a narrow width sufficient for the Grid Connection Cables and the siting of temporary construction compounds. **Figure 1-1** shows the CRSC.

3.2 Surrounding Area

3.2.1 The Scheme lies wholly within the administrative boundary of East Riding of Yorkshire Council. The Humberhead Sites cover an area of approximately 1,595 ha.

3.2.2 The surrounding area is primarily rural agricultural land with a number of smaller villages within 1 km of the Humberhead Sites. These include:

- Allerthorpe is located approximately 600 m north-west of Humberhead 1;
- Hayton is located approximately 400 m east of Humberhead 1;
- Burnby is located approximately 180 m north-west of Humberhead 2;
- Londesborough is located approximately 430 m north-east of Humberhead 2;
- Shiptonthorpe is located approximately 450 m south of Humberhead 2;
- Foggathorpe is located approximately 790 m south of Humberhead 3;
- Seaton Ross is located approximately 980 m north of Humberhead 3; and

- Holme-on-Spalding-Moor is located approximately 750 m south of Humberhead 3.

3.2.3 There are a number of individual farm holdings, rural dwellings and small commercial business properties in the vicinity of the Scheme.

3.2.4 The proposed Yorkshire Wolds National Landscape boundary is located to the north and east of Humberhead 2, approximately 160 m from the eastern boundaries of Humberhead 2-1 and 2-3. The proposed Yorkshire Wolds National Landscape is directly adjacent to an access point to Humberhead 2-3, and approximately 160 m north-east of Humberhead 2-3. None of the Humberhead Sites would sit within the proposed Yorkshire Wolds National Landscape.

3.2.5 An Environmental Constraints Plan is provided in **Figure 3-2**.

3.3 Site Description

3.3.1 This section provides an overview of each of the Humberhead Sites, along with a summary of key historic, landscape, ecological and water environment designations and constraints. **Chapters 5** to **14** set out further baseline information in more detail.

Humberhead 1

3.3.2 The area of Humberhead 1 is approximately 186 ha and is predominantly in agricultural use. Humberhead 1 consists of parcels of farmland between Allerthorpe and Hayton, approximately 1 km to the south east of Pocklington. The land is characterised by agricultural fields separated by hedgerows and scattered trees in addition to small farm holdings. There are also multiple industrial estates and factories north of Humberhead 1, along York Road, approximately 1 km north of Humberhead 1-1.

3.3.3 The nearest villages to Humberhead 1 are Allerthorpe and Hayton. Allerhorpe is located 600 m north-west of Humberhead 1-1 and Hayton is 400 m east of Humberhead 1-2.

3.3.4 The Point of Connection ('PoC'), at the National Grid Thornton Substation, is approximately 1.4 km south-west of Humberhead 1-1.

3.3.5 The A1079 (York Road) runs north of Humberhead 1, approximately 500 m north-east of Humberhead 1-1 and immediately adjacent to the north-eastern boundary of Humberhead 1-2. There are a number of minor roads running between the Humberhead 1 sub-site. A small section, approximately 70 m, of an unnamed road runs through the northern most point of Humberhead 1-3.

3.3.6 There are no Public Rights of Way ('PRoW') within Humberhead 1. However, there are three PRoW located adjacent to the boundary of Humberhead 1. EY|Allerthorpe|Bridleway No.4 runs alongside the eastern edge of

Humberhead 1-1. EY|Everingham|Bridleway No.9 and EY|Bielby|Bridleway No.5 border the western edge of Humberhead 1-4.

3.3.7 Pocklington Airfield is located approximately 1 km north of Humberhead 1. The former Royal Air Force ('RAF') base ceased operations in 1946. The airfield has returned to agricultural use and also functions as the Wolds Gliding Club.

3.3.8 Allerthorpe Lakeland Park lies approximately 800 m south-west of Humberhead 1-1.

Humberhead 2

3.3.9 The area of Humberhead 2 is approximately 297 ha and is predominantly in agricultural use, with several large farm buildings within the area. Humberhead 2 consists of parcels of farmland between Burnby, Londesborough and Shiptonthorpe. The land is characterised by agricultural fields separated by hedgerows and scattered trees. There is a wind turbine within Humberhead 2-1, which is excluded from the Scoping Site Boundary. Wind turbines can also be found in the surrounding area of Humberhead 2.

3.3.10 The nearest villages to Humberhead 2 are Burnby, Londesborough and Shiptonthorpe. Burnby is located 180 m north-west of Humberhead 2-1. Londesborough is approximately 430 m north-east of Humberhead 2-1, and Shiptonthorpe 460 m south of Humberhead 2-2.

3.3.11 The A1079 (York Road) runs south-west of Humberhead 2, approximately 1 km away from the closest points. Londesborough Avenue runs directly adjacent to the south-east boundary of Humberhead 2-1, and the eastern boundary of Humberhead 2-2. Approximately 600 m of a minor unnamed road runs through the northern section of Humberhead 2-1.

3.3.12 Multiple PRoWs are adjacent to land parcels in Humberhead 2. EY|Hayton|Footpath No.5 runs through the eastern edge of Humberhead 2-1 for approximately 550 m. Humberhead 2-2 and 2-3 are separated by EY|Londesborough|Footpath No.1 and EY|Shiptonthorpe|Footpath No.2. EY|Londesborough|Footpath No.2 runs along the eastern side of Humberhead 2-3, with a small section of the footpath lying within its boundary.

Humberhead 3

3.3.13 The area of Humberhead 3 is approximately 214 ha and is predominately in agricultural use, with several large farm buildings within the area. Humberhead 3 consists of parcels of farmland between Seaton Ross and Foggathorpe. The land is characterised by agricultural fields separated by hedgerows and scattered trees. There is a wind turbine within Humberhead 3-3, which is excluded from the Scoping Site Boundary.

3.3.14 The nearest villages to Humberhead 3 are Seaton Ross, Holme-upon-Spalding and Foggathorpe. Seaton Ross is located 950 m north of Humberhead 3-2, and Holme-upon-Spalding is located 750 m south-east of Humberhead 3-3. Foggathorpe is approximately 790 m south-east of Humberhead 3-5. There are several small farm holdings located around Humberhead 3.

3.3.15 The A163 runs directly south of Humberhead 3, approximately 570 m away from the Humberhead 3 sites. Breckstreet Lane runs adjacent to the northern edge of Humberhead 3-1. Southfield Lane runs between Humberhead 3-1 and 3-2, with a section of Humberhead 3-2 connecting to the road. Spen Lane is approximately 125 m south of Humberhead 3-3 and runs directly adjacent to a small section of the boundary.

3.3.16 Multiple PRoWs are adjacent to land parcels in Humberhead 3. Humberhead 3-2 is surrounded by EY|Seaton Ross|Footpath No.8, No.9 and No.10. A small section of EY|Seaton Ross|Footpath No.8, approximately 30 m, runs through the western section of Humberhead 3-2. 140 m of EY|Seaton Ross|Footpath No.9 runs across the north-east corner of Humberhead 3-2. EY|Holme on Spalding Moor|Footpath No.4 runs through the north-west corner of Humberhead 3-3 for approximately 56 m. EY|Holme on Spalding Moor|Bridleway No.28 runs south of the Humberhead 3 Sites, and directly adjacent to the southern boundary of Humberhead 3-3. 3 m of EY|Holme on Spalding Moor|Bridleway No.28 runs through Humberhead 3-3.

Humberhead 4

3.3.17 Humberhead 4 is the largest of the Humberhead Sites. The area of Humberhead 4 is approximately 897 ha and is predominantly in agricultural use, with several small farm holdings and large agricultural sheds in the area. Humberhead 4 consists of parcels of farmland between Holme-upon-Spalding and North Cave. The land is characterised by agricultural fields separated by hedgerows and scattered trees. Wind turbines can also be found in the surrounding area of Humberhead 4.

3.3.18 The nearest villages to Humberhead 4 are Holme-upon-Spalding and North Cave. Holme-upon-Spalding is located 1.4 km east of Humberhead 4-3 and North Cave is located 2.4 km south-east of Humberhead 4-8. There are several small farm holdings located around Humberhead 4.

3.3.19 Holme Industrial Estate is directly adjacent to Humberhead 4-3. The Estate was formerly a RAF station, built during the Second World War. Many of the originally buildings still stand and are used as part of the industrial estate.

3.3.20 Humberhead 4 is approximately 700 m east of the A614 and 2.4 km north of the M62. The A614, Market Weighton Road borders the northern boundary of Humberhead 4-1.

3.3.21 Cliffe Lane runs directly adjacent to Humberhead 4-1, and runs within the boundary for 140 m. Small sections of Lock Lane run through the northern section of Humberhead 4-3, in the north-west corner for approximately 170 m and in the north-east corner for approximately 330 m. Humberhead 4-3 also has 350 m of unknown road in its southern section. Skiff Lane runs directly adjacent to the southern boundary of Humberhead 4-3. Bursea Lane runs through the northern section of Humberhead 4-6 for approximately 390 m. Humberhead 4-8 also has Carr Lane running directly adjacent to its south-east boundary and approximately 160 m of an unknown road crossing its eastern section.

3.3.22 There are multiple PRoWs in the vicinity of Humberhead 4. EY|Holme on Spalding Moor|Footpath No.12 separates Humberhead 4-1 and 4-2, bordering both Humberhead Sites. EY|Holme on Spalding Moor|Footpath No.10 has a small section, approximately 315 m, within the northern land parcel in Humberhead 4-3.

3.3.23 EY|Holme on Spalding Moor|Bridleway No.15 runs within Humberhead 4-3 for approximately 980 m and connects to EY|Holme on Spalding Moor|Bridleway No.13 and No.24, which both border the eastern side of Humberhead 4-3. EY|Holme on Spalding Moor Bridleway|No.17 runs along the western side of Humberhead 4-7. EY|Holme on Spalding Moor|Bridleway No.16 runs parallel to the southern boundary of Humberhead 4-7. Humberhead 4-8 is surrounded by Bridleways and Footpaths. EY|Hotham|Bridleway No.6 running through its eastern side for approximately 150 m. EY|Hotham|Bridleway No.3 bordering the western boundary of Humberhead 4-8.

Historic Designations

3.3.24 Conservation Areas within 2 km of each Humberhead Site are outlined below:

- Allerthorpe Conservation Area is located approximately 450 m north-west of Humberhead 1-1. Everingham Conservation Area is approximately 850 m south of Humberhead 1-4;
- Shiptonthorpe Conservation Area is located approximately 350 m south of Humberhead 2-2. Londesborough Conservation Area is located approximately 180 m north of the Solar Arrays within Humberhead 2-3, and 20 m north an access point to Humberhead 2-3;
- Everingham Conservation Area is located 1.3 km north of Humberhead 3-3; and
- There are no conservation areas within 2 km of Humberhead 4.

3.3.25 There are no Listed Buildings or Scheduled Monuments within any of the Humberhead Sites.

3.3.26 The closest Listed Buildings and Scheduled Monuments are as follows:

- Humberhead 1:
  - Grade I Listed Building: The Church of Saint Martin, approximately 470 m east of Humberhead 1-2;
  - Grade II* Listed Building: The Church of Saint Giles, approximately 1.5 km west of Humberhead 1-4;
  - Grade II Listed Buildings: Pocklington Canal Giles Lock and Pocklington Canal Silburn Lock, both approximately 10 m east of Humberhead 1-1; and
  - There are no Scheduled Monuments within the vicinity of Humberhead 1.
- Humberhead 2:
  - Grade I Listed Building: Gates, Gatepiers, Flanking Walls and Abutments in Londesborough, approximately 350 m east of Humberhead 2-1;
  - Grade II* Listed Building: The Church of Saint Giles, approximately 340 m west of Humberhead 2-1;
  - Grade II Listed Building: Garden Walls and Gateway, 140 m north-east of an access point to Humberhead 2-3, and 330 m north-east of the Solar Arrays within Humberhead 2-3; and
  - Scheduled Monument: Cleaving Hall moated site, approximately 108 m east of Humberhead 2-1.
- Humberhead 3:
  - Grade I Listed Building is the Church of All Saints, approximately 1.8 km south-east of Humberhead 3-3;
  - Grade II* Listed Building is Holme Hall, approximately 1.4 km south-east of Humberhead 3-3;
  - Grade II Listed Building is Rose Farm, approximately 70 m north of Humberhead 3-2; and
  - Scheduled Monument: The moated site at Chapelgarth, 450 m north-east of Manor Farm, approximately 225 m south of Humberhead 3-1.
- Humberhead 4:
  - Grade I Listed Building: The Church of All Saints, approximately 950 m north-west of Humberhead 4-1;
  - Grade II* Listed Building: Holme Hall, approximately 1.1 km west of Humberhead 4-1;
  - Grade II Listed Building: Bursea Chapel, approximately 30 m west of Humberhead 4-6; and
  - Scheduled Monument: The 'Moated site 170 m north of Wholsea Farm', approximately 290 m east of Humberhead 4-7 and approximately 314 m west of Humberhead 4-8.

3.3.27 The Grade II* Registered Park and Garden, Londesborough Park runs between Humberhead 2-1 and 2-2, with a small section of the park bordering the Humberhead 2-1 boundary. An access point to Humberhead 2-3 also borders Londesborough Park.

3.3.28 The Grade II Registered Park and Garden, Houton Hall, is located approximately 2 km east of Humberhead 4-2.

3.3.29 Further details regarding historic designations are provided in **Chapter 10: Cultural Heritage**.

Landscape Designations

3.3.30 There are no landscape designations within 2 km of Humberhead 1, Humberhead 3 and Humberhead 4.

3.3.31 The proposed Yorkshire Wolds National Landscape is approximately 3 km north-east of Humberhead 1-2.

3.3.32 The proposed Yorkshire Wolds National Landscape would be adjacent to an access point to Humberhead 2-3, and approximately 160 m north-east of the Solar Arrays within Humberhead 2-3, once designated.

3.3.33 Details regarding landscape and visual aspects of Humberhead Sites is provided in **Chapter 7: Landscape and Visual**.

Ecological Constraints

3.3.34 There are no ecological designations within any of the Humberhead Sites.

3.3.35 Pocklington Canal Site of Special Scientific Interest ('SSSI') is adjacent to the eastern border of Humberhead 1-1. Humberhead 1-1 is approximately 720 m north-east of Lower Derwent Vally National Nature Reserve ('NNR'). South Cliffe Common SSSI lies east of Humberhead 4, with the SSSI approximately 9 m from Humberhead 4-8. There are no Special Area of Conservation ('SAC'), Special Protection Area ('SPA') or Ramsar Sites are located within 2 km of Humberhead 1, and no NNRs, SACs, SPAs or Ramsar Sites within 2 km of Humberhead 4. There are no NNRs, SSSIs, SACs, SPAs or Ramsar Sites within 2 km of Humberhead 2 and Humberhead 3.

3.3.36 Areas of priority habitat can be found within, next to, or between the Humberhead Sites. Small areas of deciduous woodland can be found in Humberhead 1-1, Humberhead 1-3, Humberhead 2-1 and Humberhead 4-2. Deciduous woodland borders Humberhead 1-1, Humberhead 1-3, Humberhead 2-1, Humberhead 2-2, Humberhead 3-1, Humberhead 4-1, Humberhead 4-3 and Humberhead 4-8. Lowland meadow borders the north-west boundary of Humberhead 2-1. A small section of coastal and floodplain grazing marsh lies within Humberhead 3-1, Humberhead 4-3 and

Humberhead 4-8. Costal and floodplain grazing marsh borders Humberhead 3-1 and Humberhead 4-8.

3.3.37 No Local Wildlife Sites ('LWSs') are within the Humberhead Sites. There are three LWSs adjacent to the Humberhead Sites:

- Nunburnholme Meadow LWS - Adjacent to northern boundary of Humberhead 2;
- Scorbo Rush Plantation Historic LWS - Adjacent to western boundary of Humberhead 2; and
- South Cliffe Common LWS - Adjacent to south-eastern boundary of Humberhead 4

3.3.38 Furthermore, a total of 26 additional non-statutory sites are located within 2 km of the Scoping Site Boundary. These comprise 20 designated and candidate Local Wildlife Sites, three historic Local Wildlife Sites, and three reserves managed by the Yorkshire Wildlife Trust.

3.3.39 Details regarding ecological aspects of the Humberhead Sites are provided in **Chapter 8: Biodiversity**.

Hydrology, Flood Risk and Drainage Designations

3.3.40 All of the Humberhead Sites, except Humberhead 1-3, Humberhead 3-4 and Humberhead 3-5, have small waterways or drains running within their boundaries.

3.3.41 There are multiple watercourses running alongside or between the Humberhead Sites. For Humberhead 1, this includes Pocklington Beck, Hayton Beck, Missick Beck, Bielby Beck and the Pocklington Canal. For Humberhead 2, this includes Towthorpe Beck, Burnby Beck and East Beck. For Humberhead 3, this includes Foss Dike, Black Dike and River Foulness. For Humberhead 4, this includes Market Weighton Canal, Beils Beck, East Ings Drain, Back Delfin, Egremont Drain, Carr Dike and Suehead Drain.

3.3.42 The eastern half of Humberhead 1-1 is predominantly Flood Zone 3[1], with small sections of Flood Zone 2. The western half of Humberhead 1-1 lies in Flood Zone 1. Humberhead 1-2 has small areas of Flood Zone 2 and 3 running along its western side, spreading across its south-west fields. The majority of Humberhead 1-2 is Flood Zone 1. A small section of Flood Zone 2 is located within the northern corner of Humberhead 1-3, with the rest lying in Flood Zone 1. Humberhead 1-4 has Flood Zones 1 and 2 running across all fields.

[1] Flood Zone 1 designates the lowest risk, indicating a less than 0.1% annual probability of flooding from rivers and seas. Zone 2 denotes medium risk, with a 1% chance from rivers or 0.5% from the sea. Zone 3 has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea, often underpinned by historical flood records.

3.3.43 Humberhead 2-1 and 2-3 are predominantly within Flood Zone 1. Humberhead 2-1 has very small areas of Flood Zones 2 and 3 in the north-west, where it borders Burnby Beck. Similarly, the north-east of Humberhead 2-3 has very small areas of Flood Zones 2 and 3, where it borders Towthorpe Beck. Humberhead 2-2 lies solely in Flood Zone 1.

3.3.44 Humberhead 3-1 has areas of Flood Zone 2 and 3 running along its western boundary. Majority of Humberhead 3-1 is Flood Zone 1. Humberhead 3-2 has on field in the south-west corner lying in Flood Zone 2. The rest of Humberhead 3-2 is Flood Zone 1. Humberhead 3-3 has small areas of Flood Zones 2 and 3 on its northern boundary where it borders the Black Dike, but Humberhead 3-3 mainly lies in Flood Zone 1. Humberhead 3-4 lies in Flood Zone 2 and 3. Humberhead 3-5 is predominantly Flood Zone 3, with small areas of Flood Zone 2.

3.3.45 Humberhead 4-1 lies predominantly in Flood Zone 1, with small areas of Flood Zone 2 and 3 in its south-eastern corner where East Ings Drain runs. Humberhead 4-2 is mainly Flood Zone 1, with patches of Flood Zone 2 and 3 running across its centre and north and west boundaries. The western side of Humberhead 4-3 lies in Flood Zone 1.The eastern side Humberhead 4-3 consist mainly of Flood Zone 3. Humberhead 4-4 lies almost completely in Flood Zone 3, with small patches of Flood Zone 1 and 2 in its south-eastern corner. Humberhead 4-5 lies solely in Flood Zone 1. Humberhead 4-6 is predominantly Flood Zone 1, with areas of Flood Zone 2 and 3 in its southern extent. Humberhead 4-7 and 4-8 all lie almost completely in Flood Zone 3, both with small areas comprising of Flood Zone 1 and 2.

3.3.46 Further details regarding hydrology, flood risk and drainage are provided in **Chapter 9: Water Environment**.

Cable Route Search Corridor

3.3.47 The CRSC represents the area of search for the cable route to connect the Humberhead Sites to the National Grid Thornton Substation and the interconnecting cables between the Humberhead Sites.

3.3.48 The current CRSC will be refined as the design of the Scheme is developed, and technical and environmental surveys are undertaken in addition to landowner negotiations and consultation input. The CRSC will be refined to the CRC for the submission of the DCO application, and will be designed to avoid as far as practicable sensitive receptors such as habitat designations, and arboricultural, hydrological and heritage/archaeological constraints. The CRC will avoid residential curtilages and commercial buildings.

3.3.49 The CRSC (and the refined CRC) extends on all sides of National Grid Thornton Substation in order to retain sufficient flexibility as the exact grid connection bay within this substation is not yet confirmed by National Grid

and to safeguard against any potential further changes in the future that are outside the Applicant's control.

3.3.50 The CRSC is shown in **Figure 1-2**.

4 Scheme Description

4.1 Introduction

4.1.1 The Scheme comprises the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic ('PV') electricity generating station, and associated development comprising a Battery Energy Storage System ('BESS'), grid connection infrastructure and other infrastructure integral to the Scheme.

4.1.2 The Point of Connection ('PoC') for the Scheme to the National Grid is at the Thornton 400 kV Substation (referred to as the 'National Grid Thornton Substation' or 'PoC') located approximately 1.36 km to the southwest of Humberhead Site 1. The Humberhead Sites will be linked to each other and the National Grid Thornton Substation via underground cables within a Cable Route Corridor ('CRC'). The proposed location of the CRC within the Cable Route Search Corridor ('CRSC') is under consideration and will be refined through environmental assessments, landowner negotiations and consultation input.

4.1.3 The Scheme would have a generating capacity in excess of 100 MW and as such is defined as a Nationally Significant Infrastructure Project ('NSIP') under the Planning Act 2008.

4.2 Scheme Design

4.2.1 A series of Design Principles and Parameters are being developed for the Scheme as part of an iterative process based on environmental assessments and consultation with key stakeholders. The Design Principles and Parameters will be confirmed as the development of detailed design and construction plans progresses.

4.2.2 Subject to the above, **Table 4-1** sets out the design parameters of the Scheme which have been used by each of the technical topics to identify likely significant effects of the Scheme on the environment and consequent proposed scope of work and methods to be applied in carrying out the Environmental Impact Assessment ('EIA') for the Application.

4.3 Design Parameters

4.3.1 **Table 4-1** sets out the design parameters of the Scheme which have been used by each of the technical topics to identify likely significant effects of the Scheme on the environment and consequent proposed scope of work and methods to be applied in carrying out the EIA for the Application.

Table 4-1 Design Parameters used for EIA Scoping

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
Tracking Panels (Option A)	Maximum height of Solar Panels above ground level	4.5 m at greatest inclination.
	Minimum height of the lowest part of the Solar Panel above the ground level	0.4 m.
	Indicative orientation and slope	The tracking solar modules will be aligned in north-south rows and inclined to the east or west up to a maximum inclination of 60 degrees from horizontal.
	Solar Panel mounting and slope	Metal frames that hold Solar Panels in rows, either secured via metal posts driven into ground to a depth of up to 4.0 m or, subject to ground conditions and further environmental assessment, supported with concrete feet, or similar.
	Solar Panel colour	The solar modules will be either black, dark blue, or similar.
	Solar Panel type	Bifacial monocrystalline panels.
	Separation distance between rows	Minimum of 2.5 m between rows of tracking panels.
Fixed Panels (Option B)	Maximum height of Solar Panels above ground level	3.5 m.
	Minimum height of the lowest part of the Solar Panel above the ground level	0.4 m.
	Indicative orientation and slope	The fixed solar modules will be aligned in east-west rows, and incline to the south at between 10 and 35 degrees from horizontal.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
	Solar Panel mounting structure	Metal frames that hold Solar Panels in rows, either secured via metal posts driven into ground up to a depth of 4.0 m or, subject to ground conditions and further environmental assessment supported using concrete feet, or similar.
	Solar Panel type	Bifacial monocrystalline panels.
	Solar Panel colour	The solar modules will be either black, dark blue, or similar.
	Separation distance between rows	Minimum of 2.5 m between rows of fixed panels.
Integrated Conversion Units and Sub-distribution Switch Rooms	Maximum dimensions	18.0 m by 5.0 m and a maximum height of 4.5 m.
	Materials	The equipment (such as inverters, transformers and switchgear) will be housed in a metal container, often with a grey or green painted finish, or similar.
	Foundations	A concrete foundation slab, strips or footings over a levelling layer of aggregate; or a concrete plinth set atop the topsoil where non-ground-penetrative works are required. Piling will only be required where ground conditions are exceptionally poor.
Disaggregated Conversion Units	Inverters	9.0 m by 6.5 m and a maximum height 4.5 m.
	Transformers	6.5 m by 5.5 m and a maximum height 4.5 m.
	Switchgear	6.5 m by 2.5 m and a maximum height 4.5 m.
	Material	The equipment will be housed in a metal container, often with a grey or green painted finish, or similar.
	Foundations	Concrete foundation slab, strips or footings over a levelling layer of aggregate; or a concrete plinth set atop the topsoil where non-ground-penetrative works are required. Piling will only be required where ground conditions are exceptionally poor.
Fencing and Security	BESS and On-site Substations	Palisade fencing with a 3.0 m maximum height.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
	Perimeter Fencing	Deer fencing with a 2.5 m maximum height.
	Security	Pole mounted closed-circuit television ('CCTV') systems around the perimeter of the Sites. Galvanised steel poles, often painted in green or grey (or similar), with a maximum height of 3.5 m.
400kV Substations	Maximum compound area	6 ha.
	Maximum height	15 m to the top of the busbars.
	Relay, control and switch rooms	Maximum dimensions of 7.0 m by 21.0 m and maximum height of 4.5 m.
	Foundations	On-site infrastructure will be mounted on a concrete base or monolith plinth to a maximum depth of 1.0 m. If a piling solution is required, piles to a maximum depth of 15.0 m would be used
132kV Substations	Maximum compound area	3 ha.
	Maximum height	10 m to the top of the busbars.
	Relay and control and switch rooms	Maximum dimensions of 7.0 m by 21.0 m and maximum height of 4.5 m.
	Foundations	On-site infrastructure will be mounted on a concrete base or monolith plinth to a maximum depth of 1.0 m. If a piling solution is required, piles to a maximum depth of 15.0 m would be used.
BESS	BESS Enclosures	Maximum height of 4.5 m.
	BESS Compound maximum area.	15 ha.
	Foundations	The foundations for the BESS Enclosures will either be a reinforced concrete base to a maximum depth of 1.0 m, or, if a piling solution is required, piles to a maximum depth of 12.0 m would be used.
	Water storage	3.5 m maximum height.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
Access	BESS Compound and On-site Substation Internal Access Tracks	Maximum 6.0 m wide road (8.0 m at passing places) constructed of asphalt over a levelling layer of substrate. The access points from the public highway and bends in the track would be wider to accommodate abnormal indivisible load turning space.
	Solar Array Internal Access Tracks	A maximum of 3.5 m wide (6.0 m at passing places) constructed of hardcore or gravel over a levelling layer of substrate. The access points from the public highway will comprise reinforced concrete.
	Parking	Parking bays will be provided at the On-site Substations and BESS Compound.
On-site Cables	Cable type	On-site components such as Solar Panels, Conversion Units and BESS Enclosures would be connected with 33 kV, 1.8 kV, 400 V and lower voltage control cables to suit the detailed design.
	Indicative cable trench dimensions	Maximum 1.6 m in width and 1.2 m depth. In some circumstances there may be a requirement for multiple trenches adjacent to each other.
Grid Connection Cables	Cable Type	The Conversion Units, Sub-distribution Switch Rooms, 132 kV Substations and the Humberhead Sites would be connected to the 400 kV Substations with 33 kV to 132 kV interconnecting cables, fibre optic cables, and low voltage control cables. The proposed 400 kV Substation(s) and the National Grid Thornton Substation would be connected via 400 kV cables and associated fibre optic cable, and low voltage control cable.
	Indicative cable trench dimensions	Individual open cut trenches typically up to 1.2 m width. Multiple trenches typically 1.2 – 7 m width. This includes separation distances where multiple cables are running in parallel within the same trench or within multiple trenches. Typically, trench depth would be up to 2 m deep, subject to design and ground conditions.
	Horizontal Directional Drilling ('HDD')	25 m by 25 m launch / receptor pit working area.

Scheme Component	Parameter Type	Maximum Design Parameter / Design Commitment
National Grid Connection	Point of Connection	National Grid Thornton Substation (400kV).

4.4 Components of the Scheme

4.4.1 The Scheme comprises the following components and associated development:

- Solar Arrays:
  - Solar Panels; and
  - Solar Panel Mounting Structures (as either single-axis tracker and/ or fixed).
- Sub-distribution Switch Rooms;
- Conversion Units;
- Storage Containers;
- On-site Substations;
- BESS;
- Fencing, security and lighting;
- Cabling:
  - On-site Cables; and
  - Grid Connection Cables.
- Highways Improvement Areas;
- Site Accesses and Internal Access Tracks; and
- Landscape and Ecological Mitigation and Enhancement Areas.

4.4.2 Further details of each of the key Scheme components as listed above are set out below.

4.4.3 Appropriate setbacks and buffers will be included within the design to limit the environmental impacts caused by the Scheme during construction, operation and decommissioning. These setbacks and buffers will be developed based on consultation feedback, relevant statutory guidance, baseline assessments and professional judgement.

Solar Arrays

4.4.4 Solar Arrays are included as part of the Scheme located in the Humberhead Sites 1 to Site 4. The Solar Arrays are made up of connected PV Solar Panels which convert sunlight/daylight into electrical current. The Solar Panels are made up of a series of PV cells beneath a layer of toughened glass. Other PV technology is developing rapidly and may be available at the time of construction.

Solar Panel Mounting Structure

4.4.5 The Solar Panel Mounting Structure is a metal frame that holds the Solar Panels in place and secures them to the ground via metal posts driven into

ground, typically between 1.5 m to 4.0 m in depth (depth dependant on ground conditions).

4.4.6 Concrete feet or other non-ground penetrative mounting solutions will also be considered where necessary, for example to protect archaeological features, avoid existing utilities or address specific ground conditions.

4.4.7 There are two options for Solar Panel Mounting Structure being considered: Tracking Panels (Option A) and Fixed Panels (Option B). The use and distribution of these across the Sites will be subject to further consideration as the design of the Scheme progresses.

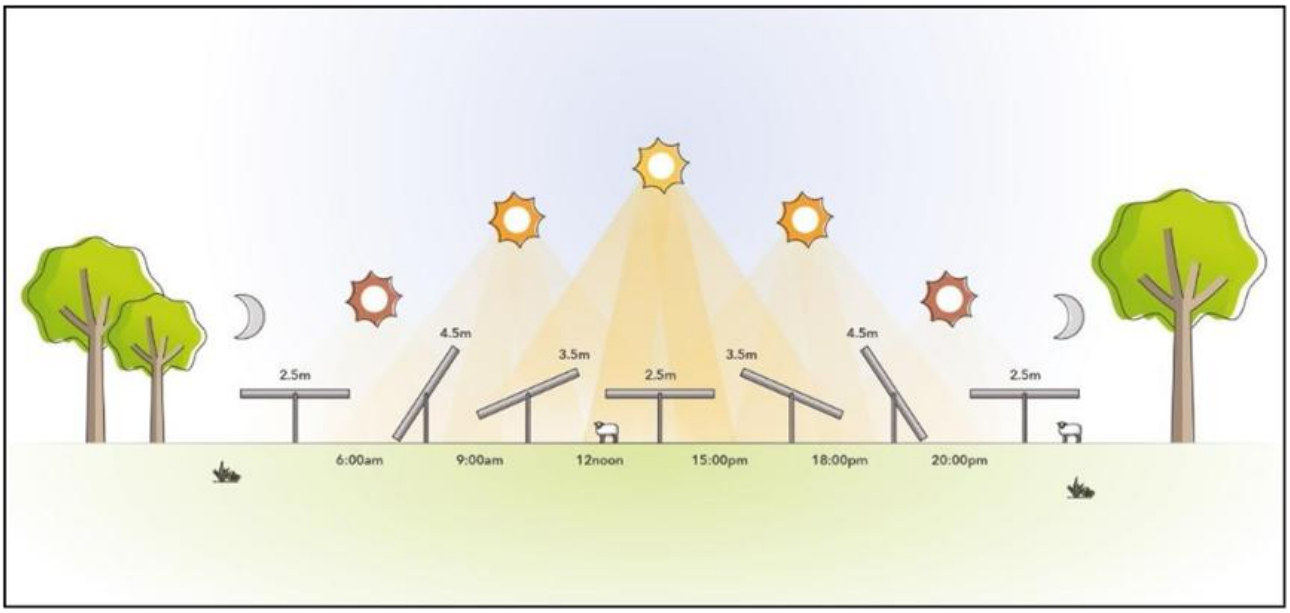
Tracking Panels (Option A)

4.4.8 A tracker system involves attaching the Solar Panels to a motorised table that can move in relation to the sun. This allows for optimal power generation throughout the day. The Solar Panels would be stored horizontally overnight. The Scheme would utilise a single-axis tracker system which tilts the Solar Panels around a horizontal north-south axis thus tracking the movement of the sun from east to west, as illustrated in **Plate 4-1**, **Plate 4-2** and **Plate 4-3**.

Plate 4-1 Typical Tracker Solar Panels in an Angled Orientation

Plate 4-2 Typical Tracker Solar Panels in a Near Flat Orientation

Plate 4-3 Illustration Tracker Solar Panels following the sun position



Fixed Panels (Option B)

4.4.9 Fixed south facing Solar Panels are the most common approach for ground mounted solar PV facilities in the UK to date and involve installing Solar Panels to fixed tables, arranged in rows facing south. An example of fixed south facing arrangement is presented in **Plate 4-4**.

Plate 4-4 Typical Fixed Panels (with a Conversion Unit)

Sub-distribution Switch Rooms

4.4.10 Sub-distribution Switch Rooms (refer to **Plate 4-5**) would be located throughout the Solar Arrays to collect the generated power and manage its delivery to the On-site Substations. The Sub-distribution Switch Rooms would be very similar in terms of both size and appearance to the Integrated Conversion Units (refer to paragraph 4.4.11).

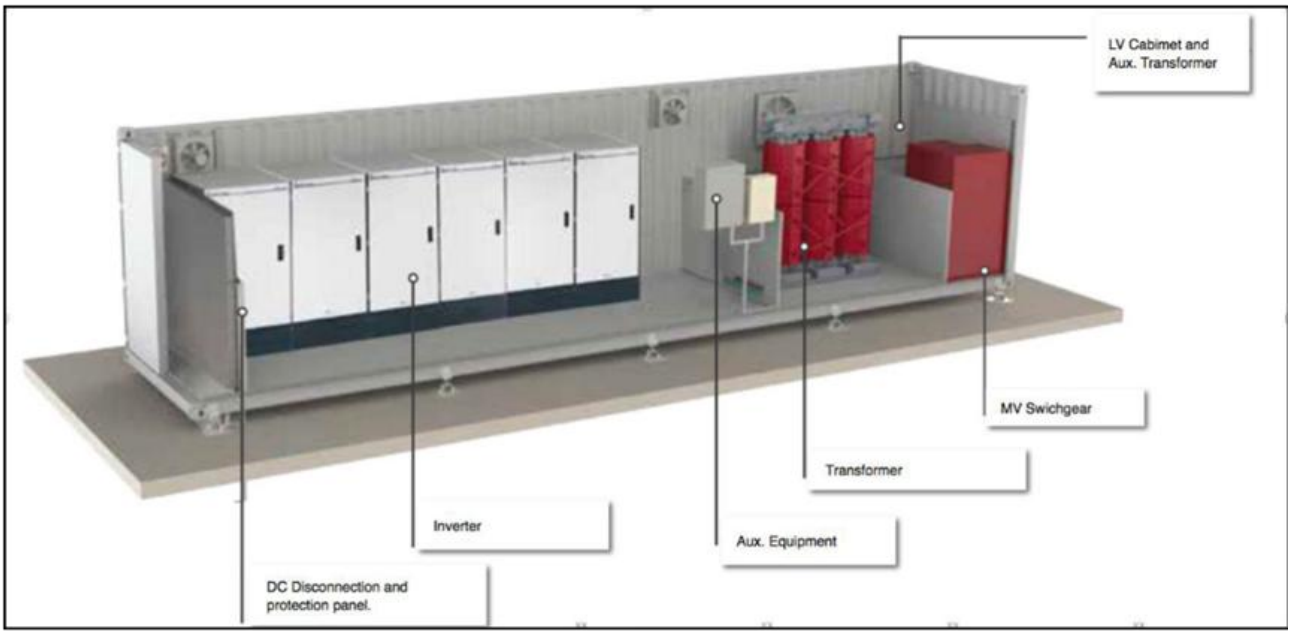
Plate 4-5 Sub-distribution Switch Room

Conversion Units

4.4.11 Conversion Units contain the inverters, transformers, switchgear and associated equipment to convert the Direct Current ('DC') electricity produced by the panels into Alternating Current ('AC') electricity required for export on to the National Grid. These would either be standalone equipment (Disaggregated Conversion Unit, refer **Plate 4-6**) or they would be housed together within a container (Integrated Conversion Unit, refer to Image **Plate 4-7**).

Plate 4-6 Typical Equipment Making Up a Disaggregated Conversion Unit

Plate 4-7 Typical Integrated Conversion Unit



Storage Containers

4.4.12 Storage Containers will be located throughout the Humberhead Sites. Storage Containers will house maintenance equipment and be similar in appearance to the Integrated Conversion Unit.

On-site Substations

400kV Substations

4.4.13 A 400 kV Substation(s) may be located on any of the following Humberhead Sites: 1-1, 1-2, 2-1, 3-1, 3-2, 4-1, 4-3 and/or 4-7 (subject to electrical engineering design development). The 400 kV Substation(s) will receive the electricity from the Solar Arrays and other on-site Substations. The 400 kV Substation(s) will comprise electrical infrastructure such as the transformers, switchgear and metering equipment required to facilitate the collection and export of electricity from the Scheme to the National Grid (refer to **Plate 4-8**). It is expected that 400 kV Substation(s) will include vehicle parking, ancillary buildings which will include office space and welfare facilities as well as operational monitoring and maintenance equipment.

Plate 4-8 Typical (large 400kV) power transformer

132kV Substations

4.4.14 It is expected that several 132 kV Substations (refer to **Plate 4-9)** will be located across the Humberhead Sites, which will receive the electricity generated by the Solar Arrays, step up the voltage and feed electricity to the 400 kV Substation(s). The 132 kV Substations will comprise electrical infrastructure such as the transformers and switchgear, vehicle parking, ancillary buildings comprising office space and welfare facilities, as well as operational monitoring and maintenance equipment.

Plate 4-9 Typical 132kV Substation compound

Battery Energy Storage System

4.4.15 The Scheme will include a BESS contained within the BESS Compound, likely to be located in either Humberhead Sites 1-1 or 1-2, (subject to electrical engineering design development).

4.4.16 The BESS is designed to provide peak generation and grid balancing services to the electricity grid. It will allow excess electricity generated from the Solar Panels to be stored in the batteries and exported to the grid when required. Excess energy from the grid can also be imported to the batteries. The BESS will therefore provide flexibility and enhance grid reliability. Refer to **Plate 4-10** for a typical BESS Compound arrangement.

Plate 4-10 Typical BESS Compound

4.4.17 The batteries would be housed within BESS Enclosures. These would be mounted on concrete foundations, although other types of foundations such as compacted gravel, metal pile, or ground screw pile may be used depending on ground conditions. The precise size and number of individual BESS Enclosures will depend upon the level of power capacity and duration of energy storage which will be refined through the design and consultation process. The BESS Enclosures will be constructed of a metal container, often finished in a grey or green paint, or similar.

4.4.18 The BESS Enclosures will require heating, ventilation and cooling systems to ensure the efficiency of the technology. These features are integrated into the units within which they are housed.

4.4.19 The BESS Enclosures will be connected to inverters, transformers and switchgear to control the charge of the batteries from the Solar Array electrical output or charge/discharge the batteries when drawing energy from or providing energy to the National Grid.

4.4.20 The BESS will be constructed in accordance with the appropriate fire safety standards and will include other components comprising water storage and associated fire suppression systems, Internal Access Tracks (including emergency access, if required) and areas of hardstanding compacted granular material.

4.4.21 The BESS Compound would be surrounded by 3 m high palisade fencing, with integrated gates for access.

Fencing and Security

4.4.22 Perimeter Fencing of the Solar Arrays would comprise deer wire mesh and wooden post fencing with a maximum height of 2.5 m, as illustrated in **Plate**

4-11. The location of the fencing will be identified as the design develops will be assessed within the Environmental Statement ('ES') and finalised as part of the detailed design of the Scheme post-consent.

Plate 4-11 Typical Deer Fencing

4.4.23 There will be palisade fencing around the On-site Substations and BESS Compound which would have a maximum height of 3.0 m.

4.4.24 Pole mounted internal facing CCTV systems will be used around the perimeter of the operational elements of the Sites. It is anticipated that these will be galvanised steel poles with a maximum height of 3.5 m, often utilising a green or grey painted finish, or similar.

Lighting

4.4.25 Lighting is not required within the Solar Arrays for the operational phase. Motion sensing security lighting will be provided within On-site Substations and within the BESS Compound to be used for maintenance and security purposes.

4.4.26 All lighting required during operation would be developed in accordance with a lighting strategy secured by the outline Operational Environmental Management Plan ('oOEMP') and submitted with the Development Consent Order ('DCO') application (refer to paragraph 4.6.7).

Cabling

4.4.27 Cabling within the Site (i.e. Humberhead Sites and CRC) will comprise On-site Cables and Grid Connection Cables. The CRC will be within the CRSC (refer to **Figure 1-1**) and final route and extent of the CRC will be refined through further environmental assessments, landowner negotiations and consultation and engagement input from other stakeholders, including host authorities.

On-site Cables

4.4.28 Low voltage cabling between Solar Panels, Conversion Units and Sub-distribution Switch Rooms will typically be located above ground level, fixed to the Solar Panel Mounting Structures, and then underground between Solar Panel Mounting Structures, Conversion Units and Sub-distribution Switch Rooms. High voltage cables (33kV and/or 132kV) are required between the Sub-distribution Switch Rooms, BESS and the On-site Substations.

4.4.29 The dimensions of trenching will vary subject to underground cabling and the associated number of ducts they contain and will be dependent on the method of installation and ground conditions. There may be a requirement for HDD within the Site, for example to cross beneath existing buried utilities.

4.4.30 Communication cables will be required throughout the Solar Arrays to allow for monitoring during operation, such as the collection of data on solar irradiance from the Solar Panels. The communication cables would typically be installed within the same trench and alongside the electrical cables.

Grid Connection Cables

4.4.31 Within the CRC between each of the Humberhead Sites, High Voltage cables (33 kV, 132 kV and or 400 kV) are required to connect the Sub-distribution Switch Rooms and 132 kV Substations, and on to the 400 kV Substation(s).

4.4.32 All electricity generated by the Scheme and/or stored by the BESS will be exported from or imported to the 400 kV Substation(s) to/from the National Grid Thornton Substation via 400 kV cables buried underground.

4.4.33 The voltage of the cables and the number of circuits will affect the width and number of the cable trenches required. Additionally, in some circumstances multiple adjacent trenches may be required. The width and spacing of the cable trenches will vary depending on environmental constraints, engineering requirements or if crossing third party apparatus (e.g. roads).

4.4.34 In addition to the trenches, land will be required within the CRC for access and soil and cable 'lay down'. Temporary Construction Compounds along the route will also be required. The typical working area for the cable route installation is anticipated to be 25 m to 35 m wide, but a wider area may be required in some locations such as utility or road and rail crossings and to

avoid environmental constraints. A Crossing Schedule will accompany the DCO application. Following installation of the cable, the construction working area would be reinstated to its existing use.

Distribution Network Operator Connections

4.4.35 It is envisaged that a local grid connection to the distribution network (operated by Northern Powergrid) will be made for the On-site Substations. These will allow the Scheme to connect to the local grid network to obtain short-term auxiliary power to the On-site Substations to maintain operation in the event of a connection failure to the National Grid.

4.4.36 Where connections to the local grid network are not practicable the On-site Substations will be equipped with a backup diesel generators should the BESS not have sufficient capacity to handle prolonged outages or the initial surge in demand during a restart during a connection failure. The diesel generators will also maintain communication and protection systems to ensure a safe restart when power is restored. The use of diesel generators has been assumed for the purposes of EIA Scoping.

Highways Improvement Areas

4.4.37 In order to facilitate the traffic movements associated with the construction phase of the Scheme, improvements or modifications may be required to sections of the highway network to accommodate construction traffic. The exact extent and nature of the Highway Improvement Areas will be confirmed at the ES stage, once the design has developed.

Site Access

4.4.38 Wherever practicable, existing field accesses will be utilised for access to the Humberhead Sites. The proposed points of access from the highway will be designed to accommodate an articulated Heavy Goods Vehicle ('HGV'). The Site Accesses will incorporate a security gate, which is set back from the highway to allow sufficient room for an articulated HGV to leave the highway before entering the Site. Vegetation management to the existing hedgerows may be required to provide adequate visibility splays.

4.4.39 The transformers utilised in the On-site Substations will be classified as an Abnormal Indivisible Load ('AIL'). An additional assessment will be undertaken by an AIL specialist to identify suitable routes and access points. The routing and access points used for the AIL deliveries will be determined through the design process and in consultation with the appropriate statutory consultees. Works to achieve visibility splays on the public highway may also be required. The ES will set out the predicted number of abnormal loads and expected routeing, and whether road upgrades/widening are required to be included within the Scheme and Order Limits.

Internal Access Tracks

4.4.40 It is anticipated that Internal Access Tracks will follow the alignment of the existing agricultural tracks, where practicable. The Internal Access Tracks servicing the Solar Arrays will be constructed of compacted granular material with excavation kept to a minimum. Internal Access Tracks servicing the On-site Substations will be constructed of asphalt to support AIL deliveries of transformers. Where drainage is required a ditch or a swale may be located downhill of the internal access track to control any potential for surface water run-off.

Landscape and Ecological Mitigation and Enhancement Areas

4.4.41 Areas within the Humberhead Sites that will not be developed with infrastructure will be used to provide appropriate mitigation as required to lessen the environmental impact of the Scheme, along with enhancement measures. The level and type of measures required will be subject to further environmental assessment and design evolution. Measures that are typical for large scale solar schemes and could be implemented throughout the Site include strengthening of existing vegetation, provision of mitigation planting and creation of permissive paths.

4.4.42 At this stage, it can be confirmed that Humberhead 3-4 and 3-5 are proposed solely for mitigation and/or enhancement (and the CRC does not extend to these sub-sites). However, there will be further areas for mitigation and enhancement proposed within the Humberhead Sites as the project progresses, the location and extent of which will be informed by ongoing surveys, assessments and consultation with technical consultees.

Development Capacity

4.4.43 Solar Panels generate electricity in the form of DC. The electricity generated by the Solar Panels is converted to AC via inverters prior to export to the electricity network. Accordingly, the generating capacity of the solar farm may be expressed either in terms of the combined capacity of installed Solar Panels (MW DC) or the installed inverter/export capacity (MW AC).

4.4.44 Paragraph 2.10.45 of NPS EN-3 (Ref 9) confirms that, for the purposes of determining the applicable thresholds under Section 15 of the Planning Act 2008 (PA 2008) (Ref 1), the capacity of a solar generating station should be measured by reference to the maximum combined AC capacity of the installed inverters. In England, a solar generating station with a capacity exceeding 100 MW (AC) constitutes a Nationally Significant Infrastructure Project.

4.5 Construction

Construction Programme

4.5.1 The construction phase is anticipated to take place over up to 24 months. The final programme will be dependent on the detailed layout design and potential environmental constraints. The timing of construction activities will be detailed in the ES.

Construction Activities

4.5.2 The construction phase is expected to comprise of activities set out below, for both the main sites and cable route.

4.5.3 Site preparation:

- Highway Improvement Areas works will be carried out to upgrade, modify or improve existing highways;
- Establishment of Site Accesses;
- Delivery of construction materials, plant and equipment;
- The establishment of Perimeter Fencing;
- The establishment of Temporary Construction Compound(s);
- The upgrade of existing tracks and construction of new Internal Access Tracks;
- The upgrade or construction of crossing points (bridges/culverts) over drainage ditches and below ground utility infrastructure (if needed and appropriate);
- Marking out location of Scheme component locations; and
- Advanced habitat creation and landscaping (if appropriate).

4.5.4 Site construction:

- Erection of Solar Panel Mounting Structures;
- Mounting of Solar Panels;
- Installation of On-site Cables;
- Installation of Conversion Units;
- Installation of Sub-distribution Switch Rooms;
- Construction of On-site Substations;
- Construction of the BESS;
- Construction of on-site electrical infrastructure to facilitate the export of generated electricity;
- Construction of Grid Connection Cables within the CRC;
- Construction of infrastructure within the National Grid Thornton Substation, where necessary;
- Site reinstatement (including topsoil reinstatement) and habitat creation; and

- Testing and commissioning.

Temporary Construction Compounds

4.5.5 Temporary Construction Compounds ('TCC') will be required for the Humberhead Sites and CRC. The number and location will be identified in the ES. The TCC will comprise:

- Portacabins for construction operatives with a typical maximum height of 3 m;
- Perimeter security fencing with a typical maximum height of 3 m;
- Parking area for construction and workers vehicles;
- Secure compound for storage;
- Temporary hardstanding;
- Wheel washing facilities;
- Temporary gated compound;
- Storage bins for recyclables and other waste; and
- Lighting.

Construction Traffic

4.5.6 There will be AIL vehicles, HGV and Light Goods Vehicle ('LGV') vehicle movements associated with deliveries and construction worker arrivals and departures. Typical construction vehicles will include excavators, ramming machines, cable layers, low loaders, crane and waste vehicles, trenchers, telehandlers, forklift trucks and tractors/trailers. HGV and LGV movements will be assessed in the ES, and an AIL Report will be submitted alongside the DCO application to address AIL movements, typically associated with transformer and cable drum deliveries.

Construction Hours of Work

4.5.7 Construction activities are likely to be carried out during core working hours of Monday to Friday 07:00-18:00 and between 08:00-13:30 on Saturdays. Some activities may be required outside of the core working hours (such as the delivery of abnormal loads, concrete pours for foundations, night-time working for cable construction works in public highways and HDD activities). Where possible, construction deliveries will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

Construction Lighting

4.5.8 Temporary site lighting during construction will be required to enable safe working during construction during hours of darkness and will be designed as far as reasonably practicable to minimise potential for light spillage outside

the Humberhead Sites and CRC, particularly towards houses, traffic and ecological habitats. Standard good practice measures would be employed to minimise light spill, including glare during construction.

4.5.9 All lighting required during construction would be developed in accordance with a lighting strategy secured by the outline Construction Environmental Management Plan ('oCEMP') and submitted with the DCO application (see below).

Construction Management

4.5.10 An oCEMP will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed CEMP implemented during the Scheme construction.

4.5.11 An outline Construction Traffic Management Plan ('oCTMP') will accompany the DCO application and describe construction logistics and construction worker travel, including information to guide the delivery of material, plant, equipment, and staff during the construction phase. This will provide a framework of mitigation measures to be carried forward to a detailed CTMP implemented during the Scheme construction.

4.5.12 These management plans will be secured via requirements of the DCO.

Site Reinstatement and Habitat Creation

4.5.13 Following construction, a programme of Site reinstatement (including topsoil reinstatement) and habitat creation (where not appropriate as part of the site preparation activities) would commence. An outline Landscape and Ecological Management Plan ('oLEMP') will be submitted as part of the DCO application and set out the principles for how the land would be managed throughout the operational and maintenance phase, following the completion of construction. The oLEMP will specify measures to mitigate significant effects of the Scheme and enhancement measures that support Biodiversity Net Gain ('BNG'). This will provide a framework of measures to be carried forward to a detailed LEMP implemented as part of the Scheme construction.

4.6 Operation and Maintenance

General Operational Maintenance

4.6.1 The operational phase of the Scheme is proposed to be 60 years. During the operational phase of the Scheme, on-site activities would include routine servicing, maintenance activities, and the replacement of equipment such as Solar Panels and BESS when required, as well as management of vegetation.

4.6.2 At this stage of the Scheme, it is anticipated that personnel will visit the Site from time to time to check the apparatus. No on-site staff will be required to operate the Scheme on a day-to-day basis. Movement within the Site will be by way of quad bike or small, farm utility vehicle. At times during operation, it will be required for additional staff to attend when necessary for ad hoc replacement of solar and BESS infrastructure. The ES will confirm the likely operational traffic flows.

Operational Replacement

4.6.3 The components of the Scheme are anticipated to have the following approximate lifespans:

- Solar Panels – 25 to 40 years; and
- Batteries – 15 to 20 years.

4.6.4 It is therefore estimated that the Solar Panels could require replacement once, and the batteries up to four times, during the operation of the Scheme. The effects of maintenance and replacement activities are anticipated to be lesser than the construction phase due to the Solar Panel Mounting Structures, On-site Cables, On-site Substation and other infrastructure already being in situ and not needing replacement. These activities would be controlled and managed through appropriate management plans and secured through the requirements of the DCO.

4.6.5 HGV movements will be required to replace on-site equipment. The ES will include further details of the maintenance and replacement activities, and appropriate controls will be developed as part of the EIA process.

Operational Management

4.6.6 The land underneath and around the Solar Panel Mounting Structures would be sown wildflower grassland (or equivalent planting scheme identified through the EIA process). The Applicant will explore how this vegetation is managed during the operational phase of the Scheme. For example, a combination of sheep grazing and hay/silage production may be used in order to manage vegetation. For the purposes of EIA Scoping it has been assumed that that vegetation will be managed with machinery.

4.6.7 An oOEMP will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed OEMP implemented during the Scheme operation. This will be secured via a requirement of the DCO.

4.6.8 As above, the management of the landscape and ecological features will be undertaken in accordance with the detailed LEMP.

4.7 Decommissioning and Reinstatement

4.7.1 Decommissioning is anticipated to take approximately 12 to 24 months.

4.7.2 During the decommissioning phase, all the solar infrastructure including Solar Panels, Solar Panel Mounting Structures, above ground cabling, Conversion Units, Sub-distribution Switch Rooms, fencing, BESS and On-site Substations would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled whenever possible. All waste will be disposed of in accordance with the legislation at the time of decommissioning.

4.7.3 The underground ducting and joint bays associated with the cables will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse environmental effects. It may be possible to remove the cable itself by extracting it at the joint bays from within the ducting, so that the cable can be recycled.

4.7.4 Following decommissioning, the land within the Scheme will be returned to its original use as far as practicable as part of the decommissioning of the Scheme.

4.7.5 Internal Access Tracks would be removed unless otherwise agreed with the relevant landowner at the time of decommissioning.

4.7.6 An outline Decommissioning Environmental Management Plan ('oDEMP') will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed DEMP implemented during the Scheme decommissioning. This will be secured via a requirement of the DCO.

4.8 Commitments Register

4.8.1 In line with guidance from the Planning Inspectorate, a Commitments Register has been prepared (**Appendix 1-A**). This sets out the measures which are likely to be required to ensure that good design objectives will be secured and implemented, and also to ensure that the likely significant effects arising from the Scheme are mitigated and monitored as far as possible.

4.8.2 The Commitments Register will be kept as a live document throughout the evolution of the Scheme, being updated as necessary throughout the DCO Application process. It can then be used during the post-DCO consent phase as a tool to demonstrate compliance with commitments.

5 Health

5.1 Introduction

5.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to human health. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to human health. Matters that are proposed to be scoped in and out of the assessment are identified.

5.1.2 The World Health Organisation ('WHO') Europe (Ref 30) defines health as *"…a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*. Consequently, public health encompasses general well-being, not just the absence of illness. Health is defined as incorporating both physical and mental health and is affected by a range of factors, termed the 'wider determinants of health', which span bio-physical, social, behavioural, economic and institutional factors.

5.1.3 Due to the multi-disciplinary nature of human health, the assessment of the Scheme's impacts on health will draw on technical assessments carried out by related EIA chapters, including: **Chapter 6: Climate Change**; **Chapter 7: Landscape and Visual**; **Chapter 9: Water Environment**; **Chapter 11: Transport and Access**; **Chapter 12: Noise and Vibration**; **Chapter 13: Socio-economics**; and **Chapter 14: Other Environmental Matters.**

5.2 Legislation, Planning Policy Context and Guidance

5.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance. Further details of which will be provided in the Environmental Statement ('ES').

Legislation

5.2.2 Relevant legislation includes:

- The Infrastructure Planning (EIA) Regulations 2017 (Ref 2) requires the consideration of the likely significant direct or indirect effects of projects on 'population and human health'. The purpose of assessing effects on human health would be to identify and characterise relevant health receptors (the population, including vulnerable groups), to consider the nature and scale of potential impacts arising from the Scheme, and to assess the significance of any likely effects.

National Planning Policy

5.2.3 Relevant national planning policy and guidance includes:

- Overarching National Policy Statement for Energy ('NPS') EN-1 (designated 2025) (Ref 8), where Section 4.4 sets out the assessment principles for health; and
- National Planning Policy Framework ('NPPF') (2024) (Ref 11) with specific reference to Section 8, 'Promoting healthy and safe communities' sets out the need for planning policies to promote healthy, inclusive and safe places.

Local Planning Policy

5.2.4 Relevant local planning policy and guidance includes:

- The East Riding Local Plan Update 2020-2039 (Ref 13), adopted in 2025, provides documents that together provide the long-term development plan for the East Riding district. Relevant to health is Policy C1 'Providing infrastructure and facilities'. Further policies relevant to health are Policy ENV1 'Integrating high quality design' and Policy ENV6 'Managing environmental hazards'; and
- The East Riding of Yorkshire's Health and Wellbeing Strategy (2023-2028) (Ref 31) sets out the strategic direction for improving health outcomes, preventing ill health, and reducing inequalities across the region. The Strategy is informed by the Joint Strategic Needs Assessment ('JSNA'). The East Riding JSNA (2024) (Ref 32) provides the evidence base for understanding local health and social care needs and assessing how effectively these needs are being met, helping partners identify priorities for improving health and reducing inequalities. The JSNA's purpose is to support collective decision-making and underpin the development and delivery of the Joint Health and Wellbeing Strategy.

Relevant Industry Guidance

5.2.5 Relevant industry guidance includes:

- The Institute of Environmental Management and Assessment ('IEMA' – now the Institute of Sustainability and Environmental Professionals ('ISEP')) guidance on Effective Scoping of Human Health in EIA (2022) (Ref 33) provides a structured framework to help EIA practitioners identify and prioritise the key health determinants that should be scoped into a human health assessment.
- IEMA guidance on Determining Significance for Human Health in EIA (2022) (Ref 34) presents a framework for EIA practitioners to identify significant effects of a Scheme on human health. It defines significance as informed expert judgement of the importance, desirability or acceptability of a change. The guidance highlights the need to consider the significance of human health effects in relation to vulnerable groups; and

- Highways England's (now National Highways) Design Manual for Roads and Bridges LA112 Population and Human Health Assessment (Ref 35) guidance. The guidance, whilst predating the IEMA framework, provides additional assessment approaches of relevance to the Scheme, such as criteria for assigning the level of sensitivity to change based on community sensitivity.

5.3 Consultation

5.3.1 To inform the assessment, a meeting will be set up with East Riding of Yorkshire ('ERYC') public health officers to obtain their inputs into the baseline analysis and the interim consideration of potential impacts, drawing upon their on-the-ground knowledge of local health issues and concerns.

5.3.2 No other specific consultation relevant to human health is proposed. Should comments be included within the Scoping Opinion that require further discussion, these would be discussed with relevant parties during the preparation of the ES.

5.4 Study Area

5.4.1 The Study Area for the human health assessment will vary by the type of impact being assessed:

- The human health profile baseline Study Area will comprise of all lower layer super output areas[2] ('LSOAs') in which the Site is located, and that fall within 500 m of the Scoping Site Boundary. The LSOAs include East Riding of Yorkshire 011G, 011I, 015A, 015B, 018A, 018B, 018C, 018D, 018E, and 026B. Middle layer super output areas[3] ('MSOAs') are used in instances of a lack of available data on LSOAs. MSOAs within the Study Area include East Riding of Yorkshire 011, 015, 018 and 026; and
- The Study Areas for assessing the health impacts of the Scheme will be influenced by the geographic extent of the relevant technical assessments, as listed at paragraph 5.1.3. The assessment will refer to the Study Areas identified by the relevant EIA chapters.

5.5 Baseline Conditions

5.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to human health.

[2] LSOAs are a statistical measure for small areas comprising between 400 and 1,200 households and have a usual resident population of between 1,000 and 3,000 persons.
[3] MSOAs are areas made up of groups of LSOAs, usually four or five. They comprise between 2,000 and 6,000 households and have a usual resident population between 5,000 and 15,000 persons.

5.5.2 A summary of the health profile of the population currently residing in proximity to the Scheme is set out in **Table 5-1** below, drawing on Public Health England and Census data (Ref 36; Ref 37). Data is presented for the Study Area, and is also presented for the local authority district of East Riding of Yorkshire, Yorkshire and the Humber region, and the nation (England) in order to provide geographical comparators for the local population.

Table 5-1 Human health profile

Example	Study Area (LSOAs/MSOAs)	East Riding of Yorkshire	Yorkshire and the Humber	England
Population (2021)	17,992	342,217	5,480,774	56,490,047
Population aged under 16 (%) (2021)	16.0	15.8	18.6	18.6
Population aged 65+ (%) (2021)	22.2	26.4	19.0	18.4
Unemployment (% working age population claiming out of work benefits) (2024/25)	1.6	2.5	4.4	4.1
Long-Term Unemployment-rate per 1,000 working age population (2024/25)	0.2	0.5	0.7	0.5
General Health – bad or very bad (%) (2021)	3.9	5.4	5.8	5.2
Long term illness or disability (%) (2021)	15.8	18.6	18.6	17.3
Emergency hospital admissions for all causes ('SAR') (2016/17 - 20/21)	80.8	82.2	N/A[4]	100.0
Deaths from respiratory diseases, all ages ('SMR') (2019 – 2023)	79.5	94.4	110.4	100.0

Source: Public Health England Local Health: Small Area Public Health Data 2025; ONS Census 2021.

[4] This dataset is not available at a regional level.

5.5.3 The human health profile shows that:

- As of the 2021 Census, the proportion of the population aged 16 and below in the Study Area is 16.0%, which is marginally higher than the proportion in East Riding of Yorkshire (15.8%), but lower than the regional and national proportion (both 18.6%);
- The proportion of the population aged 65 and over in the Study Area is 22.2%, which is below the local authority proportion (26.4%), but higher than the regional and national proportions (19.0% and 18.4% respectively);
- From 2024 to 2025, the long-term unemployment rate per 1,000 people in the Study Area (0.2) was lower than the rates across East Riding of Yorkshire (0.5), Yorkshire and the Humber (0.7), and England (0.5);
- The percentage of people self-reporting their health as 'bad' or 'very bad' is 3.9% in the Study Area, which is lower than the local authority (5.4%), regional (5.8%) and national (5.2%) proportions;
- The percentage of people with a long-term illness or disability in the Study Area is 15.8%, which is lower than the local authority (18.6%), regional (18.6%) and national (17.3%) proportions; and
- Public Health England ('PHE') data shows that the SAR for emergency hospital admissions of all causes in the Study Area is 80.8, lower than East Riding of Yorkshire (82.2) and England (100.0). Similarly, the Study Area has a lower SMR of deaths from respiratory diseases (79.5) when compared to all other geographies between the years of 2019 and 2023.

5.6 Potential Effects and Mitigation

5.6.1 This section sets out the potential effects of the Scheme on human health. Potential effects have been considered below in **Table 5-2** and **Table 5-3** with reference to the IEMA scoping guidance and the determinants of health identified within that guidance.

Construction and Decommissioning

5.6.2 Scheme activities that could give rise to effects during the construction and decommissioning stages, as set out in **Chapter 4: Scheme Description**, include:

- Site preparation works, including vegetation clearance, establishment of construction compounds, access tracks and temporary fencing;
- Civil engineering works, including piling or mounting of solar panel structures, trenching and installation of cabling, and construction of on-site substations and the Battery Energy Storage System ('BESS');

- Movement of construction vehicles (including Heavy Goods Vehicles ('HGVs') and Abnormal Indivisible Loads), workforce traffic and the delivery of materials and plant;
- Use of plant and machinery, and associated emissions (e.g. noise, vibration, dust and exhaust emissions);
- Temporary construction lighting and working hours; and
- Site reinstatement, removal of infrastructure and restoration of land during decommissioning.

5.6.3 These activities have the potential to affect health determinant such as air quality, noise and vibration, transport, and community amenity. **Table 5-2** sets out the potential effects arising from these pathways that could generate health impacts during the construction and decommissioning phases of the Scheme.

Table 5-2 Potential effects during the construction and decommissioning phases

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
Physical activity	Reduced opportunities for active travel or access to open space may contribute to lower levels of physical activity, which is associated with poorer physical health and poorer mental wellbeing.	There could be effects relating to transport as well as open space, leisure and play; however, physical activity will be covered under these health determinants (see below).	Scoped out
Risk taking behaviour	Risk-taking behaviours such as alcohol and substance use, unsafe travel behaviours or antisocial activities can influence physical injury rates and mental wellbeing.	The Scheme is unlikely to affect risk taking behaviour.	Scoped out
Diet and nutrition	Access to healthy, affordable food contributes to good diet and nutrition. Changes that affect access to shops, services, or food outlets may influence people's ability to maintain a balanced diet, which is linked to physical health.	The Scheme is unlikely to affect diet and nutrition.	Scoped out
Housing	Access to adequate, affordable housing and living conditions is fundamental to physical and mental health. Disruption may contribute to stress and anxiety and reduced wellbeing.	The Scheme is unlikely to affect housing provision / quality of housing during construction.	Scoped out
Relocation	Relocation can disrupt established social networks, access to services, employment, education and familiarity with place, all of which support physical and mental wellbeing. Forced or unplanned relocation may contribute to stress, anxiety, loss of community cohesion, and reduced sense of security or belonging.	The Scheme is unlikely to necessitate relocation.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
Open space, leisure and play	Open spaces and active travel opportunities promote physical, outdoor activity and therefore have multi-faceted wellbeing benefits. Reduced access to or loss of recreational areas and active travel resources may impact physical and mental health in numerous ways, including reduced social interaction.	The majority of the site is private land with no loss of public open space, leisure or play areas. The Yorkshire Wolds Way National Trail runs adjacent to the Humberhead Sites, forming part of a wider Public Rights of Way ('PRoW') network in the areas and there could be impacts on the health of users of these routes relating to recreation activity and active travel. The outline Construction Traffic Management Plan ('oCTMP') will include provisions for minimising impacts on the PRoW network and whilst it is likely there will be no significant effects, this will be assessed in the ES.	Scoped in
Transport modes, access and connections	Transport disruption may affect access to services, contributing to physical and mental health effects such as stress.	There is potential for the Scheme to affect road and route safety, and access to services. The oCTMP (which will be secured as a requirement of the Development Consent Order ('DCO')) will set out management measures for traffic routing, timing and access which will eliminate or reduce such impacts.	Scoped in
Community safety	Anxiety associated with potential hazards and safety risks amongst local people.	The Scheme is unlikely to affect community safety.	Scoped out
Community identity, culture, resilience and influence	Loss of social networks, belonging and stability, with potential adverse effects on social cohesion and mental health. Uncertainly and anxiety about potential adverse impacts of the Scheme.	There is potential for the Scheme to impact community identity and resilience during construction and decommissioning, including through uncertainty and anxiety about potential adverse effects of the Scheme and effects on social cohesion. Whilst impacts on accommodation and	Scoped in

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
		demand for local services associated with the construction workforce are assessed in **Chapter 13: Socio-economics**, this determinant considers the broader health dimension of those effects - including the potential for changes in the character and functioning of local settlements to affect the wellbeing and resilience of communities nearest to construction activity.	
Social participation, interaction and support	Opportunities for social interaction and access to support networks are linked to mental health, resilience and overall wellbeing. Reduced ability to engage in social activities or maintain social connections may contribute to loneliness, isolation, and poorer mental health outcomes.	The Scheme is unlikely to affect social participation, interaction and support.	Scoped out
Education and training	Education, skills and training are key determinants of physical and mental health. Potential for those seeking education, skills, and training opportunities to experience benefits and disbenefits from the Scheme.	There is potential for increased access to education and training opportunities, with associated health benefits however given sourcing of labour there would be no potential for a significant beneficial effect. An outline Skills, Supply Chain and Employment Plan ('oSSCEP') will be prepared as part of the DCO application to identify opportunities to maximise the creation of local jobs and training opportunities.	Scoped out
Employment and income	Employment and income are key determinants of physical and mental health. Economically active members of the population, including local business owners, employees and those looking for	There is potential for increased access to employment opportunities and subsequent income benefits, with associated health benefits however given sourcing of labour no significant	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
	work, have potential to experience benefits and disbenefits from the Scheme.	beneficial effects are likely. An oSSCEP will be prepared as part of the DCO application to identify opportunities to maximise the creation of local jobs and training opportunities.	
Climate change mitigation and adaptation	Potential long-term health impacts associated with climate change and changes in environmental exposures.	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**. Further assessment in the Health chapter would not be proportionate to likely significant effects.	Scoped out
Air quality	Potential direct and indirect effects on physical health including respiratory and cardiovascular impacts.	There is no Air Quality Management Area ('AQMA') within or immediately adjacent to the Site. Air quality effects during construction and decommissioning are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (Air Quality).**	Scoped out
Water quality or availability	Potential indirect physical health effects associated with exposure to contaminated water and ecological degradation affecting community wellbeing.	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**. Further assessment in the Health chapter is not proportionate to likely significant effects.	Scoped out
Land quality	Potential indirect physical health effects associated with contaminated soils (e.g. contact) and secondary pathways such as dust generation or impacts on food production.	The Scheme is unlikely to affect land quality.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
Noise and vibration	Potential direct and indirect effects on health including on sleep, annoyance, mental health and wellbeing, cognitive performance, and cardiovascular stress.	Potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.	Scoped in
Radiation	Exposure to radiation has the potential to cause adverse health effects depending on dose and duration, including potential risks to physical health. Public concern about radiation can also contribute to stress and anxiety.	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**. Further assessment in the Health chapter is not proportionate to likely significant effects.	Scoped out
Landscape and visual	Potential mental health impacts relating to loss of visual amenity, change in place identity and character.	There is potential for the Scheme to reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.	Scoped in
Health and social care services	Access to health and social care services is essential for maintaining good physical and mental health. Changes that affect service capacity, accessibility, or demand may impact the ability of people to manage existing health conditions or access support services, potentially resulting in poorer health outcomes.	There is potential for the Scheme to affect access to and demand for health and social care services through temporary increases in population from the workforce.	Scoped in
Built environment	The quality of the built environment influences physical and mental health through factors such as walkability, access to amenities, quality of housing, green infrastructure, and safety. Disrupted environments may reduce opportunities for active	The Scheme is unlikely to result in human health effects relating to the built environment.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme construction	Scoped in / Scoped out
	travel, increase exposure to hazards, and contribute to stress or reduced wellbeing.		
Wider societal infrastructure and resources	Access to community infrastructure, local services, and shared resources supports physical, mental and social wellbeing. Disruption or reduced access to these assets may affect community cohesion, access to support, and opportunities for healthy living.	No potential effects apart from those on social infrastructure which will be assessed through the consideration of other determinants as set out above.	Scoped out

Source: IEMA (2022) Guide to Effective Scoping of Human Health in EIA (Ref 34)

Operation and Maintenance

5.6.4 Ongoing Scheme activities that could cause effects during the operation and maintenance stages, as set out in **Chapter 4: Scheme Description**, include:

- The presence and operation of solar arrays, substations and the BESS;
- Occasional site visits for inspection and routine maintenance;
- Vegetation management (e.g. grazing or mechanical cutting); and
- Low levels of vehicle movements associated with maintenance.

5.6.5 Temporary or intermittent activities include:

- Periodic maintenance works requiring additional plant and staff;
- Replacement of solar panels (approximately once during the operational lifetime); and
- Replacement of BESS components, which may occur up to four times over the lifetime of the Scheme.

5.6.6 The potential effects on health determinants during the operation and maintenance phases, associated with both ongoing and intermittent activities, are set out in **Table 5-3**.

Table 5-3 Potential effects during the operational phase

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
Physical activity	Permanent reduced opportunities for active travel or access to open space may contribute to lower levels of physical activity, which is associated with poorer physical health and poorer mental wellbeing.	The Scheme is unlikely to result in permanent effects on physical activity. The majority of the Site is privately owned agricultural land with no permanent loss of public open space, leisure or recreational facilities, and all PRoW will be retained during operation.	Scoped out
Risk taking behaviour	Risk-taking behaviours such as alcohol and substance use, unsafe travel behaviours or antisocial activities can influence physical injury rates and mental wellbeing.	The Scheme is unlikely to affect risk taking behaviour.	Scoped out
Diet and nutrition	Access to healthy, affordable food contributes to good diet and nutrition. Changes that affect access to shops, services, or food outlets may influence people's ability to maintain a balanced diet, which is linked to physical health.	The Scheme is unlikely to affect diet and nutrition.	Scoped out
Housing	Access to adequate, affordable housing and living conditions is fundamental to physical and mental health. Disruption may contribute to stress and anxiety and reduced wellbeing.	The Scheme is unlikely to affect housing provision / quality of housing during construction.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
Relocation	Relocation can disrupt established social networks, access to services, employment, education and familiarity with place, all of which support physical and mental wellbeing. Forced or unplanned relocation may contribute to stress, anxiety, loss of community cohesion, and reduced sense of security or belonging.	The Scheme is unlikely to affect relocation.	Scoped out
Open space, leisure and play	Open spaces and active travel opportunities promote physical, outdoor activity and therefore have multi-faceted wellbeing benefits. Permanent reduced access to or loss of recreational areas and active travel resources may impact physical and mental health in numerous ways, including reduced social interaction.	The majority of the Site is privately owned agricultural land and the Scheme would not result in any permanent loss of public open space, leisure or recreational facilities. All PRoW will be retained during the operational phase.	Scoped out
Transport modes, access and connections	Transport disruption may affect access to services, contributing to physical and mental health effects such as stress.	During operation, vehicle movements are limited to occasional maintenance visits, and all PRoW will be retained. Any transport effects during the operational phase are fully assessed in **Chapter 11: Transport and Access**. Further assessment within this Health chapter would not be proportionate to likely significant effects.	Scoped out
Community safety	Increased anxiety about hazards and safety risks amongst local people.	The Scheme is unlikely to affect community safety.	Scoped out
Community identity, culture, resilience and influence	Loss of social networks, belonging and stability, with potential adverse effects for social cohesion.	The Scheme is unlikely to result in significant effects on community identity, resilience or social cohesion during operation. Operational staffing is	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
	Uncertainty and anxiety about potential adverse effects of the Scheme.	minimal and the potential for permanent disruption to settlements or demand for local services is negligible. The limited requirement for workers during operation would have no impact on the availability of local visitor accommodation, as set out in **Chapter 13: Socio-economics**.	
Social participation, interaction and support	Opportunities for social interaction and access to support networks are strongly linked to mental health, resilience and overall wellbeing. Permanent reduced ability to engage in social activities or maintain social connections may contribute to loneliness, isolation, and poorer mental health outcomes.	The Scheme is unlikely to affect social participation, interaction and support.	Scoped out
Education and training	Education, skills and training are key determinants of physical and mental health. Potential for those seeking education, skills, and training opportunities to experience benefits and disbenefits from the Scheme.	As operational employment requirements are limited to a small number of maintenance roles, education and training opportunities will be similarly limited. The potential for health effects through education and training pathways during operation is therefore not significant.	Scoped out
Employment and income	Employment and income are key determinants of physical and mental health. Economically active members of the population, including local business owners, employees and those looking for work, have potential to experience benefits and disbenefits from the Scheme.	As operational employment requirements are limited to a small number of maintenance roles the potential for health effects through employment and income pathways during operation is not significant.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
Climate change mitigation and adaptation	Potential long-term health impacts associated with permanent climate change and changes in environmental exposures.	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**. Further assessment in the Health chapter would not be proportionate.	Scoped out
Air quality	Potential direct and indirect effects on physical health including respiratory and cardiovascular impacts.	Air quality effects during operation are scoped out of this Health chapter as they are fully assessed in **Chapter 14: Other Environmental Matters (Air Quality)**. During operation, the Scheme does not generate significant dust or exhaust emissions - vehicle movements are limited to occasional maintenance visits, which are unlikely to exceed the baseline emissions associated with the agricultural activity the Scheme replaces. There is no AQMA within or immediately adjacent to the Site. Further assessment within this Health chapter would not be proportionate to likely significant effects.	Scoped out
Water quality or availability	Potential indirect physical health effects associated with exposure to contaminated water and ecological degradation affecting community wellbeing.	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**. Further assessment in the Health chapter would not be proportionate.	Scoped out
Land quality	Potential indirect physical health effects associated with contaminated soils (e.g. contact) and secondary pathways such as dust generation or impacts on food production.	The Scheme is unlikely to affect land quality.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
Noise and vibration	Potential direct and indirect effects on health including on sleep, annoyance, mental health and wellbeing, cognitive performance, and cardiovascular stress.	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.	Scoped in
Radiation	Exposure to radiation has the potential to cause adverse health effects depending on dose and duration, including potential risks to physical health. Public concern about radiation can also contribute to stress and anxiety.	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**. Further assessment in the Health chapter would not be proportionate.	Scoped out
Landscape and visual	Potential mental health impacts relating to loss of visual amenity, change in place identity and character.	There is potential for the Scheme to permanently reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.	Scoped in
Health and social care services	Access to health and social care services is essential for maintaining good physical and mental health. Changes that affect service capacity, accessibility, or demand may impact the ability of people to manage existing health conditions or access support services, potentially resulting in poorer health outcomes.	As the operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the capacity of or access to health and social care services.	Scoped out
Built environment	The quality of the built environment influences physical and mental health through factors such as walkability, access to amenities, quality of housing, green infrastructure, and safety. Poorly designed or disrupted environments may reduce opportunities for active travel, increase exposure	The Scheme is unlikely to result in human health effects relating to the built environment.	Scoped out

Health Determinant	Potential health impact	Potential effect during scheme operation	Scoped in / Scoped out
	to hazards, and contribute to stress or reduced wellbeing.		
Wider societal infrastructure and resources	Access to community infrastructure, local services, and shared resources supports physical, mental and social wellbeing. Disruption or reduced access to these assets may affect community cohesion, access to support, and opportunities for healthy living.	As the operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the access to wider societal infrastructure and resources.	Scoped out

Source: IEMA (2022) Guide to Effective Scoping of Human Health in EIA (Ref 34)

Mitigation

5.6.7 Embedded mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on health resources and receptors. The specific measures set out in the following chapters of the ES will be relevant to health effects: **Chapter 7: Landscape and Visual**, **Chapter 11: Transport and Access**, **Chapter 12: Noise and Vibration**, **Chapter 13: Socio-Economics**, and **Chapter 14: Other Environmental Matters (Air Quality)**.

5.6.8 Dust emissions, transport-related noise, and noise emissions relating to design and selection of plant, and visual intrusion would be managed through the implementation of an outline Construction Environmental Management Plan ('oCEMP'), outline Operation Environmental Management Plan ('oOEMP') and an outline Decommissioning Environmental Management Plan ('oDEMP'), detailed versions of which will be secured as a requirement of the DCO.

5.6.9 To manage the impacts of construction traffic on the highway network, a Construction Traffic Management Plan ('CTMP') will be in place, secured as a requirement of the DCO (in accordance with the oCTMP which will be submitted at DCO Application). It will set out management measures for traffic routing, timing and access to the Scheme. It is expected that any temporary diversions of PRoWs during the construction phase put in place will be monitored to ensure that they are suitable and well-maintained for use.

5.6.10 An Outline PRoW Management Plan ('oPRoWMP'), secured as a requirement of the DCO, will be produced, setting out measures for minimising impacts on the PRoW network during construction. All diversions would be sign-posted accordingly and advertised in advance. During operation, the PRoWs would again remain open. As mentioned above, there is also the opportunity within the design for the inclusion of permissive paths to improve access across the Site and wider area.

5.6.11 Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

5.7 Methodology

5.7.1 This section describes the methodology proposed for the assessment of effects on human health, including the criteria for the determination of the sensitivity of the receptor and the magnitude of change from baseline conditions.

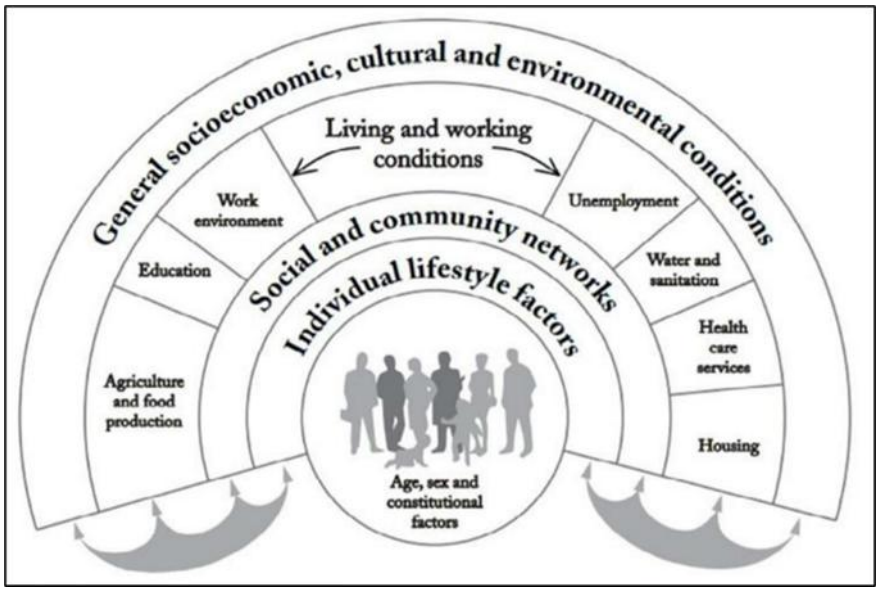
5.7.2 IEMA guidance "*Determining Significance for Human Health in Environmental Impact Assessment*" forms the principal basis of the approach adopted to assess impacts on human health in this chapter. The IEMA guidance "*Effective Scoping of Human Health in Environmental Impact Assessment*" has also been used to identify key determinants to be scoped into the assessment. Reference has also been made to the DMRB "*LA112 Population and Human Health Assessment*" guidance in relation to the structuring of these determinants and to confirm that the determinants identified in this document are addressed through those set out in the IEMA guidance. This ensures that the approach is robust, proportionate and consistent with established practice for solar developments of this scale.

5.7.3 This assessment adopts the WHO definition of health as a *"state of complete physical, mental and social wellbeing not merely the absence of disease or infirmity"*. Public health therefore encompasses general wellbeing not just the absence of illness.

5.7.4 The health and wellbeing of individuals is determined by a broad range of individual constitutional and behavioural factors (or "determinants"), as well as broader environmental, social, and economic factors. Some factors are direct and obvious, others are indirect.

5.7.5 Dahlgreen and Whitehead's model of the main determinants of health (Ref 38) illustrated the breadth of possible influences on health, as shown in **Plate 5-1**. At the centre of the illustration are factors that are largely fixed, including individual age, sex, constitutional and genetic factors. Outside of this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working conditions, which in turn are shaped by and related to the wider socioeconomic and cultural environment.

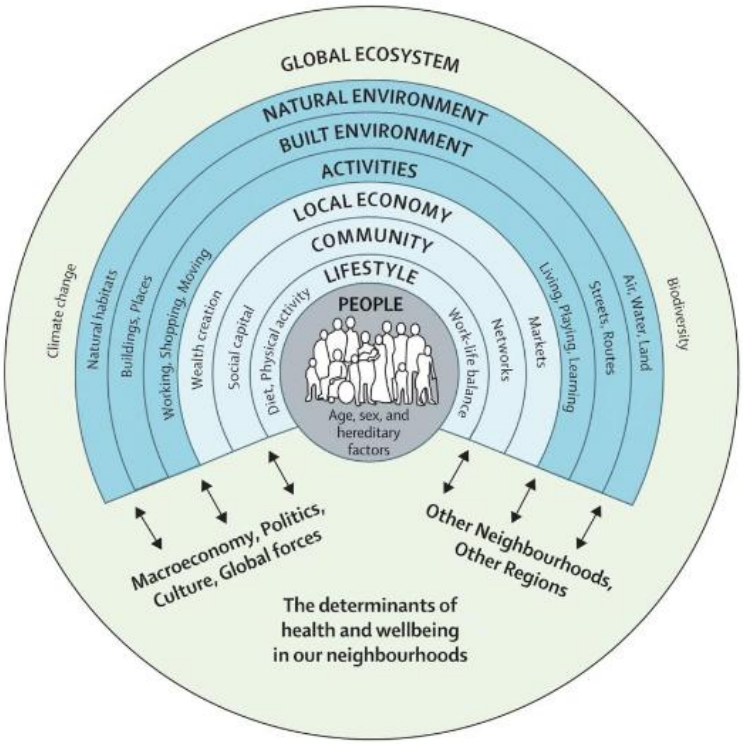
Plate 5-1 Determinants of Health



Source: Dahlgreen and Whitehead (2021), The Dahlgreen-Whitehead model of health determinants

5.7.6 This model has been developed to show elements of the built environment and communities that are the most significant determinants of health, as shown in **Plate 5-2** (Ref 39).

Plate 5-2 Determinants of health in neighbourhoods



Source: Barton and Grant (2006), A health map for the local human habitat

5.7.7 Within a population there can also be health inequalities, defined by the WHO as *"differences in health status or in the distribution of health*

determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes".

5.7.8 The sensitivity of population health is driven by a number of factors. The specific magnitude and sensitivity criteria applied for the human health assessment are set out in **Table 5-4,** and are based on an amalgamation of the IEMA guidance, "*Determining Significance for Human Health in Environmental Impact Assessment*", released in 2022 and the DMRB "*LA112 Population and Human Health Assessment*" guidance.

Table 5-4 Human health sensitivity criteria

Sensitivity level	Sensitivity criteria
High	Population or sub-populations who experience high levels of deprivation; are reliant on shared resources; within which there are wide inequalities between the most and the least healthy; whose outlook is predominantly anxiety or concern; who are prevented from undertaking daily activities; dependents; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Population or sub-populations who experience moderate levels of deprivation; have few alternatives to shared resources; experience widening inequalities between the most and the least healthy; whose outlook is predominantly uncertainty with some concern; who are highly limited from undertaking daily activities; who provide or require a lot of care; those with fair health status; and/or people with a limited capacity to adapt.
Low	Population or sub-populations who experience low levels of deprivation; have many alternatives to shared resources; experience narrowing inequalities between the most and least healthy; whose outlook is predominantly ambivalence with some concern; those who are slightly limited from undertaking daily activities; those who provide or require some care; those with fair health status; and/or people with a high capacity to adapt.
Very Low	Populations or sub-populations who experience very low levels of deprivation; rely on no shared resources; whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

Source: Adapted from: IEMA Guide to Determining Significance for Health (Table 7.1) (Ref 34) and DMRB LA112 Population and Human Health Assessment (Ref 35).

5.7.9 Magnitude of impact is driven by a number of factors and will be assessed in line with the criteria set out in **Table 5-5,** based on guidance set out in the IEMA guidance.

Table 5-5 Human health magnitude of impact criteria

Magnitude level	Magnitude criteria
High	An impact that is large in scale or a population has high exposure to; long-term in duration; continuous in frequency; its severity is predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; where the majority of a population is affected; that results in a permanent change; and/or has substantial service quality implications.
Medium	An impact that is moderate in scale or that a population has low exposure to; has a medium-term duration; is frequent; its severity is predominantly related to moderate changes in morbidity or major change in quality-of-life; that affects a large majority of the population; can be gradually reversed; and/or has small service quality implications.
Low	An impact that is small in scale or a population has very low exposure to; is short-term in duration; due to occasional events; its severity predominantly relates to a minor change in morbidity or moderate change in quality-of-life; that affects a small minority of the population; can be rapidly reversed; and/or has slight service quality implications.
Very Low	An impact that is negligible in scale or a population has negligible exposure to; is very short-term in duration; its severity predominantly relates to a minor change in quality-of-life; that affects very few people; that can be immediately reversed once the activity is completed; and/or that has no service quality implication.

Source: Adapted from: IEMA Guide to Determining Significance for Health (Table 7.2) (Ref 34).

5.7.10 Human health effects reflect the relationship between the sensitivity of the relevant population health, and the magnitude of the impact, as set out in **Table 5-6.**

Table 5-6 Impact assessment and significance

Magnitude of Impact	Sensitivity of Receptor			
	High	**Medium**	**Low**	**Very Low**
High	Major	Major/moderate	Moderate/minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor	Negligible
Very Low	Minor/negligible	Minor/negligible	Negligible	Negligible

Source: Adapted from: IEMA Generic indicative EIA significance matrix (Table 7.3) (Ref 34).

5.7.11 The assessment aims to be objective and quantifies effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects will be defined as follows:

- Beneficial classifications of significance indicate an advantageous effect on human health, which may be minor, moderate or major in effect;
- Adverse classifications of significance indicate a disadvantageous effect on human health, which may be minor, moderate or major in effect;
- Negligible classifications of significance indicate imperceptible effects on human health; and
- No effect classifications of significance indicate that there are no effects on human health.

5.7.12 In accordance with the methodology set out in the IEMA guidance, the following criteria will be applied:

- 'Moderate' or 'Major' effects are classed 'significant';
- 'Minor' effects are classed as 'not significant', although they may be a matter of local concern; and
- 'Negligible' effects are classed as 'not significant'.

Cumulative and In-Combination Effects

5.7.13 In line with IEMA guidance, the assessment will consider cumulative effects with other developments in the surrounding area, arising across the construction, operation and maintenance, and decommissioning phases. Cumulative effects of the Scheme relevant to health will be assessed within this chapter.

5.7.14 The approach to cumulative assessment will be informed by the Zone of Influence ('ZoI') for each health determinant, which varies depending on the pathway and receptor under consideration and draws on the ZoIs defined in the relevant technical chapters. The key developments to be considered within the cumulative assessment will be identified in the Cumulative and In-Combination Effects chapter of the ES.

5.7.15 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects chapter of the ES. Receptors identified within the health assessment will be assessed within the in-combination effects assessment.

5.8 Assumptions, Limitations and Uncertainties

5.8.1 The Human Health assessment is based on professional judgement and considers both the adverse and beneficial impacts that the Scheme will have

on surrounding receptors. It provides an indication of human health effects on people and the local community.

5.8.2 The analysis of health effects will be undertaken against a baseline of the population within the Study Area, as far as practicable within the limitations of the data and the scope of a high-level study. Different datasets are available at different geographical levels. They are also subject to time lags between collection and publication, and baseline conditions may be subject to change over time which may influence the findings of the analysis. All baseline information will reflect the most recent available data at the time of writing.

5.8.3 The Human Health assessment will draw on a number of other technical assessments carried out by related EIA chapters. Assumptions and limitations identified within those information sources will also apply to the Human Health assessment.

5.9 Summary of Elements Scoped In and Scoped Out

5.9.1 A summary of the elements scoped into and out of the assessment of Human Health is presented in **Table 10-3**.

Table 5-7 Elements scoped in and out of the assessment of Human Health

Element	Scoped in / Scoped out	Rationale
Construction		
Physical activity	Scoped out	Physical activity will be covered under the transport and, open space, leisure and play health determinants.
Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during construction.
Relocation	Scoped out	The Scheme is unlikely to necessitate relocation.
Open space, leisure and play	Scoped in	The majority of the site is private land with no loss of public open space, leisure or play areas, and any temporary effects to PRoWs will be assessed under the 'transport modes, access and connections' determinant. Whilst it is likely there will be no significant effects, this will be assessed in the ES.
Transport modes, access and connections	Scoped in	There is potential for the Scheme to affect road and route safety and access to services during the construction phase.
Community safety	Scoped out	The Scheme is unlikely to affect community safety.

Element	Scoped in / Scoped out	Rationale
Community identity, culture, resilience and influence	Scoped in	There is potential for the Scheme to impact community identity and resilience during construction, including through uncertainty and anxiety about potential adverse effects of the Scheme and effects on social cohesion.
Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
Education and training	Scoped out	There is potential for increased access to education and training opportunities, with associated health benefits however given sourcing of labour there would be no potential for a significant beneficial effect.
Employment and income	Scoped out	There is potential for increased access to employment opportunities and subsequent income benefits, with associated health benefits however given sourcing of labour no significant beneficial effects are likely.
Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
Air quality	Scoped out	There is no Air Quality Management Area (AQMA) within or immediately adjacent to the Site.
Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
Land quality	Scoped out	The Scheme is unlikely to affect land quality.
Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.
Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.
Landscape and visual	Scoped in	There is potential for the Scheme to reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.
Health and social care services	Scoped in	There is potential for the Scheme to affect access to and demand for health and social care services through temporary increases in population from the workforce.
Built environment	Scoped out	The Scheme is unlikely to result in human health effects relating to the built environment.

Element	Scoped in / Scoped out	Rationale
Wider societal infrastructure and resources	Scoped out	No potential effects apart from those on social infrastructure which will be assessed through the consideration of other determinants, as above.
Operation		
Physical activity	Scoped out	The Scheme is unlikely to result in permanent effects on physical activity. The majority of the Site is privately owned agricultural land with no permanent loss of public open space, leisure or recreational facilities, and all PRoW will be retained during operation.
Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during construction.
Relocation	Scoped out	The Scheme is unlikely to affect relocation.
Open space, leisure and play	Scoped out	The majority of the Site is privately owned agricultural land and the Scheme would not result in any permanent loss of public open space, leisure or recreational facilities. All PRoW will be retained during the operational phase.
Transport modes, access and connections	Scoped out	During operation, vehicle movements are limited to occasional maintenance visits, and all PRoW will be retained. Any transport effects during the operational phase are fully assessed in **Chapter 11: Transport and Access**.
Community safety	Scoped out	The Scheme is unlikely to affect community safety.
Community identity, culture, resilience and influence	Scoped out	The Scheme is unlikely to result in significant effects on community identity, resilience or social cohesion during operation. Operational staffing is minimal and the potential for permanent disruption to settlements or demand for local services is negligible.
Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
Education and training	Scoped out	As operational employment requirements are limited to a small number of maintenance roles, education and training will be similarly limited.
Employment and income	Scoped out	As operational employment requirements are limited to a small number of maintenance roles, the potential for health

Element	Scoped in / Scoped out	Rationale
		effects through employment and income pathways during operation is not significant.
Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
Air quality	Scoped out	There is no AQMA within or immediately adjacent to the Site.
Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
Land quality	Scoped out	The Scheme is unlikely to affect land quality.
Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.
Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.
Landscape and visual	Scoped in	There is potential for the Scheme to permanently reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.
Health and social care services	Scoped out	As operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the capacity of or access to health and social care services.
Built environment	Scoped out	The Scheme is unlikely to result in human health effects relating to the built environment.
Wider societal infrastructure and resources	Scoped out	As operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the access to wider societal infrastructure and resources.
Decommissioning		
Physical activity	Scoped out	Physical activity will be covered under the transport modes, access and connections and, open space, leisure and play health determinants.
Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during decommissioning.

Element	Scoped in / Scoped out	Rationale
Relocation	Scoped out	The Scheme is unlikely to necessitate relocation.
Open space, leisure and play	Scoped in	The majority of the site is private land with no loss of public open space, leisure or play areas, and any temporary effects to PRoWs will be assessed under the 'transport modes, access and connections' determinant. Whilst it is likely there will be no significant effects, this will be assessed in the ES.
Transport modes, access and connections	Scoped in	There is potential for the Scheme to affect road and route safety, and access to services.
Community safety	Scoped out	The Scheme is unlikely to affect community safety.
Community identity, culture, resilience and influence	Scoped in	There is potential for the Scheme to impact community identity and resilience during decommissioning, including through uncertainty and anxiety about potential adverse effects of the Scheme and effects on social cohesion.
Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
Education and training	Scoped out	There is potential for increased access to education and training opportunities, with associated health benefits however given sourcing of labour there would be no potential for a significant beneficial effect.
Employment and income	Scoped out	There is potential for increased access to employment opportunities and subsequent income benefits, with associated health benefits however given sourcing of labour no significant beneficial effects are likely.
Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
Air quality	Scoped out	There is no AQMA within or immediately adjacent to the Site.
Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
Land quality	Scoped out	The Scheme is unlikely to affect land quality.
Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.

Element	Scoped in / Scoped out	Rationale
Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.
Landscape and visual	Scoped in	There is potential for the Scheme to reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.
Health and social care services	Scoped in	There is potential for the Scheme to affect access to and demand for health and social care services through temporary increases in population from the workforce.
Built environment	Scoped out	The Scheme is unlikely to result in human health effects relating to the built environment.
Wider societal infrastructure and resources	Scoped out	No potential effects apart from those on social infrastructure which will be assessed through the consideration of other determinants, as above.

Source: IEMA (2022) Guide to Effective Scoping of Human Health in EIA (Ref 34)

6 Climate Change

6.1 Introduction

6.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to the approach to the assessment of climate impacts from and on the Scheme during the construction, operation (and maintenance), and decommissioning.

6.1.2 It includes a summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology, including the effects of greenhouse gas emissions from the Scheme on the climate, the impact of climate change on the Scheme, and the combined impact of the Scheme and climate change on receptors in the surrounding environment identified by other chapters.

6.1.3 The Scheme will predominantly have a beneficial effect on climate by offsetting emissions that would otherwise have been produced through higher carbon emitting electricity generation sources.

6.1.4 The purpose of the assessment will be to identify and characterise any relevant factors, to consider the nature and scale of potential impacts arising from and on the Scheme, and to assess the significance of any likely effects. Matters that are proposed to be scoped in and out of the assessment are identified.

6.1.5 There are no supporting technical figures or technical appendices to this chapter.

6.2 Legislation, Planning Policy Context and Guidance

6.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance. Further details of which will be provided in the Environmental Statement ('ES').

Legislation

6.2.2 Relevant legislation includes:

- The Planning Act 2008 (Ref 1);
- The Climate Change Act 2008 (as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019 (Ref 40);
- The Paris Agreement (2015) (Ref 41);
- United Nations Kyoto Protocol (Ref 42);
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017: Section 5(2) and Schedule 4, paragraphs 4 and 5 (Ref 2);

- UK's 2035 Nationally Determined Contribution ('NDC') emissions reduction target under the Paris Agreement (2025) (Ref 43);
- The Carbon Budget Order 2011 (Ref 44);
- The Carbon Budget Order 2016 (Ref 45);
- The Carbon Budget Order 2021 (Ref 46); and
- The Seventh Carbon Budget (Ref 47).

National Planning Policy

6.2.3 Relevant national planning policy includes:

- Overarching National Policy Statement for Energy ('NPS') EN-1 (2025) (Ref 8). Reference will be made to Section 4.10 with respect to climate change adaptation and resilience and Section 5.3 with respect to greenhouse gas emissions;
- NPS for Renewable Energy Infrastructure EN-3 (2025) (Ref 9). Reference will be made to paragraph 2.4.11 in relation to solar development and its resilience to increased risk of flooding and higher temperatures;
- NPS for Electricity Networks Infrastructure EN-5 (2025) (Ref 10);
- National Planning Policy Framework ('NPPF') (2024) (Ref 11); and
- Net Zero Strategy: Build Back Greener (2020) (Ref 48).

Local Planning Policy

6.2.4 Relevant local planning policy includes:

- East Riding of Yorkshire Local Plan Update 2020 – 2039 (Adopted 2025) with reference to Policy EN1: Integrating high quality design having regard to resilience to climate change (2025) (Ref 13); and
- East Riding Climate Change Strategy 2022-2030 (Ref 49).

Guidance

6.2.5 Relevant industry guidance includes:

- UK Climate Change Risk Assessment (2022) (Ref 50);
- Energy White Paper: Powering our Net Zero Future (2020) (Ref 51);
- UK Infrastructure: A 10-year Strategy (2025) (Ref 52);
- Powering Up Britain: Net Zero Growth Plan (2023) (Ref 53);
- Carbon Budget and Growth Delivery Plan (Ref 54);
- Clean Power 2030 Action Plan (Ref 55); and
- Planning Practice Guidance – Climate Change (Ref 56).

6.2.6 Further guidance is available below.

6.3 Consultation

6.3.1 To date there has been no formal consultation on the scope of the Climate Change assessment. Consultation, as part of the EIA process, will be undertaken following submission of this Scoping Report with any statutory parties that have interests with the Scheme regarding climate change.

6.4 Study Area

Lifecycle Greenhouse Gas ('GHG')

6.4.1 The Lifecycle GHG considers:

- All direct GHG emissions arising from activities undertaken within the Scoping Site Boundary during the construction, operation and maintenance, and decommissioning of the Scheme; and
- Indirect emissions usually arising outside the Scoping Site Boundary, such as emissions embedded within the construction materials, the transportation of materials, waste, and construction workers. The Study Area also considers activities that may be avoided or displaced as a result of the Scheme such as other grid electricity production activities.

Climate Change Risk Assessment ('CCRA')

6.4.2 A standalone CCRA is proposed to be scoped out of the EIA.

6.4.3 The Scheme has been designed to be inherently resilient to projected future climatic conditions through compliance with relevant design standards and allowances for climate change. Measures incorporated within the Scheme design include wind-loading design parameters, foundation design, component specification, monitoring systems and operational controls.

6.4.4 Potential climate change effects, where relevant to environmental receptors (e.g. flooding), will be appropriately addressed within the relevant specialist technical chapters of the ES, including consideration of future climate change allowances. On this basis, it is considered that a separate, standalone CCRA would not provide additional value or materially inform the EIA.

In-combination Climate Impact ('ICCI') Assessment

6.4.5 A standalone ICCI Assessment is proposed to be scoped out of the EIA.

6.4.6 The assessment of environmental effects within topic chapters will already take account of future climate change where relevant (for example, the consideration of increased flood risk within **Chapter 9: Water Environment**). As such, potential interactions between climate change and Scheme effects will be adequately captured without the need for a separate ICCI.

6.4.7 No significant in-combination effects are anticipated to arise solely as a result of climate change acting in combination with the Scheme.

6.5 Baseline Conditions

Baseline Surveys/ Information Gathering

6.5.1 The sources of information used to inform the baseline and assessment methodology for climate change include:

- UK Climate Projections ('UKCP') (2018), in accordance with NPS-EN1 (2025) (Ref 57);
- Climate Central Coastal Risk Screening Tool (Ref 58);
- The GHG Protocol (2001) (Ref 59);
- Department for Energy Security and Net Zero ('DESNZ') (2025) Conversion Factors Database (Ref 60);
- Inventory of Carbon and Energy Database v4.1 (2025) (Ref 61);
- Royal Institute of Chartered Surveyors ('RICS') Whole Life Carbon Assessment for the Built Environment 2nd Edition (Ref 62); and
- ThinkHazard! Tool (Ref 63).

Lifecycle GHG Assessment

6.5.2 The receptor for this Scheme is the global climate. The baseline condition for the lifecycle GHG assessment is a 'business as usual' scenario where the Scheme does not go ahead. The current land use within the site and the local area consists predominately of agricultural fields mainly under arable production. The current land use has relatively low levels of land use GHG emissions in the context of the overall emissions in the wider area as it is largely arable land. Baseline agricultural GHG emissions are dependent on types of soil (e.g peat) and vegetation present, fuel use for the operation of vehicles and machinery, and other inputs such as fertiliser and pesticide use. Agricultural emissions displaced from the Scheme are not considered, as it is assumed that these agricultural activities would continue in a new location hence no reduction. This represents a reasonable worst-case assumption for EIA, noting that in practice landowner(s) may instead continue, adapt, diversify or intensify agricultural production within their existing landholdings, which could reduce or avoid the need for equivalent agricultural activity to be displaced.

6.5.3 The future baseline comprises existing soil organic carbon and vegetation carbon stocks (i.e. annual terrestrial carbon sequestration) carbon stock and sources of GHG emissions resulting from the existing activities within the Scoping Study Area, as well as the existing emissions from the generation of UK grid electricity that would not be displaced if the Scheme does not go ahead.

Climate Change Risk Assessment

6.5.4 The existing baseline condition is the historic and current climate as defined in terms of temperature, rainfall and other climatic factors. Existing baseline data has been gathered for the historic climatic factors from the area west of Market Weighton, where the Scheme lies. Current baseline data from the best available 30-year period for historic climate data is displayed below in **Table 6-1**.

6.5.5 Receptors for climate change risk are receptors within the surrounding environment that will be impacted by the Scheme.

Table 6-1 Historical climate data (1981-2010) from the UK Met Climate Portal for a 12x12km grid west of Market Weighton

Climate Variable	Baseline (1981-2010)
Temperature	
Mean annual maximum daily temperature (°C)	13.6
Mean summer maximum daily temperature (°C)	20.3
Mean winter minimum daily temperature (°C)	1.3
Number of days of air frost per annum	52
Highest temperature for baseline period (°C)	34.1
Lowest temperature for baseline period (°C)	-12.9
Rainfall	
Mean annual rainfall (mm)	598
Mean summer rainfall (mm)	53.6
Mean winter rainfall (mm)	48.7
Wettest month on average (mm)	October
Driest month on average (mm)	May
Other	
Mean monthly wind speed at 10m (knots)	4.4

6.5.6 The future climatic baseline for the Scheme will be determined through the UK Climate Impacts Programme UK Climate Projections 2018 ('UKCP18'). The quantitative projections that highlight the following examples of changes to the climate relative to the 1981 – 2010 baseline will be included in the ES, under the Representative Concentration Pathway ('RCP') 8.5 scenario:

- Mean temperatures are expected to increase in both summer and winter;
- Mean daily maximum and minimum temperatures to increase across the UK in both summer and winter;
- Winter precipitation is expected to increase, and summer precipitation will decrease; and
- Increased frequency of extreme weather events.

Past Extreme Weather Events

6.5.7 In addition to historical climate data, information has been gathered on extreme weather events that have affected the area proximal to the Scheme. This information helps to reflect current climate conditions in the area and provides context for how future risks may be exacerbated by climate change. The following is a non-exhaustive list of relevant recent extreme events:

- The 'Beast from the East' hit East Yorkshire in February and March 2018, causing a temperature drop to -12°C and ~50 cm snowfall on elevated ground. This affected transport and workplaces across the area and was exacerbated by Storm Emma (Ref 64);
- Flash flooding occurred in Market Weighton in July 2014, affecting businesses and people's activity within the vicinity (Ref 65);
- In July 2022, the Environment Agency declared the counties of Yorkshire to be in a state of drought affecting soil stability and water reserves. This followed a period of very low rainfall and increased thunderstorms (Ref 66);
- The River Derwent had a record high flow in November 2019, following a period of intense rainfall (Ref 67);
- The Humber Region experienced 45 miles per hour ('mph') winds with subsequent disruption to travel from Storm Pia in December 2023 (Ref 68); and
- Hull and the surrounding area experienced 18 inches of snow and 70 mph winds in February 2026, causing power outages, and damages to electrical infrastructure such as low-hanging wires (Ref 69).

In-combination Climate Impact Assessment

6.5.8 The receptors for in-combination climate change impact are expected to be receptors within the surrounding environment that will be impacted by the Scheme in combination with future climatic conditions. Baseline conditions for the in-combination climate change impact assessment are determined using the climate change projections data.

6.5.9 The historic baseline and future climate baseline data will be the same as the CCRA as set out above.

6.6 Potential Effects and Mitigation

6.6.1 This section sets out the potential effects of the Scheme on climate change.

6.6.2 Climate change mitigation is addressed through the Lifecycle GHG Assessment. Climate change adaptation and resilience are addressed through Scheme design and topic-specific assessments where relevant. On this basis, and to avoid duplication, separate standalone assessments of

Climate Change Risk and In-combination Climate Impacts are proposed to be scoped out of the EIA.

6.6.3 Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

Lifecycle GHG Assessment

6.6.4 **Table 6-2** below provides the lifecycle stages, related activities and primary emission sources from the Scheme that will be considered in the GHG assessment, in line with the PAS 2080:2023 – carbon management in buildings and infrastructure (Ref 70).

Table 6-2 Potential sources of GHG emissions

Lifecycle stage	Activity	Primary emission sources
Product Stage	Raw material extraction and manufacturing of products required to build the equipment for the Scheme. Due to the complexity of the equipment, this stage is expected to contribute to a large proportion of the overall GHG emissions.	Embodied GHG emissions from energy use in extraction of materials and manufacture of components and equipment.
	Transportation of materials for manufacturing.	Emissions of GHG from transportation of products and materials.
Construction process stage	On-site construction activity including emissions from construction compounds.	Consumption of energy (electricity; other fuels) from plant, vehicles, and generators on site.
	Transportation of construction materials (where these are not included in product-stage).	Fuel consumption from transportation of materials to the Site, where these are not included in product-stage embodied emissions. Embodied GHG emissions associated with the manufacture and transportation of replacement components.
	Travel of construction workers.	GHG emissions from transportation of workers.
	Disposal of waste materials generated by the construction process.	GHG emissions from transportation and disposal of waste.
	Land use change.	GHG emissions from net loss of carbon sink (e.g peat excavation/degradation).
	Water use.	Provision of clean water, and treatment of wastewater.
Operation and maintenance stage	Operation and maintenance and replacement of the Scheme.	GHG emissions from energy consumption. Leakage of potent GHGs, such as SF_6, during operation, although it is expected that the Scheme will avoid use of SF_6 reliant assets.

Lifecycle stage	Activity	Primary emission sources
		GHG emissions from material use and waste generation resulting from ongoing site maintenance. Emissions from routine maintenance (including emissions from the transportation of workers). Replacement of panels and other components over the operational lifetime of the Scheme.
Decommissioning stage	On-site decommissioning activity.	Consumption of energy (electricity and other fuels) from plant, vehicles, and generators on the Site.
	Transportation and disposal of waste materials.	Emissions from the disposal and transportation of waste.
	Worker travel.	GHG emissions from transportation of workers to the Site.

6.6.5 Where land use is changed from arable to permanent grassland by the nature of the Scheme, this could provide additional mitigation through carbon sequestration due to reduced soil disturbance and vegetation cover. In addition, the establishment of new trees and hedgerows as part of the Scheme and managed throughout its lifetime through the Outline Landscape and Ecological Management Plan ('oLEMP') would contribute to carbon sequestration through biomass growth. A detailed LEMP will be secured as a requirement of the DCO.

6.6.6 An Outline Construction Environmental Management Plan ('oCEMP'), Outline Operational Environmental Management Plan ('oOEMP'), and an Outline Decommissioning Environmental Management Plan ('oDEMP') will be submitted with the Development Consent Order ('DCO') application which set out the mitigation and monitoring measures for the Scheme including GHG reductions and management of climate risk, such as utilising low carbon fuels during construction, resource efficiency including reuse where possible, and program optimisation. Detailed versions of the management plans will be secured as a requirement of the DCO.

6.6.7 Prior to the commencement of the Scheme, detailed management plans will be prepared in accordance with the outline plans set out above and implemented throughout the relevant phases of the Scheme.

6.6.8 If required, further measures to mitigate GHG emission during construction, operation and maintenance, and decommissioning of the Scheme will be presented in the ES.

Climate Change Risk Assessment

6.6.9 Climate parameters relevant to the CCRA are detailed in **Table 6-3** below.

Table 6-3 Climate Parameters for the CCRA of the Scheme

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
Temperature change	Out	The Scheme is not considered vulnerable to projected increases in temperature. Solar photovoltaic ('PV') technology is designed to operate across a wide temperature range, and increased solar irradiance does not inherently reduce Scheme performance. No likely significant adverse effects are anticipated.
Sea level	Out	Flood risk, including climate change allowances, will be assessed within **Chapter 9: Water Environment** in accordance with planning policy and guidance. A separate climate risk assessment would duplicate this assessment.
Precipitation change (frequency	Out	Potential effects relating to increased rainfall, extreme events or drought will be considered within the Flood Risk

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
and magnitude of precipitation events including hail and snow, and droughts)		Assessment and drainage design, which will incorporate climate change allowances exceeding projected change.
Wind	Out	The Scheme will be designed to withstand extreme wind conditions through embedded engineering measures. The module mounting system will be designed using an historic 50-year return period wind load, with uncertainty addressed through an additional safety factor of 1.5 above standard Eurocodes. The preferred foundation solution is piled foundations installed to a sufficient depth to resist wind loads, with concrete foundations used where ground disturbance is constrained. In addition, the Scheme will be continuously monitored via a Supervisory Control and Data Acquisition ('SCADA') system, enabling prompt identification and rectification of faults. These measures are inherent to the design, and no significant residual climate risk associated with wind is anticipated.

6.6.10 Mitigation measures to improve the resilience / adaptation of the Scheme to future climate conditions will be defined within the ES.

In-combination Climate Impact Assessment

6.6.11 The ICCI identifies how the resilience of various receptors in the surrounding environment is affected by a combination of future climate conditions and the Scheme. The climate parameters relevant to the Scheme are detailed in **Table 6-4** below together with the rationale for scoping.

Table 6-4 Climate parameters for the in-combination climate change impact

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
Temperature change	Out	Topic-specific assessments will consider relevant baseline and future conditions as required. No evidence suggests climate change would materially increase the significance of any Scheme effects.
Sea level rise	Out	Flood risk effects resulting from climate change will be assessed within **Chapter 9: Water Environment**. An additional in-combination climate assessment would duplicate this consideration.
Precipitation change (frequency, type, and magnitude of	Out	Potential changes in precipitation will be addressed through drainage and flood risk design with climate

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
precipitation events and droughts)		change allowances. No additional in-combination effects are anticipated.
Wind	Out	Wind effects and resilience are addressed through Scheme design and do not give rise to in-combination effects on environmental receptors.

6.7 Methodology

6.7.1 This section describes the proposed methodology for the assessment of effects on climate change, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions. This includes the GHG Impact Assessment, CCRA and ICCI Assessment.

Guidance

6.7.2 The assessment methodology is informed by the following guidance:

- Institute of Sustainability & Environmental Professionals (ISEP) Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance with Supplementary Guidance (Edition 2.1, 2026) (Ref 71);
- The GHG Protocol (Ref 59);
- The British Standards Institution (BSI) Publicly Available Standard (PAS) 2080: 2023 Carbon Management in Buildings and Infrastructure (2023);
- Scottish Government Windfarm Carbon Calculation Tool (Ref 72);
- International Union for Conservation of Nature (IUCN) Peatland Code Carbon Calculator (Ref 73);
- 2010/335/: Commission Decision of 10 June 2010 on guidelines for the calculation of land carbon stocks for the purpose of Annex V to Directive 2009/28/EC (hereafter, 2010/335/EU Commission Decision guidance) (Ref 74);
- Department for Energy Security and Net Zero Standards (DESNZ) Emissions Factors (2025) (Ref 60);
- Inventory of Carbon and Energy (ICE) Database Version 4.1 (2025) (Ref 61).

Assessment Approach

Lifecycle GHG Assessment

6.7.3 The receptor for the GHG impact assessment is the global climate. The GHG assessment will follow a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation and maintenance,

and decommissioning of the Scheme and to identify GHG 'hot spots' (i.e., emissions sources likely to generate the largest amount of GHG emissions). This will enable the identification of priority areas for mitigation in line with the principles set out in Institute of Sustainability and Environmental Professions ('ISEP') guidance.

6.7.4 In line with the GHG Protocol guidelines, the GHG assessment will be reported as tonnes of carbon dioxide equivalent ('tCO_2e') and will consider the seven Kyoto Protocol gases:

- Carbon dioxide ('CO_2');
- Methane ('CH_4');
- Nitrous oxide ('N_2O');
- Sulphur hexafluoride ('SF_6');
- Hydrofluorocarbons ('HFCs');
- Perfluorocarbons ('PFCs'); and
- Nitrogen trifluoride ('NF_3').

6.7.5 GHG emissions are expected to arise from the construction activities, embodied carbon in materials, baseline emissions, and operational and decommissioning emissions of the Scheme. These will be quantified using a calculation-based methodology as per the following equation, and aligned with the GHG Protocol:

Activity data x GHG emissions factor = GHG emissions

6.7.6 The resulting carbon footprint will be compared to the existing baseline conditions to identify the impact of the Proposed Development.

6.7.7 **Table 14-4** of **Chapter 14: Other Environmental Matters (Soils and Agriculture)** identifies the presence of ~38.4 hectares of organic peat and peaty soils across the Site. Methodologies outlined within the Scottish Government Windfarm Carbon Calculation Tool and the IUCN Peatland Code Calculator will be considered as options to estimate the potential carbon impact of peat disturbance/loss within the Site. In addition, the methodology outlined within the 2010/335/EU Commission Decision guidance will be considered to assess the non-peat carbon impacts of land use change within the Site.

6.7.8 DESNZ 2025 emissions factors (Ref 76) and embodied carbon data from the University of Bath Inventory of Carbon and Energy ('ICE') Version 4.1 (Ref 77) are among those that will be used as the primary data sources for calculating GHG emissions. In addition, it is likely that for complex equipment such as Solar Panels and batteries, specific Environmental Product Declarations ('EPDs') will be sourced for accuracy.

6.7.9 The magnitude of GHG emissions will be put into context by comparing with the carbon budget period in which they arise. The UK carbon budgets are

currently available to 2042 (Seventh Carbon Budget). Where further carbon budgets are not available (i.e., 8th and 9th Carbon Budget periods), these will be projected based on data published by the Climate Change Committee ('CCC'). Totals for these periods have not been approved or ratified and are not legally binding, but indicative figures can provide valuable context at this stage.

6.7.10 The sensitivity of the receptor (global climate) to increases in GHG emissions is defined as 'high'. This is because any additional GHG impacts as a result of the Scheme could compromise the UK's ability to reduce its GHG emissions and, therefore, meet its future 5-year carbon budgets. Also, the extreme importance of limiting global warming to below 1.5°C this century is widely accepted by the International Paris Agreement and the climate science community.

Climate Change Assessment Approach

6.7.11 The Climate Change assessment for the Scheme focuses on the identification and assessment of greenhouse gas emissions across the lifecycle of the development.

6.7.12 Climate change adaptation and resilience have been incorporated into the Scheme design through compliance with relevant standards and allowances for future climatic conditions. Where climate change is relevant to environmental effects (for example flood risk), this is addressed within the appropriate topic-specific technical chapters.

6.7.13 On this basis, a standalone CCRA and ICCI Assessment are not proposed, as these would duplicate assessments undertaken elsewhere and would not materially inform the EIA.

Determining Significance of Effect

Lifecycle GHG Assessment

6.7.14 For the purposes of this assessment, it has been considered that any increases in GHG emissions compared to the baseline has the potential to have an impact on climate change, due to the high sensitivity of the receptor (global climate) to increases in GHG emissions. This is in line with the ISEP guidance, which states that the combined environmental effect of GHG is environmental degradation, and that this degradation is reaching a defined limit. Therefore, any GHG emissions or reductions from a Scheme might be considered to be significant. As such, the application of the standard EIA significance criteria is not considered to be appropriate for GHG assessments.

6.7.15 While all new GHG emissions contribute to a negative environmental impact, some projects will replace existing developments or baseline activity that has a higher GHG impact. The significance of a Scheme's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible, considering its contribution to reduce GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

6.7.16 The level of significance associated with the GHG impact of a Scheme is to be contextualised and assigned through the professional judgement of the appropriate practitioner in accordance with ISEP guidance. The magnitude of GHG impacts of the Scheme will be put into context of the UK's five-year carbon budgets, which set legally binding targets for GHG emissions. GHG impacts will also be put into context for the sub-sectoral budgets for energy generation.

6.7.17 Net GHG emissions from the Scheme will be assessed through comparison with other likely alternative sources of electricity generation, such as Combined Cycle Gas Turbine ('CCGT'). As per The Secretary of State decision letter for Morecambe Offshore Windfarm DCO Application EN010121, this methodology for low carbon energy generation justifies the Scheme in reducing the impact of climate change and providing a secure energy system. The assessment will therefore seek to quantify any emissions reduction due to the displacement of higher carbon grid electricity sources, which would not decarbonise if the Scheme does not go ahead, as this currently provides the UK's marginal generating capacity. This is the generating capacity that must be replaced with low-carbon alternatives for the UK to achieve its net zero target. Essentially, the lifetime generation in megawatt hours ('MWh') from the Scheme is electricity generation that would displace existing, more carbon intensive grid electricity sources.

6.7.18 **Table 6-5** below presents the different significance levels as per the latest version of ISEP guidance for assessing GHG emissions. This guidance emphasises that "*a project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK's net zero trajectory or accepted aligned practice or area-based transition targets, results in a significant adverse effect. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. 'moderate' or 'major' adverse effects*".

Table 6-5 Significance Criteria

Level of effect	Significance Criteria	Significance
Major Adverse	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project	Significant Adverse

Level of effect	Significance Criteria	Significance
	with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.	
Moderate Adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.	Significant Adverse
Minor Adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.	Not Significant
Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.	Not Significant
Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric concentration, whether directly or indirectly compared to the without project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.	Significant Beneficial

Lifecycle GHG Assessment

6.7.19 As set out in the ISEP GHG guidance:

"GHG emissions from all projects will contribute to climate change; the largest interrelated cumulative environmental effect" (Ref 78).

6.7.20 The above statement relates to 'cumulative' on a global scale as all emissions of GHG's contribute to climate change. The definition of 'cumulative effects' in the context of GHGs and climate change therefore goes far beyond the typical definition of cumulative effects for EIA; this tends to focus on other proposed projects in the vicinity of the Scheme. Therefore, the Lifecycle GHG Assessment is intrinsically a cumulative assessment, and no consideration of specific local cumulative schemes is required.

6.8 Assumptions, Limitations and Uncertainties

6.8.1 There may be limitations at the time of assessment based on availability of data to conduct the assessment and therefore may require the use of a benchmark or secondary data for a similar Scheme. Any limitations will be presented as part of the ES chapter.

6.8.2 The assessment will use professional judgement to calculate proposed GHG emissions from products and activities associated with the Scheme. However, due to the level of uncertainty associated with the Scheme design at this early stage of design development, assumptions on potential emissions will be made regarding matters such as the transport of materials and exact product types to be used.

6.9 Summary of Elements Scoped In and Scoped Out

6.9.1 A summary of the elements scoped into and out of the climate change chapter is presented in **Table 6-6**.

6.9.2 The Lifecycle GHG Assessment is scoped in and will consider GHG emissions associated with the construction, operation and maintenance of the Scheme.

6.9.3 GHG emissions associated with the decommissioning phase are anticipated to be temporary and limited in scale. In the context of the Scheme lifecycle and national carbon budgets, these emissions are unlikely to affect the Government's ability to meet its carbon reduction targets and would not give rise to a significant effect on climate. Decommissioning activities will be managed through the Outline Decommissioning Environmental Management Plan (oDEMP), to be submitted with the DCO application, which will set out appropriate mitigation and good practice measures for GHG management and climate risk. A detailed DEMP will be secured as a requirement of the DCO. On this basis, decommissioning-phase climate effects are proposed to be scoped out of further assessment.

6.9.4 The CCRA is proposed to be scoped out of the EIA. The Scheme has been designed to be resilient to projected future climatic conditions through inherent design measures, including wind-loading design in accordance with standard Eurocodes with appropriate safety factors, robust foundation design, protection of key components, and continuous operational monitoring via a SCADA system. Potential effects of climate change, where relevant (including flood risk and climate change allowances), will be addressed within the appropriate topic-specific assessments, such as **Chapter 9: Water Environment**. On this basis, a separate CCRA is not considered necessary to inform the EIA.

Table 6-6 Elements scoped in and out of the assessment of Climate Change

Assessment	Element	Scoped in / Scoped out
Lifecycle GHG Assessment	Product stage – Raw material extraction, manufacturing and transport of products required to build the equipment for the Scheme.	Scoped in
	Construction process phase – On-site construction activity including emissions from construction compounds.	Scoped in
	Operation and maintenance phase – Operation and maintenance of the Scheme.	Scoped in
	Decommissioning phase – on-site decommissioning activity.	Scoped out
Climate Change Risk Assessment	Scheme design incorporates climate resilience measures; relevant climate change considerations addressed within topic chapters (e.g. flood risk).	Scoped out
In-combination Climate Impact Assessment	No likely significant in-combination effects anticipated; climate change considered where relevant within topic-specific assessments.	Scoped out

6.9.5 The scope of the Climate Change assessment will be reviewed following receipt of the Scoping Opinion.

7 Landscape and Visual

7.1 Introduction

7.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') in respect of Landscape and Visual matters. It provides a summary of relevant legislation, policy and guidance, baseline conditions and the proposed assessment methodology. Matters that are proposed to be scoped in and out of the assessment are identified.

7.1.2 The Landscape and Visual chapter of the Environmental Statement ('ES') will assess the likely significant effects of the Scheme on landscape and visual receptors during the construction, operation and decommissioning phases. It will describe the methodology used in the Landscape and Visual Impact Assessment ('LVIA'), the baseline conditions within a defined Study Area, and the nature of change arising from the Scheme. It will identify the effects on landscape and visual receptors, and determine their significance based on receptor sensitivity and the magnitude any change.

7.1.3 The LVIA will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition ('GLVIA3') 2013 (Ref 91 and Ref 84) and with reference to other environmental topics, including **Chapter 8: Biodiversity**, **Chapter 10: Cultural Heritage** and **Chapter 14: Other Environmental Matters (Glint and Glare).**

7.1.4 The GLVIA3 sets out that landscape and visual receptors should be considered separately:

- **Assessment of landscape effects**: assessing effects on the landscape as a resource in its own right; and
- **Assessment of visual effects**: assessing effects on specific views and on the general visual amenity experienced by people.

7.1.5 This chapter is supported by the following Figures and Appendices:

LVIA Figures for Scoping

- **Figure 7-1: Study Area;**
- **Figure 7-2: Aerial Photography;**
- **Figure 7-3: Landform;**
- **Figure 7-4: Landscape Character Areas;**
- **Figure 7-5: Landscape Receptors;**
- **Figure 7-6: Visual Receptors;**
- **Figure 7-7: Flood Risk;**
- **Figure 7-8: Agricultural Land Classification;**
- **Figure 7-9: Bare Earth ZTV;**

- **Figure 7-10: Augmented ZTV;**
- **Figure 7-11: Series Private Receptors;**
- **Figure 7-12: Series Public Receptors;**
- **Figure 7-13: Series Transport Receptors;** and
- **Figure 7-14: Viewpoints.**

LVIA Appendices

- **Appendix 7-A: LVIA Methodology;**
- **Appendix 7-B: Illustrative Viewpoint Photography;**
- **Appendix 7-C: Landscape Character Area Descriptions;** and
- **Appendix 7-D: LVIA Receptors**

7.2 Legislation, Planning Policy Context and Guidance

7.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the ES.

Legislation

7.2.2 Relevant legislation includes:

- European Landscape Convention (Ref 92);
- Planning Act (2008) (Ref 1) Part 3 Nationally Significant Infrastructure Projects ('NSIPs');
- The EIA Regulations (2017) (Ref 2);
- The Environment Act (2021) (Ref 79) Section 6 Nature and Biodiversity;
- Levelling-up and Regeneration Act 2023 ('LURA 2023') - Section 245 (Protected Landscapes) (Ref 93); and
- Countryside and Rights of Way ('CROW') Act (2000) (Ref 80).

Proposed Legislation

- Proposed Yorkshire Wolds National Landscape ('NL') Designation (Ref 83).

National Planning Policy

7.2.3 Relevant national planning and other policy and guidance includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') (2026) (Ref 8) section 3.3 (The need for new nationally significant electricity infrastructure) and section 5.10 (Landscape and Visual);
- NPS for Renewable Energy Infrastructure ('EN-3') (2026) (Ref 9) section 2.3 (Factors influencing site selection and design) and section 2.5 (Consideration of good design and infrastructure);

- NPS for Electricity Networks Infrastructure ('EN-5') (2026) (Ref 10) section 2.4 (Consideration of good design for energy infrastructure) and section 2.10 (Mitigation);
- National Planning Policy Framework ('NPPF') (Ref 11) section 15. (Conserving and enhancing the natural environment); and
- Emerging Policy – Proposed Yorkshire Wolds NL (Ref 83).

Local Planning Policy

7.2.4 Relevant local planning policy, as defined by the East Riding Local Plan Update (2020-2039) (2025) (Ref 13) includes:

- Policy S9: Strengthening blue / green infrastructure;
- Policy ENV1: Integrating high quality design;
- Policy ENV2: Promoting a high quality landscape;
- Policy ENV4: International, National and Local Sites of importance for biodiversity; and
- Policy ENV5: Enhancing biodiversity and geodiversity.

Relevant Guidance

7.2.5 Other relevant guidance includes:

- National Planning Policy Guidance ('NPPG') Natural Environment (Ref 97);
- NPPG Renewable and Low Carbon Energy (Ref 98);
- Guidance for relevant authorities on seeking to further the purposes of Protected Landscapes (Ref 82); and
- Statutory purposes of Protected Landscapes (Ref 93).

7.2.6 The LVIA will be undertaken in line with the following guidance which represents the standard approach and guidance relevant to LVIA for renewable energy developments within the UK:

- Landscape Institute and Institute of Environmental Management and Assessment GLVIA3 (Ref 91);
- Landscape Institute Technical Guidance Note LITGN-20/24-01 Published August 2024 (Ref 84);
- An Approach to Landscape Character Assessment (Ref 95);
- Landscape Institute Technical Guidance Note 06/19, Visual Representation of Development Proposals (Ref 85);
- Landscape Institute Technical Guidance Note 02/19, Residential Visual Amenity Assessment ('RVAA') (Ref 90); and
- Landscape Institute Technical Guidance Note 02/21, Assessing landscape value outside national designations (Ref 96).

Proposed Designation: Yorkshire Wolds Area of Outstanding Natural Beauty

7.2.7 Natural England ('NE') proposes to designate an area of approximately 463 square km as a new Area of Outstanding Natural Beauty ('AONB') within the Yorkshire Wolds (Ref 83). AONBs have been rebranded as NLs in 2023, but are still legally referred to as AONBs. As such this potential designation is referred to as the proposed Yorkshire Wolds NL within this Scoping Report. For further information, refer to **Appendix 7-C: Landscape Character Area Descriptions**.

7.3 Consultation

7.3.1 Consultation is currently being undertaken with statutory parties, including NE and EYRC's Landscape officers. Consultation will seek to gain early opinion on landscape and visual matters including a preliminary list of potential viewpoint locations.

7.3.2 Endeavours will be made to contact the Yorkshire Wolds NL Board once it has been defined. NE and the East Riding of Yorkshire Council ('ERYC') will be consulted regarding the Yorkshire Wolds NL ahead of NL Board being established, along with other stakeholders as appropriate.

7.4 Study Area

7.4.1 GLVIA3 states that the Study Area must be reasonable and proportionate and must ensure that the focus, when defining the appropriate Study Area, is on where likely significant effects upon landscape and visual receptors may occur, together with likely significant cumulative effects. The preliminary Study Area will be further assessed as part of the iterative design process and through consultation with the ERYC's Landscape specialists.

7.4.2 The Study Areas have been informed through a combination of desktop study, fieldwork and well as professional judgement on similar scale solar NSIP projects. They have been established through consideration of the existing landform and vegetation, as well and the scale of the Scheme and heights of the proposed infrastructure and focus on significant effects. The Study Areas consider the depleting nature of visual perception which diminishes as distance from visual receptors increases. As a result, the proposed Study Areas for visual receptors are less than the proposed Landscape Study Areas, which considers the interconnectivity of the wider landscape context.

7.4.3 Four Study Areas have been defined and are described below:

The 0.5 km Study Area for the Cable Route Corridor ('CRC')

7.4.4 A 0.5 km Study Area is proposed from the outer boundary of the CRC within which underground cables will be installed. The 0.5 km radius is considered appropriate for the CRC, since this involves the construction phase only, which is short term and temporary and highly unlikely to be significant. Beyond this distance, even with good visibility it is deemed that this element of the Scheme would be barely perceptible. Within the assessment, this parameter is referred to as the '0.5 km Study Area'.

7.4.5 All Landscape and Visual receptors within this Study Area would be scoped into the LVIA.

The 1 km Study Area

7.4.6 The Local Study Area that is considered appropriate for the LVIA is defined as a 1 km area extending as a radius from the outer boundary of the Humberhead Sites and also includes land within the Humberhead Sites (hereafter referred to as the '1 km Study Area').

7.4.7 The 1 km Study Area focuses on impacts upon both landscape and visual receptors.

7.4.8 All Landscape Receptors within the 1 km Study Area would be included in the LVIA. This includes the landscape fabric of the Site and the local landscape character (informed by all relevant landscape character assessments).

7.4.9 All Visual Receptors within the 1 km Study Area would be included within the LVIA. However, visual receptors within the 1 km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.

The 2 km Study Area

7.4.10 This is the 2 km area extending as a radius from the outer boundary of the Humberhead Sites and also includes land within the Site itself (hereafter referred to as the '2 km Study Area').

7.4.11 The 2 km Study Area focuses on impacts upon both landscape and visual receptors.

7.4.12 Effects to landscape character within the 2 km Study Area will be included within the LVIA (Informed by all relevant landscape character assessments).

7.4.13 Visual receptors located outside of the 1 km Study Area (but within the 2 km Study Area) that are identified with direct, extensive and/or open views towards the Scheme (particularly larger and taller elements or large open expanses of PV arrays) would be separately identified and included within this 2 km Study Area and included within the LVIA. Otherwise, all other Visual

receptors located beyond the 1 km Study Area would be scoped out of the LVIA.

7.4.14 Visual receptors outside the 1 km Study Area that do not have direct, extensive and/or open views towards the Scheme are to be scoped out of the LVIA.

The 5 km Study Area:

7.4.15 This comprises an area extending as a radius of 5 km from the outer boundary of the Humberhead Sites and also includes land within the Site itself (referred to as 'the 5 km Study Area'). Any Landscape or Visual receptors beyond the 5 km Study Area are not included within the LVIA.

7.4.16 Effects to landscape character within the 5 km Study Area will be included within the LVIA (informed by all relevant landscape character assessments).

7.4.17 The 5 km Study Area focuses on impacts upon landscape receptors only, with all visual receptors beyond the 2 km Study Area scoped out of the LVIA.

7.4.18 It is considered that within the 5 km Study Area, even with excellent visibility it is deemed that the Scheme would be barely perceptible and that it would not lead to any significant Visual effects, either independently or cumulatively.

7.4.19 The Study Areas can be viewed on **Figure 7-1: Study Area** and **Figure 7-2: Aerial Photography.**

7.5 Baseline Conditions

7.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Landscape and Visual.

Preliminary Landscape Baseline

7.5.2 The character of the landscape evolves over time as a result of the interaction of human activity and the natural environment (people and place). Attributes used to assess landscape character include:

- Physical – geology, landform, climate, soils, landcover;
- Cultural and Social – land use, settlement, enclosure and history; and
- Aesthetics – colour, texture, pattern, form and perception.

7.5.3 The Scoping Site Boundary covers an area of 3,388 ha and is located wholly within the administrative boundary of ERYC:

- Humberhead Sites total area: 1,595 ha; and
- Cable Route Search Corridor ('CRSC') total area: 1,793 ha.

Landscape Character

7.5.4 This section details the overarching landscape character of each of the Humberhead Sites, informed by a comprehensive programme of desk-based analysis and review of relevant published Landscape Character Assessments at national, regional and local levels. These sources have been critically appraised to establish a consistent baseline understanding of landscape context, key characteristics, and sensitivities. This baseline has been further refined and validated through thorough site surveys, incorporating field observations of landform, land cover, vegetation patterns, settlement structure, perceptual qualities, and views.

7.5.5 The below sections identify the defining elements and attributes that contribute to the distinct character of each Humberhead Site, including physiography, hydrology, historic land use and field patterns, and the influence of built form and infrastructure.

7.5.6 Variations in condition, quality, and value are also considered, recognising the extent to which landscape character has been modified by modern agricultural practices, mineral extraction, and energy infrastructure, as well as areas where historic landscape features and semi-natural habitats remain intact. Perceptual aspects such as tranquillity, remoteness, and the experience of expansive horizons are evaluated, alongside the visual influence of vertical structures and movement within the landscape.

7.5.7 This section also establishes a clear framework for understanding the relationship between the Humberhead Site areas and their wider landscape context, including intervisibility with surrounding character areas, the proposed Yorkshire Wolds NL and key receptors.

7.5.8 Further detailed descriptions, including site-specific characteristics, are set out in **Appendix 7-C: Landscape Character Area Descriptions**, which should be read in conjunction with this section. **Appendix 7-C: Landscape Character Area Descriptions** also includes a table which summarises which National Character Areas ('NCAs') and County Landscape Areas are within the Study Areas. Landscape Character Areas ('LCAs') associated with the Site and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section. Landscape Receptors within the Study Area can be viewed on **Figure 7-5: Landscape Receptors**.

National Landscape Character

7.5.9 The Study Area lies across three NCAs, as defined by NE. NCA 27: Yorkshire Wolds, NCA 28: Vale of York and NCA 39: Humberhead Levels.

7.5.10 As shown on **Figure 7-4: Landscape Character Areas**, Humberhead 1 lies wholly within NCA 28, Humberhead 2 is split across NCA 27 and NCA 28, Humberhead 3 lies wholly within NCA 39 with Humberhead 4 split across

NCA 28 and NCA 39. For full information on NL Character Areas, refer to **Appendix 7-C: Landscape Character Area Descriptions**.

County Landscape Character

7.5.11 At County level, landscape character is defined within the East Riding of Yorkshire Landscape Character Assessment (2018) (Ref 89). The assessment sets out the broad Landscape Character Types ('LCTs') across the region. The assessment then subdivides these broader LCTs into LCAs. The Humberhead Sites lie across a number of LCTs/LCAs. Information relating to the individual Humberhead Sites and the LCTs/ LCAs they lie within are detailed within **Appendix 7-C: Landscape Character Area Descriptions**.

Dark Skies

7.5.12 There are no currently lighting designations in the Study Area such as dark sky areas. The Campaign to Protect Rural England ('CPRE') light pollution mapping indicates a clear spatial variation in night-time brightness across the Study Area. Pocklington and Market Weighton are identifiable as moderate-intensity light sources, appearing as contained yellow–orange clusters, with road corridors forming linear bands of increased brightness connecting key routes across the landscape. In contrast, the Humberhead Levels are characterised predominantly by low light levels (blue–green), reflecting relatively dark skies, although these are locally influenced by dispersed infrastructure and linear transport routes, with the flat topography allowing wider visibility of sky glow from surrounding areas. The nearest parts of the proposed Yorkshire Wolds NL exhibit very low radiance (dark blue), indicating some of the darkest skies in the area, with minimal artificial lighting and a strong sense of tranquillity, resulting in a landscape that is particularly sensitive to additional light sources (Ref 99).

Overarching Character of Humberhead 1

7.5.13 The overarching character of Humberhead 1 is that of working agricultural farmland situated between the small-scale settlements of Allerthorpe (approximately 600 m north-west), Hayton (approximately 400 m south-east), Bielby (approximately 660 m west) and Everingham (approximately 930 m south) of Humberhead 1 at their closest point. Other properties are limited to scattered farmsteads and small clusters of residential properties along local roads, the closest of which lie along Carr Lane to the west of Humberhead 1-2 where Whiterail Beck acts as the boundary between a residential property curtilage and Humberhead 1-2.

7.5.14 The landscape within Humberhead 1 is generally flat, with a range of medium to large scale fields with evidence of both arable and pasture land use. Fields are typically bound by hedgerows and linear woodland belts of variable

condition with some showing signs of degradation in places. There is an overarching sense of enclosure within Humberhead 1, primarily due to the flat landform and the strongly vegetated boundaries which despite the larger scale of the landscape create a more intimate feeling within parts of Humberhead 1, helping to screen both long and medium distance views from within the Humberhead Site, with limited to no intervisibility between Humberhead 1 and the proposed Yorkshire Wolds NL.

7.5.15 Ever present noise from the busy A1079 road has a noticeable effect on tranquillity within parts of Humberhead 1, particularly where the road runs adjacent to the Humberhead Site and the landscape is more open and exposed.

7.5.16 The Pocklington Canal route runs adjacent to part of Humberhead 1 offering recreational interest, linking to the wider network of Public Rights of Way ('PRoWs') which are sporadic in nature but connect the various settlements to the wider landscape. There is some scenic quality along the canal route which is strongly vegetated along its length and helps to filter intervisibility with the Humberhead Site adjacent.

7.5.17 Humberhead 1 and its immediate context is characteristic of ordinary and actively managed working countryside, exhibiting very few elements of inherent rarity or scenic quality. Its overall character is influenced by a number of prominent built and urbanising features which act as visual detractors, diminishing perceptual cohesion and rural tranquillity. These include intermittent but occasionally open views of busy road corridors, agricultural buildings of varying scale and condition, and a network of pylons with associated overhead lines that intersect and visually incise the wider landscape. Collectively, these elements introduce a degree of visual clutter and industrialisation, undermining the sense of remoteness and contributing to a landscape that is perceived as functionally driven rather than visually distinctive or aesthetically refined.

7.5.18 Further details of Landscape Character associated with the individual sites within Humberhead 1 can be found in **Appendix 7-C: Landscape Character Area Descriptions**. LCAs associated with the Site and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section.

Overarching Character of Humberhead 2

7.5.19 Detailed on-site analysis indicates that, whilst Humberhead 2 and its setting landscape retain characteristics of a working agricultural setting, there is a discernible transition toward a more intact and cohesive landscape fabric. This is evidenced by the presence of well-maintained and frequently species-rich hedgerows, many of which incorporate mature hedgerow trees, alongside tree-lined avenues that introduce a stronger sense of structure and

visual order. As the landform gently progresses towards the Wolds and the area identified for proposed Yorkshire Wolds NL designation, encompassing parts of Humberhead 2, there is a perceptible shift in character toward a more refined and managed landscape.

7.5.20 Within Humberhead 2, and the wider landscape, field boundaries in particular are predominantly intact, continuous, and well-connected, contributing positively to the legibility and enclosure of the landscape. These features provide a clear underlying framework and reinforce the strong sense of place.

7.5.21 This sense of enclosure is aided by occasional clusters of dense woodland surrounding parts of Humberhead 2 which add to the intimacy within areas, helping to localise views, limiting noise from the surrounding landscape and creating the impression of remoteness within the countryside.

7.5.22 However, as the land rises towards the Wolds, including the proposed Yorkshire Wolds NL designation, views out across the flatter landscapes to the east, including within Humberhead 2, are available. There is some intervisibility between Humberhead 2 and both the adjacent Grade II Listed Londesborough Park and parts of the proposed Yorkshire Wolds NL designation.

7.5.23 A well-established network of PRoWs traverses the landscape, including parts of Humberhead 2, providing connectivity between rural settlements and the wider countryside. These routes facilitate recreational access and enable users to experience a varied sequence of landscape characteristics, including links to Londesborough Park and the broader Wolds landscape beyond. Londesborough Park sits approximately 20 m west of the Humberhead 2-3 although the tree lined avenue lies approximately to the 15 m south of Humberhead 2-1 at its closest point,

7.5.24 Of particular note is the nationally significant Wolds Way National Trail, which passes in close proximity, approximately 3 m to Humberhead 3-3, as it crosses Intake Hill. This route represents a key public receptor, with visitors likely to seek experience of the distinctive qualities of the Yorkshire Wolds, including elevated views, open skylines, and a strong sense of rural character. The presence of this trail, together with the wider PRoW network, reinforces the value of the landscape as a resource for outdoor recreation and visual appreciation of the landscape.

7.5.25 Whilst the prevailing character is one of quiet rural lanes set within an agricultural landscape, the presence of the A1079 introduces a noticeable localised detractor. Intermittent noise and associated movement partially erodes the otherwise tranquil qualities in part of Humberhead 2. As a result, although a general sense of rural calm is retained across much of the landscape, the influence of the road subtly reduces the perception of

remoteness in affected areas. Further man-made elements detract from landscape character, including the presence of a wind turbine within Humberhead 2-1 which adds an element of verticality and evident man-made feature within views. A working quarry lies approximately 925 m north-east of Humberhead 2-1 and detracts from perception of a tranquil rural landscape.

7.5.26 The overall impression of Humberhead 2 is of a more considered and cohesive landscape, where management practices have strengthened both the structural integrity and visual quality, resulting in a landscape of increasing scenic value and perceptual coherence. Further details of Landscape Character associated with the individual sites within Humberhead 2 can be found in **Appendix 7-C: Landscape Character Area Descriptions**. LCAs associated with the Site and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section.

Overarching Character of Humberhead 3

7.5.27 Desk based assessment and on-site review determine that the overarching character of Humberhead 3 is defined by an intensively managed agricultural land, situated between a series of small-scale rural settlements. The landscape is characterised by relatively large, regularly shaped fields, typically bounded by hedgerows and intermittent linear woodland belts, the condition and continuity of which vary across the area, resulting in an inconsistent field pattern and a somewhat fragmented landscape structure.

7.5.28 The scale of the field pattern within Humberhead 3 affords a degree of openness and exposure at a local level, allowing for immediate views across adjoining farmland. Medium distance views are frequently screened by vegetation including occasional blocks of woodland, however there is a degree of intervisibility between parts of Humberhead 3 and the proposed Yorkshire Wolds NL due to the dramatic change in landform from flat at site level to rolling Wolds over 5 km further east. As a result, the spatial experience alternates between open and enclosed characteristics, contributing to a lack of clear or distinctive landscape composition.

7.5.29 A series of PRoWs cross the wider landscape offering some recreational interest, some of which cross parts of Humberhead 3. Of particular note is the Howdenshire Rail Trail, an approximately 8-mile linear recreational route following the alignment of a former railway between Holme-on-Spalding-Moor and Bubwith and intersects the southern extents of Humberhead 3-3. This route represents a well-defined and accessible recreational corridor, offering a relatively consistent, level experience through the landscape. Its linear nature and historical origin provide a degree of legibility and interest and contribute positively to the recreational value of the area. While the surrounding landscape is generally of ordinary character and limited scenic

quality, routes such as the Howdenshire Rail Trail enhance its function as a recreational resource.

7.5.30 Tranquillity within the area is locally reduced by the presence of busy transport corridors, including the A634, where movement and associated activity introduce perceptible detractors. In addition, vertical elements such as wind energy infrastructure and overhead powerlines are evident against the skyline, appearing prominent within the flat landscape and further reinforcing the influence of human activity.

7.5.31 Overall, the landscape can be described as functional and ordinary in character, containing few elements of rarity, scenic quality, or particular aesthetic value. The presence of agricultural operations, infrastructure, and modern development results in a landscape with limited sense of place, where the experiential qualities are diminished and the defining characteristics are neither especially cohesive nor locally distinctive.

7.5.32 Further details of Landscape Character associated with the individual sites within Humberhead 3 can be found in **Appendix 7-C: Landscape Character Area Descriptions**. LCAs associated with the Site and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section.

Overarching Character of Humberhead 4

7.5.33 Humberhead 4 is characterised by an intensively managed agricultural land, positioned between dispersed small-scale rural settlements. The landscape is dominated by medium to large-sized arable fields which are typically enclosed by hedgerows and occasional linear woodland belts. However, the condition and continuity of these boundary features are inconsistent, with some sections well-maintained and others degraded or fragmented, resulting in a weakening of overall landscape structure.

7.5.34 This variability in boundary condition, combined with the relatively uniform land use, contributes to a landscape that lacks strong defining characteristics or visual cohesion. The field pattern, whilst generally legible at a local level, does not form a particularly distinctive or unified framework, limiting the sense of place and reinforcing the perception of a functional, rather than characterful, rural environment.

7.5.35 The scale of the field pattern contributes to a sense of openness at a local level, allowing for immediate views across adjacent farmland. However, longer-range views are frequently filtered or screened by dense vegetative boundaries and pockets of woodland. However, there is a small degree of intervisibility between parts of Humberhead 4 and the proposed Yorkshire Wolds NL, which is located approximately 4.6 km to the north-east, due to the dramatic change in landform from being flat at Site level to rolling Wolds

further east, albeit viewed at distance. This results in a landscape that alternates between open and enclosed spatial characteristics, reducing the overall legibility of the landscape.

7.5.36 A network of PRoWs crosses the wider landscape, some of which either cross or run close to the boundary of parts of Humberhead 4. These routes link the various scattered settlements to the wider countryside, offering a degree of recreational interest, albeit predominantly passing through an ordinary, working landscape.

7.5.37 The character is further influenced by evidence of intense agricultural farming activity at site level, and views of large-scale agricultural sheds, factory buildings and industrial buildings associated with a nearby industrial estate within the wider landscape. These elements introduce a pronounced built influence that detracts from the perceived rural quality and contributes to a degree of landscape degradation.

7.5.38 Vertical infrastructure, including wind turbines, pylons, and associated overhead power lines, are also evident and appear prominent against the predominantly flat landform, interrupting the skyline and reinforcing the presence of human activity.

7.5.39 In addition, the M62 corridor approximately 2.3 km to the south exerts an ongoing influence on the perceptual qualities of the landscape, reducing levels of tranquillity through the presence of movement and associated noise reducing the sense of remoteness.

7.5.40 Overall, Humberhead 4 can be characterised as an ordinary and functional working landscape, containing few elements of rarity, scenic quality, or inherent aesthetic value. The influence of intensive agricultural practices, views of neighbouring large-scale built form, and infrastructure results in a landscape with a limited sense of place, where experiential qualities are constrained and the defining characteristics neither particularly distinctive nor cohesive.

7.5.41 Further details of Landscape Character associated with the individual sites within Humberhead 4 can be found in **Appendix 7-C: Landscape Character Area Descriptions**. LCAs associated with the Site and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section.

Cable Route Search Corridor

7.5.42 The CRC will connect the Humberhead Sites to the National Grid Thornton Substation. The CRC at present is encompassed within a CRSC. The current CRSC will be refined as the design of the Scheme is developed and environmental and technical surveys are undertaken in addition to landowner negotiations and consultation input. The CRSC will be refined to the CRC for

the submission of the Development Consent Order ('DCO') application and will be designed to avoid as far as practicable sensitive receptors.

7.5.43 The CRSC lies within a predominantly low-lying and gently undulating landscape, characterised by extensive areas of productive arable farmland. The prevailing landscape character is defined by medium to large-scale field patterns, typically enclosed by established hedgerows and frequent hedgerow trees, which provide a consistent and recognisable framework to the landscape. This network of vegetated boundaries, together with occasional woodland blocks and small copses, contributes to a well-structured and cohesive farmland landscape, reinforcing a sense of enclosure and spatial definition despite the underlying flatness of the landform.

7.5.44 Settlements are generally dispersed, comprising small villages, farmsteads and isolated rural properties set within the agricultural landscape. These elements are typically modest in scale and reflect a vernacular form, often integrated with the surrounding landscape through the presence of garden planting, shelterbelts and boundary vegetation. The distribution of built form introduces variation in the landscape pattern, creating a mosaic of agricultural and settled land uses that contributes to the overall rural character.

7.5.45 The limited variation in topography emphasises the horizontal nature of the landscape, with long, shallow profiles and an absence of prominent landform features. However, the density and condition of field boundaries and vegetation cover play a key role in shaping the degree of enclosure and openness experienced across the area. In locations where hedgerows are intact and well-managed, the landscape tends toward a more enclosed and intimate character, whereas areas with reduced boundary definition or vegetation cover exhibit a more open and expansive rural character.

7.5.46 Within parts of the corridor, the landscape context allows for occasional intervisibility with the proposed Yorkshire Wolds NL. This relationship is typically indirect and influenced by the intervening pattern of vegetation and land use, resulting in a limited and transitional connection between the two areas rather than a defining characteristic.

7.5.47 In addition to its agricultural and settlement components, the landscape includes elements of modern infrastructure, including wind turbines, electricity transmission lines and pylons, agricultural farming sheds, intensive farming activity and sections of major road networks. These features introduce contemporary influences into the otherwise rural landscape, adding vertical and linear components that locally alter the character and reflect the area's role in supporting energy and transport infrastructure.

7.5.48 Overall, the landscape character of the corridor is that of a managed and working countryside, where agricultural land use, vegetated field boundaries, dispersed settlement, and infrastructure combine to form a coherent yet

varied landscape. The interplay between enclosure and openness, alongside the distribution of natural and built elements, creates a landscape that is structurally consistent but exhibits localised variation in character and experiential qualities.

7.5.49 The Humberhead CRSC stretches between NCA 28: Vale of York and NCA 39: Humberhead Levels. The CRSC extends into LCT 1: Flat Open Farmland, LCT 6: Wooded Open Farmland, LCT 7: Foulness Open Farmland and LCT 10: Complex Sloping Farmland. Full details of landscape character of the CRSC can be found within **Appendix 7-C: Landscape Character Area Descriptions**. LCAs associated with the CRSC and Study Area can be viewed on **Figure 7-4: Landscape Character Areas** and should be reviewed in conjunction with this section.

Preliminary Visual Baseline

Visual Amenity

7.5.50 General visual amenity is experienced by people and notably the views that people have and their visual amenity can be defined as the overall pleasantness or attractiveness of a place and the views they enjoy of their surroundings. Amenity is something considered to benefit a location, contribute to its enjoyment, and thereby increase its values.

7.5.51 The visual amenity experienced by people (visual receptors) in the locality of the Site differs according to many factors. The visual receptors most susceptible to change are generally likely to include: residents at home (private receptors), people engaged in outdoor recreation (including use of PRoWs, (Public Receptors), visitors to heritage assets and other attractions such as recreational users of the Wolds Way National Trail Pocklington Canal route. Travellers on recognised scenic routes (Transport receptors) and people at their workplace where views are an important contributor to the setting and the quality of their working life. The visual receptors least susceptible to change include views experienced from places of work where workers and visitors are concentrating on their day-to-day activities, views experienced by users main roads travelling at high speed or local roads where the focus is upon the road ahead owing to traffic conditions (transport receptors). Full details on receptor types can be found in **Appendix 7-D: LVIA Receptors.** Visual Receptors are displayed on **Figure 7-6: Visual Receptors** and should be viewed in conjunction with this section.

7.5.52 For full details of visual susceptibility please refer to the LVIA Methodology as set out within **Appendix 7-A: LVIA Methodology**.

7.5.53 Site visits were undertaken over a number of days between 1 January and 15 March 2026. The weather was variable with some clear das with good visibility and some cloudy and misty days with poor visibility. Trees were

predominantly not in leaf representing a worst-case scenario in terms of the screening afforded by vegetation.

7.5.54 The following section outlines visual amenity for the Humberhead Sites and CRSC and identifies viewpoints included within the LVIA assessment.

Visual Character

7.5.55 The Scheme is perceptible from a range of visual receptors within the Study Area, including users of minor roads and the PRoW network. The receiving landscape is predominantly flat, although gentle undulations and more rolling landform are evident in areas associated with the transition towards the Yorkshire Wolds and proposed NL designation, locally influencing the extent and nature of views.

7.5.56 The visual structure of the landscape comprises an irregular pattern of fields of varying scale, defined by a network of predominantly well-maintained hedgerows, interspersed with occasional to frequent mature hedgerow trees. In places, blocks of woodland introduce additional enclosure and filtering of views, contributing to a varied visual envelope. This pattern of vegetation establishes a relatively contained visual environment across much of the 2 km Study Area, particularly along transport corridors.

7.5.57 Views experienced from minor roads, byways, and bridleways are typically restricted to short-range glimpses due to the presence of strong, continuous hedgerow boundaries, which limit outward visibility and create a sense of visual enclosure. In contrast, footpaths that traverse internal field margins or cross open fields afford more expansive views, particularly where hedgerow cover is reduced or absent.

7.5.58 Across flatter areas, field boundary vegetation tends to curtail longer-distance views, resulting in a more enclosed and locally focused visual experience. However, where the landform exhibits subtle variation or gentle slopes, opportunities for longer-range views emerge, allowing receptors to perceive a broader extent of the surrounding landscape. This interplay between enclosure and openness gives rise to a varied visual character, influenced by both vegetation structure and landform.

7.5.59 Within the Study Area there are two National Cycle Network ('NCN') routes:

- NCN route 66 which passes through Humberhead 2-1 along an unnamed road south of Burnby; and
- NCN route 164 which lies ~2.2 km north of Humberhead 1-1 at its closest point.

7.5.60 The Study Area also includes the Wolds Way National Trail.

7.5.61 The visual character for Humberhead 1 to 4 is described below.

Humberhead 1

Visual Amenity

7.5.62 Humberhead 1, located to the south of A1079 York Road, which abuts Humberhead 1-2 along its northern boundary, is defined by a predominantly flat and low-lying landform, with levels averaging approximately 15 m AOD as seen on **Figure 7-3: Landform**.

7.5.63 Humberhead 1-1 is situated ~600 m to the east of Allerthorpe and west of Pocklington Canal. Humberhead 1-2 is ~25 m to the east of Carr Lane and ~400 m west of Hayton. Humberhead 1-3 and 1-4 are located ~940 m northeast of Everingham and southwest of Hayton.

7.5.64 The absence of notable topographic variation results in a landscape where visual structure is derived almost entirely from vegetation and built elements rather than landform. Across the three sub-sites, this flat agricultural setting is consistently delineated by strong and well-established vegetated boundaries, including prominent hedgerows and frequent mature hedgerow trees within field margins.

7.5.65 These vegetated boundaries form a robust framework that compartmentalises the landscape and significantly limits intervisibility between the Humberhead 1 and the wider surrounding area. Hedgerows are of varying condition but often appearing dense and continuous, with hedgerow trees providing additional height, layering, and seasonal variability. This structure creates a landscape of pronounced enclosure, where views are typically filtered, truncated, or channelled along field edges and route corridors rather than extending across broad open vistas. As a result, despite the flat topography, Humberhead 1 rarely presents as visually expansive, instead exhibiting a series of contained and visually discrete pockets. Visual receptors associated with surrounding lanes, bridleways, and footpaths experience Humberhead 1 as a landscape of intermittent and filtered views. The strong vegetated framework typically restricts long-distance sightlines, resulting in a predominance of near-field and middle-distance views. Where gaps occur in hedgerows, or at field accesses and junctions, more open views are available, however, these are often fleeting and framed by vegetation.

7.5.66 Seasonal variation also plays an important role in shaping the visual character. During the summer months, dense foliage increases the degree of enclosure and screening, whereas in winter, the loss of leaf cover can allow a greater degree of visual permeability, particularly through hedgerows and deciduous woodland, although the mature tree frameworks and woody structures presented throughout most of Humberhead 1 generally continue to restrict more extensive views.

7.5.67 The visual character of Humberhead 1 is notably influenced by the presence of modern agricultural and transport infrastructure, which contributes to a working rural landscape with a strong functional character. Views from within and around the Site frequently include elements such as busy road corridors, most notably the A1079 York Road, which introduces movement, noise, and a perceptible urbanising influence into the rural scene.

7.5.68 Large agricultural buildings and sheds are also evident within the wider landscape context. These structures are visually prominent where they are glimpsed through gaps in vegetation. Their presence reinforces the intensively managed agricultural character of the area and can locally detract from perceptions of rural tranquillity.

7.5.69 In addition, vertical infrastructure such as pylons and overhead electricity lines forms a recurring feature within the skyline. These elements are often visible above the hedgerow framework and woodland edges, adding to the sense of a developed and operational landscape. While the vegetated boundaries frequently obscure lower-level views, these taller structures maintain a degree of visual presence and contribute to the overall character experienced by receptors.

7.5.70 Farming activity itself is also an integral component of the Site's visual character, with seasonal changes in cropping, machinery movement, and land management practices influencing the appearance and activity levels within the landscape throughout the year.

7.5.71 Visual Receptors for Humberhead 1 are shown on **Figure 7-6: Visual Receptors**.

Relationship to Proposed Yorkshire Wolds National Landscape

7.5.72 The proposed Yorkshire Wolds NL is anticipated to encompass the majority of the Yorkshire Wolds NCA. At its current extent, the designation lies approximately 2.8 km to the north of Humberhead 1. Whilst geographically proximate, the visual relationship between the two areas is influenced by both landform and intervening landscape structure.

7.5.73 The Yorkshire Wolds are characterised by a rising and rolling landform, which affords elevated vantage points and the potential for expansive outward views particularly to the west. From the southwestern extents of the Wolds, including locations around Pocklington, Nunburnholme and Londesborough, there is theoretical potential for views west towards Humberhead 1. However, these views are typically experienced at medium to long distances and form only a small component of the wider panoramic outlook available from these elevated areas.

7.5.74 In contrast, the visual character of Humberhead 1 is defined by a relatively flat landform combined with a well-developed pattern of enclosure. Strongly

vegetated field boundaries, including dense hedgerows and intermittent blocks of woodland, create a contained visual environment and limit outward visibility. These features establish a restricted visual envelope across much of the area, preventing the formation of long-distance views and curtailing intervisibility with the wider landscape.

7.5.75 As a result, despite the theoretical visibility afforded by elevated areas of the Wolds, the combination of intervening distance, flat topography, and enclosure provided by woodland blocks and vegetative boundaries within Humberhead 1 and the intervening landscape serves to substantially filter or entirely screen potential views between the two areas. Consequently, intervisibility between Humberhead 1 and the proposed Yorkshire Wolds NL ranges from limited to non-existent, with the visual relationship between the areas being weak and not readily perceptible to receptors on the ground.

Public Rights of Way

7.5.76 There are a number of PRoWs located on or in close proximity to Humberhead 1, as shown in **Figure 7-12-1: Public Receptors**. These include:

- Pocklington Footpath No.7, which runs northeast to southwest, ~131 m from Humberhead 1, connecting A1079 at Pocklington Canal Head to Allerthorpe Bridleway No.4, to the northeast of Humberhead 1-1, along it's boundary;
- Allerthorpe Bridleway No.4 run north to south to the immediate east of Humberhead 1-1;
- Bielby Bridleway No.5 runs predominantly north to south to the north of Humberhead 1-4 and west of Humberhead 1-3, at a distance of approximately 1 m ; and
- Everingham Bridleway No.9 runs north to south, connecting Bielby Bridleway No.5 to Halfacres Lane. The bridleway cuts into the Site and travels parallel to the western boundary.

Highways

7.5.77 There are a number of small lanes and A roads which surround Humberhead 1. These include:

- Carr Lane running primarily north to south through the landscape, ~26 m to the west of Humberhead 1-2;
- Bridge Cottages road runs primarily northeast to west through the landscape, intersecting the northern corner of Humberhead 1-3 and south of Humberhead 1-2, and
- Halfacres Lane run north to south ~7 m south of Humberhead 1-4.

Cycleways

7.5.78 The Pocklington Canal, directly east of Humberhead 1-1, is a 15 km walking and cycling route that runs parallel to the Pocklington Canal connecting A1079 south of Pocklington to East Cottingwith. The majority of the route is within Pocklington Canal SSSI.

Railways

7.5.79 There are no active rail routes in and around the Site. The York to Beverly rail line ran through Pocklington and Market Weighton but the route closed in 1965. Parts of the disused railway line have been built on top of as part of town expansions. Market Weighton to Beverly portion of the railway line has been repurposed into the Hudson Way Rail Trail, which is used as a cycle and walking route, over 6 km south-east of Humberhead 1 beyond Market Weighton.

Settlements

7.5.80 Humberhead 1 is situated approximately 1 km to the south of Pocklington, ~600 m east of Allerthorpe and ~400 m west of Hayton. Pocklington is a market town and civil parish 20 km southeast of York and 35 km northwest of Hull. Allerthorpe is village and civil parish, situated 2.4 km southwest of Pocklington. Hayton is a village and civil parish, situated 3 km south of Pocklington.

Residential Properties

7.5.81 Residential properties associated with Humberhead 1 are shown on **Figure 7-11-1: Private Receptors**. Those in close proximity to Humberhead 1 include:

- Oakfield House ~240 m to the southwest of Humberhead 1-1;
- Lock House ~240 m to the north of Humberhead 1-1;
- Tarn Hows immediately to the west of Humberhead 1-2;
- Hayton Grange ~200 m to the south of Humberhead 1-2; and
- Hayton Fields ~400 m to the north of Humberhead 1-4 and ~500 m west of Humberhead 1-3.

Humberhead 2

Visual Amenity

7.5.82 Humberhead 2 is located directly south of Burnby, between Shiptonthorpe ~450 m to the south, Londesborough ~430 m to the east and Nunburnholme ~1 km further north. The landform gradually moves from flat to rolling with Londesborough and Nunburnholme to the east at higher ground within the Yorkshire Wolds, as seen on **Figure 7-3: Landform**. Humberhead 2-1 is

gently rising to the north and east with lowest elevations at its southern and western boundaries. Humberhead 2-2 is south of Londesborough Avenue and is relatively flat. Humberhead 2-3 is rolling with the western section of the Site hidden from PRoW Londesborough Footpath No.2, which runs along the Sites eastern boundary with Towthorpe Beck to the east.

7.5.83 At site level, the perceived openness is moderated by the presence of well-managed hedgerow boundaries that define field parcels and establish a clear framework of enclosure. These hedgerows are generally intact, regularly maintained, and often reinforced by mature hedgerow trees, which add vertical structure and seasonal variation to the landscape.

7.5.84 The combination of strong hedged boundaries and mature trees creates a layered visual character, whereby views into and across Humberhead 2 are frequently filtered or curtailed. In many locations, these vegetative features limit direct intervisibility and provide a sense of containment, despite the underlying topography. This pattern of enclosure is further strengthened by the presence of intermittent pockets of dense woodland and small copses, which act as more substantial visual barriers. These areas of woodland are particularly effective in screening views, both into the Humberhead 2 and outward toward the wider landscape, contributing to a patchwork of visual compartments rather than a continuous open vista.

7.5.85 Collectively, these elements establish a landscape of moderate to strong enclosure within Humberhead 2 itself, with the visual character defined as much by its vegetative structure as by its landform.

7.5.86 The experience of the landscape, within Humberhead 2, is therefore dynamic and sequential, with glimpsed, filtered, and occasionally more open views occurring depending on the alignment of local routes and the condition of boundary vegetation. In many cases, receptors experience Humberhead 2 as a series of contained spaces, where long-distance views are limited to views of higher ground above the canopy to the east, and replaced by shorter, more intimate visual relationships with field boundaries, trees, and woodland edges.

7.5.87 Seasonal variation also plays an important role in shaping the visual character. During the summer months, dense foliage increases the degree of enclosure and screening, whereas in winter, the loss of leaf cover can allow a greater degree of visual permeability, particularly through hedgerows and deciduous woodland, although the mature tree frameworks and woody structures presented throughout most of Humberhead 2 generally continue to restrict more extensive views.

7.5.88 However, there are views into parts of Humberhead 2 from the higher ground at Londesborough and Nunburnholme within the Wolds.

Relationship to Proposed Yorkshire Wolds National Landscape

7.5.89 The proposed Yorkshire Wolds NL is set to be to the east of Humberhead 2, with the closest being Humberhead 2-3 which is directly to the west of the proposed Yorkshire Wolds NL boundary at Londesborough, at approximately 6 m in distance. As the landscape moves towards the proposed Yorkshire Wolds NL there is a perceptible shift in visual character and landscape experience. The transition is gradual but evident, marked by subtle changes in landform, vegetation pattern, and the scale of views.

7.5.90 This approach towards the Wolds begin to introduce gently rising landform and a more pronounced sense of topographic variation. This results in an incremental opening up of views, with longer sightlines and broader panoramas becoming more apparent, particularly where hedgerow patterns become less dense or where elevation affords extended visibility. However, even within this transitional zone, woodland blocks, shelterbelts, and hedgerow networks continue to influence visibility, often framing or partially screening views both from and toward the Wolds and maintaining a degree of visual continuity between Humberhead 2 and its wider context.

7.5.91 There are fleeting views to Humberhead 2-2 and 2-3 from the proposed Yorkshire Wolds NL due to the screening around the Humberhead Sites and the rolling nature of the landscape. There are more frequent views to Humberhead 2-1 from the western boundary of the proposed Yorkshire Wolds NL, as the landform rises significantly.

Public Rights of Way

7.5.92 There are a number of PRoWs located on or in close proximity to Humberhead 2, as shown on **Figure 7-12-2: Public Receptors**. These include:

- Hayton Footpath No.5 which runs diagonally through Field 5 of Humberhead 2-1. The footpath connects Burnby to the north, to A1079 to the west of the site.
- Londesborough Footpath No.1 runs to the south of Humberhead 2-2 at ~4 m and north of Humberhead 2-3, connecting Londesborough to the northeast to Shiptonthorpe Footpath No.2, to the southwest which connects towards Shiptonthorpe.
- Shiptonthorpe Footpath No.2 runs ~4 m to the south of Humberhead 2-2 and north of Humberhead 2-3, connecting Londesborough to the northeast, to Shiptonthorpe the southwest.
- Londesborough Footpath No.2 runs along the eastern boundary of Humberhead 2-3, connecting Londesborough to the north, to Towthorpe Lane to the South.

Highways

7.5.93 There are a number of small lanes and A roads which surround the Site. These include:

- Unnamed Road running northeast to southwest connecting Londesborough to Shiptonthorpe. The road runs directly south of Humberhead 2-1.
- Intake Hill running predominantly north to south, directly east of Humberhead 2-2 and Humberhead 2-3 at ~10 m, connecting Londesborough to Towthorpe Lane roundabout.
- Londesborough Road at Burnby running in an east to west manner connecting Yorkshire Wolds to Burnby, cuts through the northern extent of Humberhead 2-1.

Railways

7.5.94 There are no active rail routes in and around Humberhead 2. The York to Beverly rail line ran through Pocklington and Market Weighton but the route closed in 1965. Parts of the disused railway line have been built on top of as part of town expansions. Market Weighton to Beverly portion of the railway line has been repurposed into the Hudson Way Rail Trail which is used as a cycle and walking route ~2 km south of Humberhead 2 at its closest point.

Settlements

7.5.95 Humberhead 2 is situated directly south of Burnby, ~450 m to the north of Shiptonthorpe, ~430 m west of Londesborough and ~1 km south of Nunburnholme. Shiptonthorpe is a village and civil parish, located approximately 8 km southeast of Pocklington and 3 km northwest of Market Weighton.

7.5.96 Londesborough is a historic estate village and civil parish, located on the Yorkshire Wolds, 4 km north of Market Weighton. Burnby is a village within the civil parish of Hayton, located approximately 4 km southeast of Pocklington.

Residential Properties

7.5.97 Residential properties associated with Humberhead 2 are shown on **Figure 7-11-2: Private Receptors**. Those in close proximity to Humberhead 2 include:

- Cleaving Grange and Cottage ~75 m to the east of Humberhead 2-1;
- Properties associated with New Grange Farm and Dairy House, ~340 m to the south of Humberhead 2-1 and ~650 m west of Humberhead 2-3;
- Garrick Farm ~50 m to the west of Humberhead 2-2 and south of Humberhead 2-1; and

- Moor Farm within the southern boundary of Humberhead 2-1.

Humberhead 3

Visual Amenity

7.5.98 Humberhead 3, located between Foggathorpe ~790 m to the southwest, Holme-on-Spalding-Moor ~750 m to the southeast and Seaton Ross immediately to the north, is characterised by a very low-lying and predominantly flat landform, with levels averaging approximately 6 m AOD, as seen on **Figure 7-3: Landform**. As with the majority of the land within the Humberhead Study Area, primarily the setting of Humberhead 1,3 and 4 and land to the west of Humberhead 2, the lack of topographic variation means that visual character is primarily defined by vegetation patterns and human influences rather than landform. The Humberhead 3 is comprised of open agricultural fields bounded by hedgerows, although in this location hedgerow trees are more limited and generally less frequent than in other parts of the wider landscape.

7.5.99 Despite the relatively reduced presence of hedgerow trees, the field boundary network still provides a degree of visual structure and enclosure. Hedgerows vary in density and condition, with some sections appearing more fragmented or lower in height, allowing for intermittent permeability. As a result, the landscape can appear slightly more open in places compared to areas with stronger vegetative frameworks; however, intervisibility remains generally limited by the cumulative effect of boundary vegetation, field geometry, and intervening features.

7.5.100 In the wider landscape context, pockets of dense woodland and linear planting contribute to an enclosing visual framework, particularly at middle and longer distances. These woodland areas introduce a sense of containment and layering, often forming backdrops to views and restricting the extent of outward visibility. This results in a landscape that, while locally more open in places, is still experienced as compartmentalised and visually contained overall.

7.5.101 The visual character of Humberhead 3 includes the presence of modern farming infrastructure, which contributes to its working rural character. Within Humberhead 3 itself, a single wind turbine forms a notable vertical feature. Owing to the flat topography and relatively modest vegetative screening at certain locations, the turbine is likely to be visible across parts of the Humberhead 3 and its immediate surroundings, introducing a contemporary and movement-associated element into the landscape. Its verticality contrasts with the otherwise horizontal emphasis of fields and hedgerows, making it a locally distinctive feature.

7.5.102 In the wider landscape, overhead lines and associated pylons are also present and form recurring elements in more distant views. These structures are typically visible above hedgerow and woodland canopies and contribute to the perception of a developed and operational landscape. While distances and intervening vegetation often reduce their prominence, they remain noticeable components of the skyline and visual context.

7.5.103 Agricultural activity similarly influences the visual baseline, with field management, cropping patterns, and occasional farm structures contributing to an active, managed rural environment.

7.5.104 Visual receptors using surrounding lanes, bridleways, and footpaths experience Humberhead 3 as a landscape of variable but generally contained views. The flat landform provides little change in elevation or vantage point, meaning that variation in visual experience is largely governed by the presence, density, and alignment of vegetation and built features.

7.5.105 Views are often filtered by hedgerows and occasionally opened up where boundaries are lower or more fragmented, allowing glimpses across adjacent fields. In such instances, receptors may perceive a slightly broader visual envelope compared to more densely enclosed areas, however, these views are typically moderated by woodland blocks or linear vegetation in the middle and far distance.

7.5.106 Overall, Humberhead 3 is experienced as a contained and functional rural landscape, with a balance of enclosed agricultural character, infrastructure influences, and pockets of enhanced visual amenity associated with vegetated corridors and woodland.

7.5.107 Visual receptors for Humberhead 3 are shown on **Figure 7-6: Visual Receptors**.

Relationship to Proposed Yorkshire Wolds National Landscape

7.5.108 The proposed Yorkshire Wolds NL lies approximately 8.2 km east of Humberhead 3 at its closest point. Intervisibility within Humberhead 3 is generally limited to short and medium distances and often within field parcels or limited to those fields immediately adjacent, as vegetation frequently filtering or truncating views. However, where breaks in the vegetative framework occur, the flat foreground allows for longer sightlines, particularly toward the east where the landform rises distinctly into the proposed Yorkshire Wolds NL.

7.5.109 The visual relationship with the proposed Yorkshire Wolds NL is therefore intermittent but notable. In certain locations, receptors experience glimpsed or partial views of the elevated, rolling landform beyond Humberhead 3, providing contrast with the flat agricultural foreground. These views are often framed or filtered by hedgerows and woodland, and are not continuous or

widely available, but they introduce depth and a sense of wider landscape context where they occur.

7.5.110 Elsewhere, particularly along more enclosed routes such as the vegetated corridor of the Howdenshire Rail Trail, intervisibility with the Wolds is largely restricted. Here, dense vegetation creates a contained and inward-looking visual experience, limiting outward views and reducing awareness of the broader landscape setting.

7.5.111 Vertical elements within the landscape, including a wind turbine and overhead powerlines, are often visible above the low-lying field structure and can draw focus within the field. These features occasionally compete with or interrupt views toward the Wolds, further influencing the clarity and perception of this visual relationship.

7.5.112 Overall, the Wolds are perceived as a distant and occasionally glimpsed feature rather than a defining component of the visual baseline, with intervisibility varying considerably depending on vegetation, route alignment, and localised openness.

Public Rights of Way

7.5.113 There are a number of PRoWs located on or in close proximity to Humberhead 3, as shown in **Figure 7-12-3: Public Receptors**. These include:

- Foggathorpe Footpath No.10 which runs east to west connecting Main Road at Laytham to unnamed road ~24 m to the north of Humberhead 3-1.
- Seaton Ross Footpath No.8, which connects south end of Seaton Ross to wider PRoW networks in the south, cuts through Humberhead 3-2 briefly between Fields 3-2-1 and 3-2-3 and follows the majority of the southern boundary of the Humberhead 3.
- Seaton Ross Footpath No.9 travels in northwest to southeast manner, cutting through the northeastern corner of Humberhead 3-2.
- Seaton Ross Footpath No.10 runs in a predominantly in a north to south manner, directly adjacent to the eastern boundary of Humberhead 3-2.
- Holme-on-Spalding-Moor Footpath No.4 runs northeast to southwest, with small section of the path cutting into Humberhead 3-3 at its northwestern edge.
- Holme-on-Spalding-Moor Bridleway No.28 runs parallel to, and abuts, the southern boundary of Humberhead 3-3. The bridleway is part of the Market Weighton to Bubwith Rail trail.

Highways

7.5.114 There are a number of small lanes and A roads which surround Humberhead 3. These include:

- Breckstreet Lane, running in a northeast to west direction connecting Seaton Ross to Laytham. The lane runs parallel to the northern boundary of Humberhead 3-1;
- Dial House Access Road, ~218 m to the west of Humberhead 3-3 has uninterrupted views towards Humberhead 3;
- Southfield lane, ~1.6 km to the north and west of Humberhead 3-2 would likely have views towards Humberhead 3; and
- Laytham road, connecting Foggathorpe to Laytham ~337 m west of Humberhead 3-1, would likely have views towards Humberhead 3-1, Humberhead 3-4 Humberhead 3-5, however, Humberhead 3-4 and 3-5 are being considered for ecological enhancement.

Cycleways

7.5.115 The Market Weighton to Bubwith Rail trail is a 12 km trail, through a series of bridleway, connecting the village of Bubwith to Market Weighton along the disused railway line. The trail is a route used by pedestrians, cyclists and horse riders. The trail is predominantly linear, travelling in a northeast to southwest manner. Holme-on-Spalding-Moor Bridleway No.28 runs parallel to the southern boundary of Humberhead 3-3. The bridleway is part of the Market Weighton to Bubwith Rail trail.

Railways

7.5.116 There are no active rail routes in and around Humberhead 3.

Settlements

7.5.117 Humberhead 3 is situated between Foggathorpe ~790 m to the southwest, Holme-on-Spalding-Moor ~750 m to the southeast and Seaton Ross immediately to the north.

7.5.118 Seaton Ross is a village and civil parish situated approximately 7 km west of Market Weighton. Holme-on-Spalding-Moor is a large village and civil parish 8 km southwest of Market Weighton. Foggathorpe is a village and civil parish on the A613. The village is approximately 14 km east of Selby and 12 miles west of Market Weighton.

Residential Properties

7.5.119 Residential properties associated with Humberhead 3 are shown on **Figure 7-11-3: Private Receptors**. Those in close proximity to Humberhead 3 include:

- Oak Farm and Old Oak Bark, situated to the centre of Humberhead 3-1.
- Oaktree Cottage immediately to the west of Humberhead 3-1.
- Grange Garth ~12 m to the north of Humberhead 3-1.
- Park Farm immediately to the north of Humberhead 3-2.
- Dial House ~215 m to the west of Humberhead 3-3.
- Grange Farm Barns ~235 m to the south of Humberhead 3-4 and east of Humberhead 3-5.

Humberhead 4

Visual Amenity

7.5.120 Humberhead 4 is located ~500 m to the east of Holme-on-Spalding-Moor and Welham Bridge, ~2.2 km southwest of Market Weighton and ~2.3 km northwest of North Cave. The landscape is defined by a predominantly flat, low-lying landform at approximately 6 m AOD, as seen on **Figure 7-3: Landform**, resulting in a landscape where visual structure is governed almost entirely by land use and vegetation rather than topography. Humberhead 4 presents as an intensively farmed agricultural landscape, with expansive arable fields forming a largely horizontal and visually simplified foreground.

7.5.121 Field boundaries, both within Humberhead 4 and the surrounding landscape, are typically marked by hedgerows, however, these are frequently degraded, fragmented, or poorly connected. As a result, the hedgerow network provides only limited containment and contributes to a weakened and indistinct visual structure. This lack of cohesion reduces enclosure in places, allowing more open but visually unvaried views across working farmland, while also diminishing a clear sense of landscape definition.

7.5.122 The visual character is further influenced by intrusive signs of agricultural activity, including large-scale farm buildings, storage structures, and active land management practices. The presence of both a nearby factory and large industrial estate further detracts from visual amenity. These elements are often visually prominent within the otherwise open setting and reinforce the functional and working nature of the landscape, detracting from any rural scenic quality.

7.5.123 Vertical features introduce additional visual influence within the generally flat and horizontal landscape. Wind turbines, along with other infrastructure, are often visible across Humberhead 4 and wider landscape, drawing the eye and interrupting the skyline. Their scale and movement contrast with the surrounding agricultural field pattern, adding to the sense of a developed and operational landscape.

7.5.124 Although slight variations in elevation, such as the minor mound within Field 4-3-1 of Humberhead 4-3 and the elevated position of All Saints Church at Holme-on-Spalding-Moor within the wider landscape, afford more extensive

views across parts of Humberhead 4, these do little to alter the overall perception of a broad, exposed, and visually modest landscape.

7.5.125 Overall, Humberhead 4 is experienced as a flat, intensively managed agricultural landscape with a fragmented vegetative framework and a strong influence from built and vertical elements, resulting in limited visual cohesion and reduced aesthetic appeal.

7.5.126 Visual Receptors for Humberhead 4 are shown of **Figure 7-6: Visual Receptors**.

Relationship to Proposed Yorkshire Wolds National Landscape

7.5.127 Intervisibility within Humberhead 4 is generally limited by the flat landform, boundary vegetation and woodland pockets, which frequently filter or truncate views. However, where breaks occur in this vegetative framework, longer views are possible, particularly toward the east where the landform rises to form the proposed Yorkshire Wolds NL, which lies approximately 4.6 km east by north east of Humberhead 4, beyond the settlement of Markey Weighton.

7.5.128 The visual relationship with the Wolds is therefore present but limited. In certain locations, distant and often partial views of the elevated, rolling landform are available, providing contrast with the flat foreground and introducing a sense of depth to the visual composition. These views are typically glimpsed and filtered rather than continuous and are not a dominant feature of the overall visual baseline.

7.5.129 The clarity of this relationship is further influenced by the presence of modern infrastructure, including wind turbines, pylons, overhead lines, large agricultural buildings, a factory and large industrial estate which are frequently visible within the flat landscape and can interrupt or compete with views toward the Wolds.

7.5.130 Overall, the Wolds are perceived as a distant and secondary component of the visual environment, with intervisibility varying depending on vegetation cover and local openness and not forming a defining element of the Humberhead 4's visual character.

Public Rights of Way

7.5.131 There are a number of PRoWs located on or in close proximity to Humberhead 1, as shown in **Figure 7-12-4: Public Receptors**. These include:

- Holme-on-Spalding-Moor Footpath No.12 lies approximately 4 m from Humberhead 4 at its closest point, to the east of Humberhead 4-1 and west of Humberhead 4-2, running alongside Back Delfin drain. The

Footpath has views towards Humberhead 4-1 and 4-2, with potential views towards Humberhead 4-3 and Humberhead 4-4 at the southern end of the Footpath;

- Holme-on-Spalding-Moor Footpath No.10 which cuts through Humberhead 4-3, connecting Lock Lane to All Saints Church and Holme-on-Spalding-Moor to the north;
- Holme-on-Spalding-Moor Bridleway No.15, which cuts through eastern portion of Humberhead 4-3, connecting Skiff Lane to Lock Lane. There are likely views of Humberhead 4-4 from the northeastern portion of the Bridleway where it joins onto Lock Lane;
- Holme-on-Spalding-Moor Bridleway No.17 cuts through and travels along the western boundary of Humberhead 4-7, connecting Drain Lane to New Lane.
- Gilberdyke Footpath No.13 lies approximately 73 m from Humberhead 4 and travels along River Foulness and Bishopsoil Drain to the south of Humberhead 4-6;
- Holme-on-Spalding-Moor Bridleway No.16 cuts through Humberhead 4-7 and travels along the southern boundary; and
- Hotham Bridleway No.3 cuts through Humberhead 4-8 and runs along the western boundary as it follows Market Weighton Canal.

Highways

7.5.132 There are a number of small lanes and A roads which surround Humberhead 4. These include:

- Cliffe Lane cuts through the eastern portion of Humberhead 4-1 connecting A614 Market Weighton Road to the north, to North Cliffe to the east;
- Lock Lane cuts through the northern portion of Humberhead 4-3 as it runs east to west from the west of Moor End, southeast of Holme-on-Spalding-Moor;
- Skiff Lane which runs northwest to southeast along the southern boundary of Humberhead 4-3 and to the north of Humberhead 4-5; and
- Drain Lane runs in a east to west manner, approximately 280 m north of Humberhead 4-7.

Cycleways

7.5.133 Holme-on-Spalding-Moor Bridleway No.15, No. 17, Hotham Bridleway No.3 and No.4 are the only bridleways that cross through Humberhead 4.

7.5.134 The Market Weighton to Bubwith Rail trail is a 12 km trail, through a series of bridleway, connecting the village of Bubwith to Market Weighton along the disused railway line. The trail is a route used by pedestrians, cyclists and

horse riders. The trail is predominantly linear, travelling in a northeast to southwest manner and is approximately 850 m north of Humberhead 4.

Railways

7.5.135 There are no active rail routes in and around the Humberhead 4.

Settlements

7.5.136 Humberhead 4 is situated between Holme-on-Spalding-Moor ~500 m to the west, North Cave ~2.3 km to the southeast and Market Weighton ~2.2 km to the northeast.

7.5.137 Holme-on-Spalding-Moor is a large village and civil parish. It's situated approximately 11 km northeast of Howden and 8 km southwest of Market Weighton. Market Weighton is a town and civil parish, regarded as one of the main towns in the East Yorkshire Wolds. North Cave is a village and civil parish located approximately 24 km west of Hull City Centre.

Residential Properties

7.5.138 Residential properties associated with Humberhead 4 are shown on **Figure 7-11-4: Private Receptors**. Those in close proximity to Humberhead 4 include:

- Aspen Farm and associated properties, ~170 m to the west of Humberhead 4-1;
- Group of properties associated with Linden House, immediately to the north of Humberhead 4-2;
- Group of properties within Rascal Moor, ~170 m to the west of Humberhead 4-3; and
- Hollybush and Bursera House Farm, immediately to the east of Humberhead 4-6.

Cable Route Search Corridor ('CRSC')

Visual Amenity

7.5.139 The CRSC spans a predominantly low-lying and open agricultural landscape characterised by broad, flat expanses of arable farmland. The visual character is defined by large to medium-scale fields, typically enclosed by well-established hedgerows and mature hedgerow trees, which provide a strong sense of structure and enclosure despite the underlying openness of the terrain. These vegetated field boundaries, together with intermittent blocks of woodland and small copses, contribute to a generally well-vegetated landscape pattern, filtering and containing views across much of the corridor.

7.5.140 Settlement form is dispersed and typically comprises small villages, clusters of farmsteads, and occasional individual rural properties. Built elements are

generally low-rise and vernacular in style, often partially screened by surrounding vegetation. These features introduce a degree of visual variety and create frequent interruptions within longer-distance views, reducing overall visual continuity across the landscape. As a result, views are often experienced as a sequence of enclosed or semi-enclosed visual compartments, particularly at a local scale.

7.5.141 Notwithstanding this containment, the flat topography allows for occasional longer and more open views, particularly where field boundaries are lower or vegetation cover is less dense. In these locations, the landscape can appear more expansive, with the horizontal emphasis accentuated by the lack of pronounced landform variation. Within parts of the CRSC, most notably close to Humberhead 2, there is potential for fleeting and intermittent views both towards and from the proposed Yorkshire Wolds NL. These views are typically limited in duration and extent, often occurring at breaks in hedgerows, at junctions, or along minor elevations such as road embankments, and are frequently filtered by intervening vegetation.

7.5.142 In addition to the rural land use and settlement pattern, elements of modern infrastructure are evident in parts of the corridor and influence the visual baseline. Wind energy development, electricity transmission infrastructure in the form of pylons and overhead lines, and sections of major road infrastructure are variably present. These features introduce vertical and linear elements into the landscape, which can locally increase visual prominence and influence the perceived scale and character of views, particularly where they are less effectively screened by vegetation.

7.5.143 Overall, the visual character of the corridor is one of a settled and managed rural landscape, where the interaction between agricultural land use, vegetated boundaries, dispersed built form, and occasional infrastructure creates a balanced composition of openness and enclosure. The presence of woodland blocks, mature hedgerow networks, and intervening structures plays a key role in moderating visual permeability, contributing to a landscape that is visually coherent but locally variable in terms of enclosure, visual influence, and available views.

Visual Relationship to Proposed Yorkshire Wolds National Landscape

7.5.144 The CRSC does not extend into the proposed Yorkshire Wolds NL designation. The CRSC is likely visible from the higher ground of the Yorkshire Wolds at Londesborough, and from other parts of the Study Area primarily those within close proximity.

Public Rights of Way

7.5.145 There are several PRoWs within the CRSC. Primarily, Footpaths and Bridleways connecting settlements, farmsteads and farms together.

Highways

7.5.146 There are a number of small lanes and A roads which cut through the CRSC, notably:

- A1079, south of Hayton;
- A614, north of Humberhead 4-1;
- Cliffe Lane;
- Lock Lane;
- Skiff Lane; and
- Drain Lane.

Cycleways

7.5.147 The Market Weighton to Bubwith Rail Trail is a 12 km trail that is used by pedestrians, cyclists and horse riders. The trail is predominantly linear. The CRSC crosses the trail at two sections east of Humberhead 3.

Settlements

7.5.148 The CRSC does not cross through any settlements, villages or hamlets.

Residential Properties

7.5.149 The CRSC encompasses a number of individual residential properties and groups. Most of which are associated with farmsteads.

7.5.150 The baseline, visual receptors and viewpoints for the CRSC will be further established as the CRC becomes more refined.

LVIA Assessment Material

Zone of Theoretic Visibility

7.5.151 In order to assist with viewpoint selection and to appreciate the potential influence of the Scheme in the wider landscape, Zone of Theoretical Visibility ('ZTV') figures have been used to illustrate the area from where it may be theoretically possible to view all, or part, of the Scheme. The ZTV's produced are both Bare Earth (landform only) (see **Figure 7-9: Bare Earth ZTV**) to illustrate a worst-case scenario and augmented ZTV figures (see **Figure 7-10: Augmented ZTV**) which illustrate the effects of landform, built form and vegetation.

7.5.152 The ZTVs provide a starting point in the assessment process and therefore provide a 'worst case' illustration of theoretical visibility and assume that if any part of the Scheme is visible it will be shown on the ZTV.

7.5.153 The ZTV's would be refined through the iterative design process to help understand the impacts of changes to the designs. The comparative ZTV's are produced using ArcGIS Pro 2.1 software, and the calculations were based on the maximum design parameters of the Scheme components set out in **Chapter 4: Scheme Description**, including: at 4.5 m above ground level (AOD) for Tracking PV Panels (as a worst case in terms of maximum panel height), Conversion Units, Sub-distribution Switch Rooms and BESS. 10 m (AOD) for 132kv Substation and 15 m (AOD) for 400kv Substation (as a worst case in terms of the maximum height of the electrical busbars).

7.5.154 Augmented ZTV's would also be produced through the iterative design process to illustrate with greater accuracy the theoretical visibility of the Scheme. A ZTV would also be run to illustrate the screening effects of vegetation at year 15 (summer).

7.5.155 It should be noted that ZTV mapping does not show definitive extents of visibility, and whilst helpful to the LVIA assessment process is not a direct indicator of potential visibility.

Viewpoints

7.5.156 A suite of potential viewpoints has been identified through desk studies which have been ground-truthed through fieldwork. Their positions would be subject to consultation with the Local Planning Authority ('LPA') and fixed prior to verified photography being undertaken. Viewpoint selection would follow good practice guidance and in particular paragraphs 6.18 to 6.20 of GLVIA3 and in line with LI TGN 06/19 (Ref 7-4). The viewpoints proposed will be used to aid the description of effects on both landscape and visual resources and would be utilised for visual assessment purposes.

7.5.157 The selection of viewpoints is made on the basis of the following types of publicly accessible viewpoints, as follows:

- Representative viewpoints (representative of views from a particular PRoW);
- Specific viewpoints (such as key views from a specific visitor attraction);
- Illustrative viewpoints (chosen to demonstrate a particular effect/specific issue);
- Any important sequential views, for example, along key recreational or transport routes; and
- Any additional agreed viewpoints that have been requested by consultees and the LPA.

7.5.158 For the purposes of the LVIA, all viewpoints are proposed to be taken from publicly accessible land and once the location of photography has been agreed with statutory consultees, technical photography would be undertaken in both summer and winter to ensure a worst-case scenario is assessed and illustrated.

7.5.159 The initial visual appraisal has identified a number of viewpoints which represent views from users of these PRoWs (visual receptors). Representative views are presented in **Appendix 7-B: Illustrative Viewpoint Photography**. The viewpoint locations are shown on **Table 7-1** and **Figure 7-14: Viewpoints**. The following table lists the proposed viewpoint locations that will be used in the LVIA assessment.

Table 7-1 List of viewpoints

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Closest Humberhead Site
1	EY|Hotham|Bridleway No.4	Pedestrians, cyclists and horse riders	4
2	EY|Hotham|Bridleway No.3	Pedestrians, cyclists and horse riders	4
3	EY|Hotham|Bridleway No.6	Pedestrians, cyclists and horse riders	4
4	Lock Lane	Walkers, Motorists and Residents	4
5	EY|Holme on Spalding Moor|Footpath No.10	Pedestrians	4
6	EY|Holme on Spalding Moor|Footpath No.10	Pedestrians	4
7	All Saint's Church Cemetery, Holme on Spalding Moor	Pedestrians, Residents and Users	4
8	Skiff Lane, Rascal Moor	Walkers, Motorists and Residents	4
9	Skiff Lane	Walkers, Motorists and Residents	4
10	EY|Holme on Spalding Moor|Bridleway No.17	Pedestrians, cyclists and horse riders	4
11	Drain Lane	Walkers, Motorists and Residents	4
12	Bursea Lane	Walkers, Motorists and Residents	4
13	Hasholme Hall Access Road, Holme upon Spalding Moor	Walkers, Motorists and Residents	4

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Closest Humberhead Site
14	EY|North Cave|Bridleway No.40	Pedestrians, cyclists and horse riders	4
15	Junction of EY|North Cave|Bridleway No.40 and EY|North Cave|Bridleway No.5	Pedestrians, cyclists and horse riders	4
16	Pitbalk Hill	Motorists	4
17	Junction of EY|Holme on Spalding Moor|Bridleway No.28, EY|Holme on Spalding Moor|Footpath No.5 and EY|Holme on Spalding Moor|Footpath No.6	Pedestrians, cyclists and horse riders	3
18	EY|Everingham|Footpath No.8	Pedestrians	3
19	EY|Holme on Spalding Moor|Footpath No.3	Pedestrians	3
20	EY|Seaton Ross|Footpath No.8	Pedestrians	3
21	EY|Seaton Ross|Footpath No.10	Pedestrians	3
22	EY|Seaton Ross|Footpath No.7	Pedestrians	3
23	EY|South Cliffe|Footpath No.2, South Cliffe	Pedestrians	4
24	Londesborough Footpath No.3	Pedestrians	2
25	EY|Londesborough|Footpath No.3	Pedestrians	2
26	Junction of EY|Londesborough|Footpath No.2#2 and EY|Londesborough|Footpath No.4	Pedestrians	2
27	EY|Londesborough|Footpath No.2#1	Pedestrians	2
28	EY|Hayton|Footpath No.5	Pedestrians	3

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Closest Humberhead Site
29	Garrick Farm, Shiptonthorpe Road	Walkers, Motorists and Residents	3
30	Southfield Lane	Motorists	3
31	Laytham Road, Foggathorpe	Motorists	3
32	Oak Farm	Walkers, Motorists and Residents	3
33	EY|Ellerton & Aughton|Footpath No.5	Pedestrians	3
34	Main Street Allerthorpe	Walkers, Motorists and Residents	1
35	EY|Allerthorpe|Bridleway No.4	Pedestrians, cyclists and horse riders	1
36	Pocklington Canal Head	Pedestrians, cyclists and horse riders	1
37	The Balk	Walkers, Motorists and Residents	1
38	Everingham Lane, Hayton	Motorists	1
39	EY|Everingham|Bridleway No.9	Pedestrians, cyclists and horse riders	1
40	EY|Bielby|Footpath No.6#1	Pedestrians	1
41	Unnamed Road, East of Bielby	Walkers, Motorists and Residents	1
42	Carr Lane	Motorists	1
43	Bridge Cottages	Walkers, Motorists and Residents	1
44	A1079	Motorists	1
45	Cross Gate	Motorists	2
46	Cleaving Garth Road, Londesborough	Walkers, Motorists and Residents	2
47	EY|Hayton|Footpath No.3	Pedestrians	2
48	EY|Nunburnholme|Bridleway No.11	Pedestrians, cyclists and horse riders	2
49	EY|Warter|Footpath No.9	Pedestrians	2
50	EY|Everingham|Bridleway No.3	Pedestrians, cyclists and horse riders	4
51	EY|Everingham|Bridleway No.13	Pedestrians, cyclists and horse riders	1

Viewpoint No.	Visual Receptors	Receptor Represented by the Viewpoint	Closest Humberhead Site
52	EY|Market Weighton|Footpath No.4#2	Pedestrians	4
53	EY|Holme on Spalding Moor|Footpath No.12	Pedestrians	4
54	EY|Holme on Spalding Moor|Bridleway No.15	Pedestrians, cyclists and horse riders	4

Photomontages

7.5.160 Once the representative viewpoints are finalised and agreed, a series of photomontages are proposed to be produced to show the effects of the Scheme at locations where significant effects are considered likely to occur. Locations of the required photomontages and Actual Visual Representation ('AVR') level would be agreed with the LPA and other statutory consultees, if necessary. At locations where significant effects are predicted it is proposed to undertake LI TGN 06/19 Type 4 photomontages to AVR Level 3 in both winter and summer months (Ref 85).

It is not proposed to produce any photomontages for the CRSC on the basis that the majority of development will be below ground. Access points will be above ground, but effects are likely to be small, barely perceptible and localised, with existing filed accesses used where practicable.

7.6 Potential Effects and Mitigation

7.6.1 This section sets out the potential effects of the Scheme on Landscape and Visual receptors in relation to the construction and decommissioning and operation and maintenance phases of development.

Landscape Effects

7.6.2 A development of this scale is expected to have some potential landscape effects, however the effects for a scheme of this nature are temporary, reversible and generally low impact. This will depend on the final design of the Scheme which will be assessed in full as part of the LVIA. Solar panels are low-level in stature, and the components sit lightly on affected land whilst respecting and enhancing existing field boundaries. The final design of the Scheme will include measures to design out potential adverse landscape effects, reduce potential effects and/or mitigate potential adverse effects. These embedded mitigation measures are described below.

7.6.3 It is recognised that the change in land use required to accommodate a green field solar development and the direct adverse impacts that this has on the character of the individual sites themselves would result in a fundamental change to the character of the individual fields and indirectly affect the character of their immediate surroundings with the land now presenting as a large scale solar scheme, albeit these impacts are temporary and reversible and generally low in the context of other forms of 'development'. As the land within the Scheme may still be used for agriculture (the land beneath the panels may be used for grazing, whilst also providing some biodiversity value) this change is seen as a temporary diversification of agricultural land.

7.6.4 The landscape character of the Site would generally change from agricultural land and pasture to a solar PV development comprising a number of new built elements as outlined within **Chapter 4: Scheme description,** albeit the land within the Site may be used for grazing, which would represent a continued form of agricultural use, combined with the generation of renewable energy. For the purposes of EIA Scoping, it has been assumed that that vegetation will be managed with machinery. The effects on landscape character will be influenced by the physical and visual containment provided by the landform, woodlands and hedgerows together with any built form or intervening features in the local landscape. Mitigation measures will be identified and embedded through the iterative design and assessment process to reduce the identified effects.

7.6.5 This relates to the change in landscape character from the addition of solar infrastructure within the individual Humberhead Sites.

Direct Landscape Effects

7.6.6 Result directly from the development itself, including:

- On the fabric of the landscape as a result of removal of, or changes in individual elements or features of the landscape and/or the introduction of new elements or features;
- On the aesthetic aspects of the landscape within the Scheme itself – for example its scale, sense of enclosure, diversity, pattern and colour, and/or on its perceptual or experiential attributes, such as a sense of naturalness, remoteness or tranquillity; and
- On the overall character of the landscape within the Scheme itself as a result of changes in the landscape fabric and/or in aesthetic or perceptual aspects, leading to modification of key characteristics and possible creation of new landscape character if the changes are substantial enough.

7.6.7 The masterplan and layout of the principal components is yet to be determined. However, the Scheme would seek to mitigate any effects by introducing additional areas of woodland, hedgerow and scrub in

appropriate locations, in order to reinforce the existing wooded and vegetated context of the local landscape which would also serve to strengthen to the landscape fabric and green infrastructure connections running through the Humberhead Sites. It is anticipated that these elements will form embedded mitigation incorporated within the design of the Scheme.

Indirect Landscape Effects

7.6.8 There is potential for adverse effects upon those LCAs identified within the Study Area that are either situated within, adjacent to or would have views towards the Site (perceptual impacts) as illustrated by the ZTV in **Figure 7-9: Bare Earth ZTV** and **Figure 7-10: Augmented ZTV**. Potential landscape effects would be primarily associated with LCA's within which the Site sits as displayed on **Figure 7-4: Landscape Character**, given that the Scheme is partially situated within their extents.

7.6.9 Indirect Effects are those that result indirectly from the proposed project as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects for example secondary or consequential effects arising from things like perceptual quality, altered landscape scale and context, changes in traffic flows, light spill at night and changes to land management practices.

Visual Effects

7.6.10 A development of this scale is expected to have some potential visual effects. For assessing visual effects, the receptors may include:

- Users of properties: such as residents, employees or visitors;
- Users of PRoWs: public footpaths, bridleways, byways and permissive paths;
- Users of transport routes: main roads and residential streets; and
- Users of places accessible to the public including open space areas, gardens and other destinations.

7.6.11 Full details of assessing visual effects can be found in **Appendix 7-A: LVIA Methodology**, with scheme specific visual receptors listed in **Table 7-4** of Section 7.9 of this report.

7.6.12 This will depend on the final design of the scheme which will be assessed in full as part of the LVIA. The final design of the scheme will include measures to design out potential adverse visual effects, reduce potential visual effects and/or mitigate potential adverse effects. These embedded mitigation measures are described below.

Embedded Mitigation

7.6.13 The Scheme will evolve through an iterative design process. A series of design principles will be embedded into the design and will include the consideration of landscape and visual impacts which, given its significance as an environmental topic, will be one of the key criteria for assessment and sensitive design modification. It will also be an important component in the eventual assimilation of the Scheme within its setting.

7.6.14 Mitigation measures will be developed iteratively throughout this design process and the LVIA and inform the layout and final design of the Scheme.

7.6.15 Full consideration will be given to landscape management strategies within the relevant published LCTs and LCAs in designing mitigation measures, as well as requirements from ecological and historical perspectives.

7.6.16 Initial anticipated embedded mitigation measures include:

- Restricting development in environmentally sensitive locations and applying appropriate development offsets and buffers from visual receptors (such as residential properties and listed buildings), as well as landscape features including ancient woodland, hedgerows, trees and watercourses. PRoWs will be integrated, avoided, screened or diverted as appropriate;
- Retention and enhancement of existing vegetation throughout the Site, wherever feasible;
- Reinforcement of existing field boundaries, where applicable;
- New location appropriate planting and features to provide visual screening, break up the extent of visible infrastructure, and link existing habitats to provide enhanced green infrastructure and biodiversity opportunities;
- Design choices for new infrastructure e.g. use of colours aligning with the natural landscape and/or styles in keeping with existing infrastructure; and
- Adjusting the alignment of the CRC to avoid designated areas and root protection zones of trees and hedgerows, wherever possible.

7.6.17 An outline Landscape and Ecological Management Plan ('oLEMP') and supporting outline Masterplan ('oM') will be prepared to accompany the DCO application, together with an outline Construction Environmental Management Plan ('oCEMP'), outline Operational Environmental Management Plan ('oOEMP') and outline Decommissioning Environmental Management Plan ('oDEMP'). These will detail the planting strategy and its management to ensure its establishment and successful implementation throughout construction, operation and eventual decommissioning.

7.6.18 For outline plans to be produced for the DCO Application, a detailed version would be prepared in general accordance with the outline plans ahead of

construction, operation (and maintenance), and / or decommissioning (as relevant), and secured by the DCO.

Landscape and Ecological Mitigation and Enhancement Areas

7.6.19 Areas within the Humberhead Sites that will not be developed with infrastructure will be used to provide appropriate mitigation as required to lessen the environmental impact of the Scheme, along with enhancement measures. The level and type of measures required will be subject to further environmental assessment and design evolution. Measures that are typical for large scale solar schemes and could be implemented throughout the Humberhead Sites include strengthening of existing vegetation, provision of mitigation planting and creation of permissive paths.

7.6.20 At this stage, it can be confirmed that Humberhead 3-4 and 3-5 are proposed solely for mitigation and/or enhancement (and the CRSC does not extend to these sub-sites). However, there will be further areas for mitigation and enhancement proposed within the Humberhead Sites as the project progresses, the location and extent of which will be informed by ongoing surveys, assessments and consultation with technical consultees.

Legacy Landscape

7.6.21 *Legacy Landscape comprises the residual changes to the local landscape following development or land uses. Our aim is for the existing landscape within which the Scheme will sit to be in a better condition through planting proposals and reconnection of habitats. Through this approach we will align as far as practicable with the Hull and East Yorkshire Local Nature Recovery Strategy landscape recovery strategies and documented within the local Landscape Character Assessments.*

7.6.22 This betterment is established as a consequence of the landscape proposals resulting in greater species variety, greater age depth, enhanced structure, resilience to pest and disease and reinforcement of local landscape character across the Sites.

7.6.23 The landscape proposals would be substantial and the beneficial effects associated with these to landscape fabric will be set out within the LVIA, with these beneficial effects associated with the tangible gains provided to landscape fabric.

7.6.24 The defining legacy of the landscape would be the robust framework of features that have improved through the mitigation and landscape enhancements. This mitigation in turn would give rise to long-term wider benefits, including maintaining and enhancing biodiversity and in promoting the resilience of ecosystems.

7.6.25 The land within the Scheme would be returned to its original use, as far as practicable, following decommissioning. However, depending on the ecological value of habitats established over the operational lifetime, there is potential for certain areas within the Humberhead Sites to be retained as a

beneficial legacy, where they provide demonstrable biodiversity value and do not conflict with the resumption of agricultural use.

7.6.26 Any such retention would be considered in the context of the ecological mitigation hierarchy and relevant environmental legislation and policy in force at that time, recognising that post-decommissioning land management would ultimately remain at the discretion of the landowner.

7.7 Methodology

7.7.1 This section describes the methodology proposed for the assessment of effects on Landscape and Visual receptors including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

LVIA Methodology

7.7.2 The LVIA will be based on guidance within GLVIA 3.

7.7.3 Agreement of viewpoints would be based on those set out in **Table 7-1**. and shown in **Figure 7-14: Viewpoints**. Visual receptors and any additional ones proposed by the LPA and other stakeholders based on consultation through the LVIA process.

7.7.4 Photography would be verifiable in line with LI TGN 06/19 (Ref 85) and would be captured in both winter and summer months.

7.7.5 The following ZTV's are proposed to be produced:

- Bare earth ZTV (Year 1 of operation and a 5 km Study Area);
- Augmented ZTV - (Year 1 of operation and a 2 km Study Area); and
- Cumulative Augmented ZTV (Year 1 of operation and a 2 km Study Area).

7.7.6 Due to the dispersed nature of the Humberhead Sites within the Scheme, an assessment of the in-combination landscape and in-combination and sequential visual effects of the Humberhead Sites will be undertaken to determine the effects of the Scheme as a whole.

7.7.7 Sequential views occur when the observer has to move to another viewpoint to see the same or different lapses between instances developments. Sequential effects may be assessed for travel along regularly used routes such as major roads (Motorways and A Roads) or popular paths (publicised/promoted recreational routes and national trails).

7.7.8 Further information on the proposed LVIA Methodology is set out in **Appendix 7-A: LVIA Methodology**.

Residential Visual Amenity Assessment

7.7.9 Current guidance on RVAA is contained within the Landscape Institute's Technical Guidance Note ('TGN') 2/19 (Ref 90) which sets out there is no automatic legal 'right to a view', even in the case of significant impacts to residents' outlook. However, this is balanced against situations where *"the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before*".

7.7.10 Therefore, should the findings of the LVIA result in long term significant adverse effects on visual amenity for a residential property, discussion will be undertaken with ERYC as to whether they require a separate RVAA to be undertaken.

7.7.11 Any RVAA would be undertaken in accordance with the Technical Guidance Note 02/2019 and the methodology and properties to be included will be agreed with ERYC.

7.7.12 Steps 1-3 of RVAA guidance align with the standard LVIA based approach defined in GLIVIA3 to assess the effects on residential amenity as follows:

- Step 1 – Definition of Study Area and scope of the assessment;
- Step 2 – Evaluation of Baseline Visual Amenity;
- Step 3 – Assessment of likely change to visual amenity of properties; and
- Step 4 – Forming the RVAA judgement.

7.7.13 Stage 4 of the RVAA is defined as being required as follows:

"In this final step, and only for those properties where the largest magnitude of effect has been identified, a further judgement is required."

7.7.14 It is therefore proposed to undertake steps 1-3 as part of the LVIA for the Scheme and if following assessment of affects upon residential properties at year 15 there remain significant effects at the highest magnitude of significance (major) then a full RVAA would be undertaken for those properties affected.

Glint and Glare

7.7.15 The LVIA will consider the conclusions of the Glint and Glare Assessment in association with an assessment of the magnitude of landscape and visual impacts using the methodology prescribed above.

Lighting

7.7.16 The LVIA will consider the lighting during the construction, operational and decommissioning of the Scheme. It will also describe any landscape measures necessary to avoid or mitigate lighting effects.

7.7.17 Construction lighting would be of a temporary nature and motion sensing security lighting will be provided within On-site Substations and within the BESS Compound to be used for maintenance and security purposes. Embedded design will be considered to minimise light pollution.

Cultural Heritage

7.7.18 The LVIA will consider the findings from the Cultural Heritage chapter of the ES. However, it will be for the cultural heritage chapter to undertake an assessment of effects to assets and their setting. Consultation would be undertaken with the cultural heritage consultant through the LVIA process.

Arboriculture

7.7.19 The LVIA will consider the findings of any arboriculture works undertaken and consider any effects upon landscape and visual receptors should vegetation removal be required as part of the Scheme. Due to the nature of the Scheme, it is considered that existing vegetation on site would be predominantly retained and any removal to accommodate elements associated with construction or access would be subject to a BS5837:2012 tree survey and associated Arboricultural Impact Assessment which would inform the LVIA. Mitigation associated with any such tree loss associated with the Scheme would be included in the landscape mitigation plans forming part of the LVIA. The local arboreal assets and character inform the LVIA and associated mitigation plans.

Ecology

7.7.20 The LVIA will consider the findings of the ecological reports and close liaison with the ecology consultant would form a key part of the LVIA mitigation strategy. Ecological effects would be dealt with wholly in the biodiversity chapter of the ES. This approach will ensure that the landscape mitigation proposed for landscape and visual requirements is considered holistically in conjunction with ecological requirements to maximise the benefits of the Scheme.

Water

7.7.21 The LVIA will consider the findings of the flood risk reports and close liaison with the water consultant would form a key part of the LVIA mitigation strategy. Flood Risk (**Figure 7-7: Flood Risk**) would be dealt with wholly in the Water Environment chapter of the ES. This approach will ensure that the landscape mitigation proposed for landscape and visual requirements is considered holistically in conjunction with flood risk requirements to maximise the benefits of the Scheme.

Soils

7.7.22 The LVIA will consider the findings of the soils reports and close liaison with the soil consultant would form a key part of the LVIA mitigation strategy, including existing Agricultural Land Classification ('ALC') (**Figure 7-8: Agricultural Land Classification**). Effects on soils would be dealt with wholly in the Soils chapter of the ES. This approach will ensure that the landscape mitigation proposed for landscape and visual requirements is considered holistically in conjunction with soil requirements to maximise the benefits of the Scheme.

In-Combination and Cumulative Effects

7.7.23 A cumulative assessment will be undertaken, assessing both the cumulative landscape and cumulative visual effects of the Scheme in conjunction with other consented renewable schemes and those known within the planning process within the 5 km Study Area. The Study Area for cumulative developments is proposed at a 5 km radius from the scheme. Within the LVIA effects on Landscape Character will be assessed out to 5 km with effects on visual receptors being assessed out to 2 km.

7.7.24 This will be provided within the Cumulative Effects chapter of the ES.

7.7.25 The full methodology is set out in **Appendix 7-A: Landscape and Visual Impact Assessment Methodology**.

7.7.26 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects chapter of the ES. Receptors identified within the LVIA will be assessed within in-combination effects assessment.

7.8 Assumptions, Limitations and Uncertainties

7.8.1 The Scheme has the potential to affect landscape and visual receptors across a large area which has been assessed based on the application boundary, including ZTV's produced in **Figure 7-9: Bare Earth ZTV** and **Figure 7-10: Augmented ZTV**. The preliminary Study Areas proposed would be further refined through the LVIA process.

7.8.2 The following limitations within the LVIA are proposed:

- Fieldwork within the Study Area would be undertaken from publicly accessible locations only; and
- Assessment of effects upon residential properties would be undertaken from the curtilage of residential properties where publicly accessible unless other arrangements are agreed with individual residents to gain access to their property. Professional judgement would be used to assess

views from residential properties aided by the ZTV, aerial photography and LVIA figures.

7.8.3 The design and layout of the Scheme will be developed through the LVIA assessment in an iterative way in line with the Mitigation Hierarchy and GLVIA3, informed by technical assessments, surveys and consultation with the LPA, key stakeholders and the local community.

7.8.4 The assessment process includes iterative design and re-assessment of any remaining, residual effects that could not otherwise be mitigated or 'designed out'. The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); cumulative. The landscape and visual assessment unavoidably involves a combination of both quantitative and qualitative assessment and wherever possible a consensus of professional opinion would be sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

7.9 Summary of Elements Scoped In and Scoped Out

7.9.1 A summary of the elements scoped into and out of the assessment of Landscape and Visual effects is presented in **Table 7-2**.

Table 7-2 Elements scoped in and out of the assessment of Landscape and Visual

Element	Scoped in	Scoped out
0.5 km Cable Route Study Area	Scoped in for Landscape & Visual (Construction)	Scoped out for Landscape & Visual (Operation and Decommissioning)
1 km Study Area	Scoped in for Landscape & Visual Cumulative landscape and visual effects (Construction, Operation and Decommissioning)	-
2 km Study Area	Landscape & Visual (Visual receptors identified with direct, extensive and/or open views towards the Scheme) Cumulative landscape and visual effects (Construction, Operation and Decommissioning)	Visual (Visual receptors identified with no direct, extensive and/or open views towards the Scheme) (Construction, Operation and Decommissioning)

Element	Scoped in	Scoped out
5 km Study Area	Landscape (unless otherwise specified) Cumulative landscape effects (Construction, Operation and Decommissioning)	Visual (unless otherwise specified) Cumulative visual effects (Construction, Operation and Decommissioning)

Landscape Receptors

7.9.2 All Landscape Receptors within the 5 km have been considered within this scoping chapter. **Table 7-3** below highlights Landscape Receptors that have been scoped in and out. Receptors that have been scoped in will be assessed in full. Where receptors have been scoped in/out in the table below this refers to all phases of the scheme including Construction, Operation (Years 1 and 15) and Decommissioning.

7.9.3 This section of the report is supplemented by, and should be read in conjunction with **Appendix 7-D: LVIA Receptors** alongside **Figure 7-5: Landscape Receptors**;

Table 7-3 Landscape receptors scoping

Landscape Receptor	Scoped In / Scoped Out	Rationale
LCTs and LCAs as defined by East Riding of Yorkshire Landscape Character Assessment (2018)		
LCT 1: LCA 1A, LCA 1B, LCA 1C, LCA 1D	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCT 2: LCA 2D	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCA 2B	Scoped out	Over 3 km from Site, limited intervisibility and perceived through the settlement of Pocklington
LCA 2C	Scoped out	Over 3 km from Site, limited intervisibility and perceived through the settlement of Pocklington

Landscape Receptor	Scoped In / Scoped Out	Rationale
LCT 3: LCA 3C	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCA 4A	Scoped out	Over 4 km from Humberhead 3-4 and 3-5, to be used for ecological mitigation, limited intervisibility was experienced through site survey
LCT 5: LCA 5B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCT 6: LCA 6A, LCA 6B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCT 7: LCA 7A, LCA 7B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCT 8: LCA 8A, LCA 8B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCA 9D	Scoped out	Over 3.5 km from Site, limited intervisibility.
LCA 9E	Scoped out	Over 3.5 km from Site, limited intervisibility.
LCT 10: LCA 10A, LCA 10B, LCA 10D, LCA 10G, LCA 10H	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCA 10D	Scoped out	Over 4.5 km from Site, limited intervisibility

Landscape Receptor	Scoped In / Scoped Out	Rationale
LCT 11: LCA 11A, LCA 11B	Scoped in	Within 5 km Study area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
LCT 12: LCA 12A	Scoped out	At edge of 5 km Study Area, limited intervisibility
Proposed National Landscapes		
Proposed Yorkshire Wolds NL	Scoped in	Adjacent to Site where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Landscape Fabric		
Ancient Woodland and Woodland	Scoped in	Within Site itself.
Veteran Trees, Trees and Hedgerows	Scoped in	Within Site itself.
Land Use	Scoped in	Within Site itself.
Cycleways and Long-distance footpaths		
The Wolds Way	Scoped in	Within Site itself.
NCN Route 66	Scoped in	Within Site itself.
NCN Route 164	Scoped in	Within Site itself.

Visual Receptors

7.9.4 All Visual receptors within the 1 km Study Area from the outer boundary of the Humberhead Sites are scoped into the assessment, along with visual receptors within 2 km that have a direct line of sight towards development.

7.9.5 The location of the identified visual receptors within the 2 km Study Area are shown in **Appendix 7-D: LVIA Visual Receptors** and displayed on **Figure 7-6: Visual Receptors**, both of which should be read in conjunction with this chapter.

7.9.6 **Table 7-4** lists visual receptors and the scoping approach. Where receptors have been Scoped In/Out in the table below this refers to all phases of the scheme including Construction, Operation (Years 1 and 15) and Decommissioning:

Table 7-4 Visual receptors scoped in (within 1 km / 2 km Study Area)

Visual Receptor	Scoped In/Scoped Out	Rationale
Residential Receptors as set out in Figure 7-11 and Appendix 7-D: LVIA Receptors		
Individual Residential Properties	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Groups of Residential Properties	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Settlements	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Public Receptors as set out in Figure 7-12 and Appendix 7-D: LVIA Receptors		
Byways open to All traffic ('BOAT')	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Restricted Byways	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Bridleways	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Footpaths	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
The Wolds Way	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.

Visual Receptor	Scoped In/Scoped Out	Rationale
NCN Route 66	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
NCN Route 164	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Transport Receptors as set out in Figure 7-13 and Appendix 7-D: LVIA Receptors		
A Roads	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
B Roads	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Classified Unnumbered Roads	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Motorway	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Unclassified Roads	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Railway	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
Unknown Roads	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme

Visual Receptor	Scoped In/Scoped Out	Rationale
		and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.

8 Biodiversity

8.1 Introduction

8.1.1 This chapter sets out the proposed scope and methodology for the assessment of potential significant effects arising from the Scheme on Biodiversity (Ecology and Ornithology) during construction, operation and decommissioning. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Ecology and Ornithology to fully inform the Environmental Statement ('ES'). Matters that are proposed to be scoped in and out of the assessment are identified.

8.2 Legislation, Planning Policy Context and Guidance

8.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the ES.

Legislation

8.2.2 The biodiversity assessment for the Scheme must comply with domestic legislation and international agreements that protect habitats and species. These frameworks require potential impacts to be assessed, significant adverse effects to be avoided, and appropriate mitigation measures to be implemented where necessary. Collectively, they provide the legal and policy basis for ensuring that impacts on biodiversity are properly understood, evaluated, and mitigated.

8.2.3 Relevant legislation includes:

- The Environment Act 2021 (Ref 79);
- The Wildlife and Countryside Act 1981 (as amended) (Ref 100);
- The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019) (Ref 101);
- The Countryside and Rights of Way ('CRoW') Act, 2000 (Ref 80);
- The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 102);
- The Natural Environment and Rural Communities ('NERC') Act 2006 (Ref 103)
- The Hedgerow Regulations, 1997 (Ref 104); and
- The Protection of Badgers Act, 1992 (Ref 105);
- The Wild Mammals (Protection) Act 1996 (Ref 151); and

- The Town and Country Planning Act (1990) as amended, including specifically recently inserted schedule 14 (the Environment Act 2021; Ref 79)

8.2.4 On 15 April 2026, the Government confirmed that biodiversity net gain ('BNG') will become mandatory for all Nationally Significant Infrastructure Projects ('NSIPs') from 2 November 2026 (Ref 149). This decision follows the 2025 consultation and confirms there will be no sector-specific exemptions or voluntary approach.

8.2.5 The Government has confirmed that unimpacted habitats will be excluded from the BNG baseline. Instead, the 10% BNG requirement will apply only within a defined BNG boundary, covering habitats within the DCO limits that are either negatively impacted by the development or used to deliver BNG. Applicants will be required to submit a BNG boundary plan as part of their outline biodiversity gain plan, identifying all areas of habitat included in the baseline.

8.2.6 International Agreements includes:

- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention; Ref 107);
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention; Ref 108); and
- Agreement on the Conservation of African-Eurasian Migratory Waterbirds ('AEWA'; Ref 109).

National Planning and Other Policy

8.2.7 Relevant national planning and other policy and guidance includes:

- Overarching National Policy Statement for Energy with reference to Section 5.4 Biodiversity and Geological Conservation ('NPS EN-1'; Ref 8);
- National Policy Statement for Renewable Energy Infrastructure with reference to Section 2.10 ('NPS EN-3'; Ref 9);
- National Policy Statement for Electricity Networks Infrastructure ('NPS EN-5'; Ref 10); and
- Environmental Improvement Plan ('EIP'; Ref 110).

8.2.8 The EIP 2023 outlines ambitious goals to protect and improve England's environment. Key targets include halting the decline of species abundance and restoring wildlife habitats, reducing water pollution, promoting sustainable agriculture, and preventing the spread of invasive species. To achieve these goals, the EIP sets out a series of interim targets and actions that will be implemented over the coming years.

Local Planning Policy

8.2.9 Relevant local planning policy includes:

- East Riding Local Plan Update 2020 – 2039 (Ref 13);
  - ENV5- Conserving and enhancing biodiversity and geodiversity;
  - ENV4- International, National and Local Sites of Importance for Biodiversity and Geodiversity;
  - ENV2- Promoting a High Quality Landscape; and
  - ENV3- Protecting Agricultural Land and Soil.
- Hull and East Yorkshire ('HEY') Local Nature Recover Strategy ('LNRS'; Ref 111); and
- East Riding Biodiversity Action Plan ('BAP'; Ref 112).

Standards and Guidance

8.2.10 Other guidance documents relevant to the assessment of the impacts of the Scheme on ecology and biodiversity include:

- The 25-year Environment Plan (Ref 113);
- Natural England and Department for Environment, Food and Rural Affairs ('DEFRA') Standing Advice (protected species) (Ref 114);
- Chartered Institute of Ecology and Environmental Management ('CIEEM') (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine (Ref 115);
- UKHab (2023) The UK Habitat Classification (Ref 116);
- CIEEM, Construction Industry Research and Information Association ('CIRIA'), Institute of Environmental Management and Assessment ('IEMA') (2016) Biodiversity Net Gain. Good practice principles for development (Ref 117);
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development (British Standard) (Ref 118);
- DEFRA (2024) Statutory Biodiversity Metric User Guide (Ref 119);
- Stanbury *et al*., (2021) Birds of Conservation Concern 5 ('BoCC5') (Ref 122);
- Bird Survey & Assessment Steering Group (2025) Bird Survey Guidelines for assessing ecological impacts (Ref 121);
- The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second International Union for Conservation of Nature ('IUCN') Red List assessment of extinction risk for Great Britain (Ref 122);
- Collins, J. (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition (Ref 123);

- CIEEM (2023) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats (Ref 124);
- Bat Tree Habitat Key ('BTHK') Bat Roosts in Trees: a guide for identification and assessment for tree-care and ecology professionals (Ref 125);
- English Nature (2001) Great Crested Newt Mitigation Guidelines (Ref 126);
- Amphibian and Reptile Group ('ARG') UK (2010) Advice Note 5, Great Crested Newt Habitat Suitability Index (Ref 127);
- Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10 (Ref 128);
- Natural England standing advice (2025) Badgers: advice for making planning decisions (Ref 129);
- Andrews (2013) The Classification of Badger (*Meles meles*) Setts in the UK: A Review and Guidance for Surveyors (Ref 130);
- Mammal Society (2016) The Water Vole Mitigation Handbook (Ref 131);
- Dean (2021) Water Vole Field Signs and Habitat Assessment - A Practical Guide to Water Vole Surveys (Ref 132);
- Strachan, R., Moorhouse, T. and Gelling, M. (2011) Water Vole Conservation Handbook. Third Edition (Ref 133); and
- Chanin (2003) Monitoring the Otter *Lutra lutra* (Ref 134).

8.2.11 Other guidance documents, such as specific survey methodologies, will be considered and referenced throughout the ES chapter, as appropriate.

8.3 Consultation

8.3.1 Consultation will be undertaken with statutory parties, including:

- Natural England (Discretionary Advice Service ('DAS'));
- Environment Agency (in respect of watercourse crossings); and
- Local Planning Authority (East Riding of Yorkshire Council)

8.3.2 Statutory stakeholders will also be formally requested to comment on this EIA Scoping Report, via the Scoping Opinion. Comments received will be considered and addressed through the ES, where relevant to ecology and ornithology matters.

8.3.3 To date, a DAS application has been submitted and accepted by Natural England to inform the approach to ecological and ornithological assessment. It is anticipated that the Scoping Report, alongside independent documentation, will be submitted and discussed with Natural England, particularly regarding ornithological matters from April 2026 onwards.

8.3.4 Engagement with Natural England will continue throughout the EIA process and up to submission of the planning application, with feedback incorporated where relevant particularly the survey design, methods and subsequent assessments.

8.3.5 Consultation will also be undertaken with non-statutory parties, including:

- Yorkshire Wildlife Trust;
- Hull and East Yorkshire Local Nature Partnership;
- Royal Society of Protection of Birds; and
- Landowners and local conservation groups (where practicable).

8.3.6 Engagement with local senior reserve manager (National Nature Reserves) has been undertaken in relation to whimbrel foraging and roosting locations (see paragraph 8.5.59).

8.4 Study Area

8.4.1 The Scoping Site Boundary is split into two broad areas, the Humberhead Sites and the Cable Route Search Corridor ('CRSC'), which are located and detailed in **Chapter 3: The Scheme and Surrounding Area** as shown on **Figure 1-1: Site Location and Scoping Site Boundary**.

8.4.2 The Study Area for biodiversity includes land within the Humberhead Sites and the CRSC and an appropriate buffer zone around the Scoping Site Boundary based on ecological and/or ornithological sensitivity.

8.4.3 The buffers established for the biodiversity Study Area align with commonly accepted industry practices and the distances that regulatory authorities typically expect to be considered when identifying potential impacts beyond the Scoping Site Boundary. This approach is based on published guidelines, Natural England's advice on other solar NSIPs and professional judgement, as set out in Section 8.2.

8.4.4 The size and scope of the Study Area varies depending on the specific ecological feature at risk. The following has been applied:

- Statutory designated international sites - the Scoping Site Boundary and 20 km radius (for ornithology) and 10 km (for ecology) - however, beyond this will be considered if appropriate;
- Statutory designated national sites - the Scoping Site Boundary and 2 km radius;
- Statutory designated Sites of Special Scientific Interest ('SSSI') Impact Risk Zones ('IRZs') – 5 km to 10 km radius;
- Non-statutory designated local sites - the Scoping Site Boundary and 2 km radius;
- Ancient woodland and Priority Habitats - the Scoping Site Boundary and 2 km radius;
- Protected and Priority Species records - the Scoping Site Boundary and 2 km radius;
- Breeding bird surveys and breeding bird habitat suitability assessment- the Scoping Site Boundary and between 100-200 m radius;

- Non-breeding bird surveys - the Scoping Site Boundary and up to 300 m radius.
- Ornithological desk study records within 2 km, but extends up to 50 km (BTO Data Report; see paragraph 8.5.44)
- Badger survey - the Scoping Site Boundary and 30 m radius where appropriate;
- Bats - Transect survey – the Scoping Site Boundary;
- Bats - Static survey – the Scoping Site Boundary;
- Bats - Ground Level Trees Assessments – the Scoping Site Boundary;
- Bats - Emergence surveys (if required) – the Scoping Site Boundary;
- Great Crested Newt – Habitat Suitability Index ('HSI') and environmental ('eDNA') survey – the Scoping Site Boundary and 250 m radius where appropriate;
- Otter survey – the Scoping Site Boundary and suitable habitat within 200 m and
- Water vole survey – the Scoping Site Boundary.

8.4.5 The Scoping Site Boundary is indicative at the scoping phase, while optioneering is ongoing to identify the most appropriate corridors for the underground Grid Connection Cables.

8.4.6 As the design is refined, the Scoping Site Boundary, in particular the CRSC is expected to decrease in size to a Cable Route Corridor ('CRC') in response to environmental and technical considerations identified through the EIA process, discussions with landowners, and consultation feedback from key stakeholders and the wider community. Consequently, as the Site is refined, the ecological and ornithological Study Area will also be reduced accordingly, and this will be described and detailed in ES.

8.4.7 For avoidance of doubt, the entirety of the Scoping Site Boundary is considered as a whole, unless stated otherwise.

8.5 Baseline Conditions

8.5.1 This section describes the baseline ecological and ornithological conditions established through desk study and field surveys undertaken at the time of writing. For the purposes of this document, the Scheme is divided into the following components (see **Figure 1-1**):

- Humberhead Sites: areas comprising the solar array and associated infrastructure where works will result in long-term land use change and long-term habitat alteration (the Humberhead Sites are described as Humberhead 1 to 4, each of which comprise a series of sub-sites i.e. Humberhead Site 1-1 to 4-8); and
- CRSC: cable area (as explained in paragraph 8.4.6, to be refined to a CRC within which the underground Grid Connection Cables will be located)

where works will be temporary and short-term in nature, associated with construction and reinstatement activities. Note that once the cable route is in place, the cables will remain in-situ (underground) for the operational lifetime of the development.

Desktop Sources

8.5.2 The following desktop sources have been used to inform the existing conditions of the Ornithology Study Area:

- Multi-Agency Geographic Information for the countryside ('MAGIC') website (Ref 135);
- North & East Yorkshire Ecological Data Centre ('NEYEDC') (Ref 136);
- East Riding of Yorkshire Council website (Ref 137);
- Hull and East Yorkshire Local Nature Partnership website (Ref 138);
- British Trust for Ornithology ('BTO') Wetland Bird Survey Report (Ref 139);
- The BTO Data Report (Ref 140);
- Joint Nature Conservation Committee ('JNCC') website (Ref 141);
- Ordnance Survey mapping (Ref 142); and
- Google Maps (Ref 143), including aerial photography.

Surveys Undertaken and Proposed

8.5.3 The following surveys have been partly completed at the time of writing:

- Non-breeding bird surveys (October 2025-March 2026) within the Humberhead Sites; and
- Ecological Walkover of the Humberhead Sites.

8.5.4 The following surveys are currently proposed and are scheduled to take place up until the project submission:

- Spring Passage Surveys (March 2026-Mid May 2026) within the Humberhead Sites and Spring Passage Surveys (March 2027-mid May 2027) within the CRSC (the CRSC is only applicable to the scoping stage);
- Breeding Bird Surveys (April 2026 to July 2026) within the Humberhead Sites;
- Autumn Passage Surveys (August 2026 to October 2026) within the Humberhead Sites and the CRSC;
- Wintering bird surveys (November 2027-February 2027) within the CRSC;
- Breeding bird habitat suitability assessment within the CRSC during autumn 2026 (dependant on foliage density);
- UK Habitat Classification ('UKHab') Surveys (May 2026 to July 2026) within the Humberhead Sites and the CRSC;
- Badger Walkover Surveys (May 2026 to July 2026) within the Humberhead Sites and the CRSC;

- Bat Preliminary Roost Assessment and Bat Transect and Static Activity Surveys (May 2026 to September 2026) within the CRSC and within the Humberhead Sites;
- Great Crested Newt HSI and eDNA surveys (April 2026 to May 2026) within the Humberhead Sites and the CRSC; and
- Water Vole and Otter Surveys within the Humberhead Sites and the CRSC (April 2026 to October 2026).

8.5.5 Survey scope and design will be consulted and agreed with through statutory consultation. The above scheduled surveys are considered proportionate to the Scheme, and all baseline evidence gathered will inform the ES and Shadow Habitats Regulations Assessment ('sHRA').

Ornithology Surveys

8.5.6 Detailed non-breeding ornithology Surveys are being undertaken in line with the Annex C Natural England guidance (Ref 144). Whereby Vantage Point ('VP') surveys (minimum of three hours), diurnal and nocturnal walking transects are being completed per month during the defined non-breeding period (August-Mid-May, inclusive). See **Figure 8-6** for approximate VP locations and transect areas within the Humberhead Sites.

8.5.7 Surveys undertaken during November to February (core winter period) have consisted of at least three surveys per month (one VP, one diurnal and one nocturnal) covering the entirety of the Humberhead Sites.

8.5.8 Surveys undertaken during spring (March-mid-May inclusive) and autumn (August to October, inclusive) include one VP, two diurnal and one nocturnal), where effort is increased to capture the anticipated high turn-over of species.

8.5.9 At present surveys have only been undertaken within the Humberhead Sites (areas that will experience long-term impacts) and are anticipated to end October 2027. It is the intention to capture one-year baseline data, following similar methods undertaken by another local NSIP solar development, through engagement with the Natural England Discretionary Advice Service.

8.5.10 Non-breeding bird surveys within the CRSC (all of which fall within the SSSI Impact Risk Zone, see paragraph 8.5.21) will follow a similar methodology to those undertaken within the Humberhead Sites. Surveys within the CRSC will comprise walkover surveys only (diurnal and nocturnal-three per month during winter and four per month during passage), with VP surveys replaced by a diurnal walkover survey. Surveys will cover the entirety of the CRC plus a 300m buffer. This approach reflects the generally flat topography of the Site and the linear extent of the corridor, enabling comprehensive spatial coverage within an appropriate survey timeframe, particularly during spring and autumn passage where surveys are increased.

8.5.11 Recognising that the installation of the cable route will be temporary and likely phased, survey effort will be proportionate and may comprise a single season or year of survey (maximum of one year baseline), aligned with the proposed construction programme. Note that the one-year survey effort aligns with Natural England's advice for recent solar NSIPs (e.g. Light Valley Solar (PINS ref. EN0110012)) and the associated statutory designated sites considered here.

8.5.12 Breeding bird surveys will be undertaken once per month during the breeding season (April to July, inclusive), reflecting the presence of a farmland bird assemblage associated with the Humberhead Sites. Surveys will cover the entirety of the Humberhead Sites including 100m survey area.

8.5.13 In addition, passage surveys undertaken between April and mid-May within the Humberhead Sites will record any breeding bird activity observed during survey visits, with particular attention to dusk periods where relevant to subsequent assessments (e.g. long-eared owl/barn owl). This provides supplementary early-season and dusk coverage and increases the likelihood of detecting crepuscular Priority or transient breeding species.

8.5.14 Surveys will be undertaken in accordance with standard breeding bird survey guidance (Bird Survey & Assessment Steering Group, 2025 (Ref 121). Although six visits are often recommended as standard practice, this level of effort typically applies to structurally complex habitats (e.g. woodland/forest), where species accumulation plateaus less quickly against survey effort.

8.5.15 Note that breeding bird surveys will not be undertaken across the entire CRC due to its spatial extent and the temporary and phased nature of the works. Instead, a habitat-based assessment will be undertaken to identify and map suitable nesting features within and surrounding the CRC (200 m survey area), with a particular focus on habitats with potential to support Schedule 1 and Annex 1 species.

8.5.16 The findings of this assessment will inform the requirement for, and scope of, any pre-construction surveys and mitigation measures, which will be secured through an outline CEMP ('oCEMP'). This will include pre-construction checks where works are undertaken during the breeding season, to ensure compliance with relevant legislation and to avoid impacts on nesting birds.

Designated Sites

8.5.17 The Study Area for the identification of designated sites follows best practice guidance. Sites of international importance were assessed at least 20 km from the Scoping Site Boundary (**Figure 8-1**). National, county and locally designated sites have been assessed within 2 km of the Scoping Site Boundary (**Figures 8-2 and 8-4**).

Statutory Designated Nature Conservation Sites

8.5.18 The following sites of international importance are present within 20 km of the Scoping Site Boundary (**Figure 8-1**). The search area was extended up to 20 km radius for ornithological features. This was due to the extensive species lists associated with the Lower Derwent Valley and Humber Estuary, these sites together support a large and diverse assemblage of waterbirds and associated species, representing all major ecological niches, including breeding, wintering, foraging, roosting, and migratory functions. Given the significant overlap in species composition, the wide-ranging movements of key waterbird populations, and the functional connectivity between these designated sites, it was necessary to capture this broader ecological context when defining the ornithological Zone of Influence ('ZoI').

8.5.19 All sites are listed below alongside the closest distance to the Site.

Table 8-1 Statutory sites within 20 km of the Scheme

Site Name	Distance	Reasons for Designation
International Designations		
Humber Estuary SAC, SPA & Ramsar	8 km south of Humberhead 4	**Ramsar:** • Bar-tailed godwit – wintering • Black-tailed godwit – passage & wintering • Dunlin – passage & wintering • Estuary • Golden plover – passage & wintering • Grey seal • Knot – passage & wintering • Natterjack toad • Redshank – passage & wintering • River lamprey – passage • Sea lamprey – passage • Shelduck – wintering • Waterbird assemblage – wintering **SPA:** • Avocet – breeding & non-breeding • Bar-tailed godwit – non-breeding • Bittern – breeding & non-breeding • Black-tailed godwit – non-breeding • Dunlin – non-breeding • Golden plover – non-breeding • Hen harrier – non-breeding • Knot – non-breeding • Little tern – breeding • Marsh harrier – breeding • Redshank – non-breeding • Ruff – non-breeding • Shelduck – non-breeding

Site Name	Distance	Reasons for Designation
		• Waterbird assemblage **SAC:** • Sandbanks which are slightly covered by sea water all the time • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Embryonic shifting dunes • Shifting dunes along the shoreline with Ammophila arenaria ('White dunes') • Fixed dunes with herbaceous vegetation ('Grey dunes') • Dunes with Hippophae rhamnoides • Sea lamprey • River lamprey • Grey seal
Thorne & Hatfield Moors SPA	17 km south-west of Humberhead 4	• Nightjar - breeding
Thorne Moor SAC	17 km south-west of Humberhead 4	• Degraded raised bogs still capable of natural regeneration.
Lower Derwent Valley SAC, SPA & Ramsar	3.6 km west of Humberhead 3	**Ramsar:** • Alluvial flood meadow • Assemblage of migratory waders - passage • Teal - Wintering • Waterbird assemblage - wintering • Wetland invertebrate assemblage • Wigeon - Wintering **SPA:** • Bewick's swan – non-breeding • Golden plover – non-breeding • Ruff – non-breeding • Shoveler - breeding • Teal – non-breeding • Waterbird assemblage • Wigeon – non-breeding **SAC:** • Lowland hay meadows (A. pratensis, S. officinalis) • Alluvial woods with A. glutinosa, F. excelsior • Otter

Site Name	Distance	Reasons for Designation
Skipwith Common SAC	8 km west of Humberhead 3	• Northern Atlantic wet heaths with Erica tetralix • European dry heaths
River Derwent SAC	5 km west of Humberhead 3	• Water courses of plain to montane levels with R. fluitantis • Sea lamprey • River lamprey • Bullhead • Otter
Strensall Common SAC	18 km north-west of Humberhead 1	• Northern Atlantic wet heaths with Erica tetralix • European dry heaths
National Designations		
White Carr Meadow SSSI	Within CRSC, 0.6 km south of Humberhead 1	Traditionally managed, species-rich damp neutral grassland with diverse range of forbs, grasses and sedges, including widespread occurrence of pepper saxifrage.
Pocklington Canal SSSI	Within CRSC, adjacent to Humberhead 1	Unrestored section of canal notable for its assemblage of aquatic, fringing swamp, and tall fen plant communities including rare and local species.
South Cliffe Common SSSI	Adjacent to Humberhead 4	Mosaics of heathland, acid grassland, and wet woodland with rich invertebrate diversity. Also supports a wide range of bird species including nightjar and lesser-spotted woodpecker
Allerthorpe Common SSSI	2.1 km north-west of Humberhead 1	Mosaic of wet and dry heath with areas of birch woodland. Notable species include marsh gentian and marsh cinquefoil. Bird species include breeding nightjar, tree pipit and whinchat.
Melbourne and Thornton Ings SSSI	1.7 km west of CRSC	Flood meadows, pasture and woodland supporting rich plant diversity and breeding bird assemblage including wildfowl and waders. Also supports nationally important numbers of wintering teal, Bewick's swan, and wigeon.
Lower Derwent Valley NNR	3.6 km west of Humberhead 3	Flood meadows, pastures and woodland supporting rich diversity of plant species and both breeding and wintering birds.
Skipwith Common NNR	8 km west of Humberhead 3	Wet and dry heathland and scrub woodland.

8.5.20 The SSSI's which underpin the above international designations will also be considered in the assessment. No proposed or candidate SPA and SAC's were identified within the data search.

8.5.21 SSSI IRZs are used as a rapid initial assessment tool by Local Planning Authorities to determine if a scheme is likely to affect a terrestrial SSSI and highlight when Natural England should be consulted. The Humberhead Sites are identified within the SSSI Impact Risk Zone (**Figure 8-3**) of several SSSIs for the type and scale of development proposed (Solar schemes with footprint > 0.5 ha and all wind turbines). These IRZ's appear to correspond to the SSSI designations outlined above, however, the contours are not sufficiently defined to attribute them to specific SSSI units or features.

8.5.22 The CRSC also falls within the IRZs of several SSSIs for the type and scale of development proposed (*All planning applications and solar schemes with footprint > 0.5 ha and all wind turbines*). As above these are considered in the assessment.

Non-statutory Designated Nature Conservation Sites

8.5.23 No Local Wildlife Sites ('LWS') are located within the Humberhead Sites. The following LWS are present within or adjacent to the CRSC (**Figure 8-4**):

Table 8-2 Non-statutory sites within and adjacent to the CRSC

Site Name	Distance	Features
White Carr LWS	Within CRSC	Good quality semi-improved grassland, reedbed and woodland.
Bubwith – Holme-on-Spalding-Moor Disused Railway LWS	Within CRSC	Good quality established semi-natural verge.

8.5.24 Adjacent to the Humberhead Sites and CRSC the following non-statutory sites were recorded:

Table 8-3 Non-statutory sites adjacent to the Humberhead Sites

Site Name	Distance	Features
Nunburnholme Meadow LWS	Adjacent to northern boundary of Humberhead 2	Site exhibits elements of rich-fen, acid mire and nutrient-rich standing water.
Scorbro Rush Plantataion Historic LWS	Adjacent to western boundary of Humberhead 2	No information available.
South Cliffe Common LWS	Adjacent to south-eastern boundary of Humberhead 4	Lowland acid grassland.

8.5.25 Furthermore, a total of 26 additional non-statutory sites are located within 2 km of the Scoping Site Boundary. These comprise 20 designated and candidate Local Wildlife Sites, three historic Local Wildlife Sites, and three reserves managed by the Yorkshire Wildlife Trust.

Ecology

Habitats

8.5.26 Initial walkovers of the Humberhead Sites completed in February and March 2026, alongside review of aerial imagery, indicate that the majority of the Humberhead Sites and the CRSC comprise agricultural cropland and grazing land bordered by hedgerows, trees and watercourses with occasional small areas of woodland and ponds.

8.5.27 The following habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the Humberhead Sites and the CRSC in the desktop search:

- Deciduous Woodland (multiple areas); and
- Coastal and Floodplain Grazing Marsh (two areas).

8.5.28 The following habitats of principal importance were identified on land immediately adjacent to the Humberhead Sites and the CRSC:

- Deciduous Woodland (multiple areas);
- Coastal and Floodplain Grazing Marsh (one area);
- Lowland meadow (one area);
- Traditional orchard (one area); and
- Ponds.

8.5.29 No Ancient Woodland as listed in the Natural England Ancient Woodland database are located within or adjacent to the Humberhead Sites or the CRSC. Seaton Old Wood Ancient Replanted Woodland is the only area of Ancient Woodland located within 2 km of the Site (within approximately 110 m of Humberhead Site 3-2). No trees listed on the Ancient and Veteran Tree Inventory were identified within the Humberhead Sites or the CRSC, however two veteran trees were identified in close proximity to the southern boundary of Humberhead 4. For further information in relation to woodland and trees, refer to Section 14.8 of **Chapter 14: Other Environmental Matters**.

8.5.30 A number of watercourses are located within/adjacent to the Humberhead Sites and the CRSC and include:

- Carr Dike;
- Black Dike;
- Wood Dike;
- Foss Dike;

- Egremeont Drain;
- East Ings Drain;
- Ings Drain;
- Blamire Drain;
- Suehead Drain;
- Middle Drain;
- Towthorpe Beck;
- Missick Beck;
- Whiterail Beck;
- Pocklington Beck; and
- Pocklington Canal.

Fauna

8.5.31 Based on the habitats recorded within the baseline surveys to date and the desktop study results, the Scoping Site Boundary has the potential to support the following species/species groups:

- Amphibians;
- Reptiles;
- Badger;
- Bats;
- Otter;
- Water vole;
- Brown Hare;
- Hedgehog;
- Invertebrates; and
- Aquatic fauna.

Future Baseline - Ecology

8.5.32 The State of Nature Report (2023;Ref 152) reported that species studied have declined 19% since 1970, and 16% of nearly one in six species are threatened with extinction from Great Britain due to changes in land management (intensive farming) and climate change. Only one in seven (14%) of the UK's most important wildlife habitats are in good condition. Just 7% of woodland and 25% of peatlands meet this standard, while current fishing practices have left large areas of the UK seabed in poor condition. The report presents clear evidence that human activity has reduced the UK's biodiversity to less than half of its historic levels.

8.5.33 The future baseline for ecology is expected to remain as the current existing baseline in the absence of the Scheme proceeding as it is likely the current management of the Scoping Site Boundary as farmland will be maintained and continue. However, there is uncertainty that if the landscape and current

practices remain, then this could intensify impacts from agricultural pressures thus contributing to further declines of U.K. biodiversity.

8.5.34 It is also possible that other developments may arise in the future which could change the baseline conditions, which may be of smaller scale without the need to include enhancements to biodiversity and cumulatively, this could have a significant impact on U.K. biodiversity.

8.5.35 It is well known and evidenced that solar developments can contribute very positively to U.K. biodiversity when well designed and managed (Ref 153).

Ornithology

Study Area and Data Scope

8.5.36 The desk-based study has been focused on a core Study Area of 2 km from the Site for general ornithological records, with an extended Study Area of up to 50 km applied to identify a wider range of species using the extended area from the BTO (BTO Data Report). The 50 km search area is used solely to provide wider ornithological context and does not form part of the defined Study Area for impact assessment.

8.5.37 The purpose of the Study Area and data scope is to identify Important Ornithological Features that may be affected by the Scheme, with particular consideration of designated site qualifying features, legally protected species, and species of conservation concern.

8.5.38 Of the designated national and international sites detailed in Table 8-1, for the avoidance of doubt the following sites are scoped in as part of the subsequent detailed assessments:

- Lower Derwent Valley SPA and Ramsar site;
- Humber Estuary SPA and Ramsar site; and
- Melbourne and Thornton Ings SSSI - note that this site is considered important for ground nesting birds (curlew, lapwing, snipe and redshank) and non-breeding bird populations comparable to the internationally designated sites above. Therefore, non-breeding birds from this SSSI are assessed under the internationally designated sites.

8.5.39 Other sites listed in **Table 8-4** are not considered further for the ornithological assessment, as bird species are not cited and do not constitute reasons for notification.

The North and East Yorkshire Ecological Data Centre

8.5.40 A total of 88 bird species returned from the North and East Yorkshire Ecological Data Centre ('NEYEDC') record search within 2 km of the Scoping Site Boundary. Species include:

- 31 species listed as "Red" on the BoCC5;
- 43 species listed as "Amber" on the BoCC5;
- 14 species listed as "Green" on the BoCC5;
- 19 species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006;
- 27 species are included on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); and
- 15 species listed on Annex I of the Birds Directive.

8.5.41 Species returned comprise of a diverse range of farmland and wetland birds including (but not limited to) skylark, yellowhammer, corn bunting, curlew, lapwing, alongside species such as barn owl, marsh harrier, bittern, avocet and kingfisher.

8.5.42 It is important to note that the species within the listed bullets above are not confined to discrete groups and there is considerable overlap i.e. barn owl, green listed on the BoCC5 and Schedule 1 species.

8.5.43 Species are considered typical of the habitats within and surrounding the Scheme.

The BTO Data Report

8.5.44 The BTO Data Report identifies the following species as *notable*. Notable species are those for which the site supports a disproportionately large share of their distribution or population compared to the site's size. This is assessed by comparing the percentage of a species' range or total population found within the site to the site's percentage of the wider area. For example, if a site covers 1% of a region but contains 5% of a species' range or 6% of its population, the species is considered notable. In general, species are defined as notable where this percentage is at least twice the site's proportional size.

8.5.45 The below notable species identified across a range of geographic scales and metrics (i.e. breeding range, breeding abundance, wintering range and winter abundance) are not mutually exclusive and individual species may be represented across multiple metrics and/or geographic scales.

8.5.46 At an international geographic scale there are four species of which that are defined notable, spotted crake (breeding range), garganey (wintering range), ruff and tree sparrow (winter abundance).

8.5.47 At a national level there are 19 species defined as notable for their breeding range and 32 species for breeding abundance.

8.5.48 For non-breeding, 20 species (winter range) and 30 species (winter abundance).

8.5.49 Regionally (Yorkshire and the Humber), there are 18 species (breeding range), 30 species (breeding abundance), 24 species (wintering range) and 31 species for winter abundance.

8.5.50 The identification of notable species at international to vice-county scales reflects patterns across the wider landscape and does not necessarily indicate that the Scheme boundary itself supports these species at ornithologically significant levels. Site-specific field survey data are therefore critical in determining the functional importance of the Site.

8.5.51 The final technical assessments will include BTO Wetland Bird Survey data in order to assess the potential for Functionally Linked Land, alongside the BTO Data Report for wider landscape understanding.

8.5.52 BTO 'notable species' will not be treated as Important Ornithological Features ('IOFs') unless supported by site-specific survey evidence demonstrating regular use and ecological function.

Field Surveys

8.5.53 Field surveys to date which have been undertaken within the Humberhead Sites only have recorded a range of non-breeding waders and wildfowl, see **Table 8-4** for further information. Note that columns 1, 3, 5, 7 and 9 are counts recorded during the nocturnal surveys. **Table 8-5** presents the wider area peak counts and **Table 8-7** includes all bird species recorded as grounded during the VP surveys,

8.5.54 The results presented represent grounded peak totals across the Humberhead Sites (across all survey methods) and will be subject to further, more detailed assessment within the ES and HRA.

8.5.55 Schedule 1 birds recorded during the non-breeding bird surveys include barn owl, Cetti's warbler, crossbill, kingfisher, marsh harrier, merlin, peregrine and red kite. Records remained largely below 3 sightings for each species listed above; however, red kite were recorded a maximum count of 16 which is largely associated with roosting birds which is typical of this species.

Table 8-4 Waterbird Species Peak Counts and Occupancy Across Survey Visits within the Site during walkover surveys. (*denotes overlap of designated species, - unique to Humber estuary and -- unique to lower Derwent valley SPA).

Species	Visit										Max Peak Count	Total Records	Occupancy over survey visits (%)
	October		November		December		January		February				
	1	2	3	4	5	6	7	8	9	10			
Greylag goose*	-	-	3	-	-	-	30	-	35	40	40	9	40
Pink-footed Goose-	-	-	7	-	-	-	-	-	-	-	7	1	10
White-fronted Goose-	-	-	-	-	-	-	-	-	-	19	19	2	10
Mute swan	2	2	-	1	2	-	2	4	-	2	4	10	70
Whooper swan--	-	-	-	4	-	-	-	-	-	-	4	1	10
Egyptian goose	-	-	-	-	-	-	2	-	2	-	2	2	20
Shelduck-	-	-	-	-	-	-	-	6	-	4	6	2	20
Shoveler*	-	-	-	2	-	4	-	-	-	-	4	2	20
Gadwall--	-	-	-	-	-	4	-	8	-	-	8	2	20
Wigeon*	-	-	1	-	120	-	350	-	50	-	350	7	40
Mallard-	6	72	15	36	182	600	500	750	150	102	750	82	100
Teal*	3	19	1	37	36	200	50	600	23	50	600	65	100
Tufted duck	-	-	-	2	-	5	-	-	-	4	5	4	30
Moorhen	3	-	-	2	3	1	2	2	2	2	3	30	80
Coot	-	-	-	-	-	-	1	1	-	-	1	2	20
Little grebe	-	-	1	1	-	-	2	-	6	-	6	6	40

Species	Visit										Max Peak Count	Total Records	Occupancy over survey visits (%)
	October		November		December		January		February				
	1	2	3	4	5	6	7	8	9	10			
Lapwing*	8	-	3	260	15	-	30	-	6	-	260	37	60
Golden plover*	9	87	2	100	5	-	-	1	15	-	100	12	70
Curlew-	-	13	-	22	2	-	-	1	2	-	22	11	50
Sanderling-	-	-	-	-	1	-	-	-	-	-	1	1	10
Woodcock	1	-	5	1	3	1	7	10	8	2	10	262	90
Jack snipe	2	-	2	-	2	1	3	-	1	1	3	21	70
Snipe	3	5	3	2	22	3	60	21	37	17	60	76	100
Green sandpiper-	-	2	-	-	-	-	-	1	1	1	2	6	40
Redshank-	-	-	-	-	-	-	-	1	-	-	1	1	10
Black-headed Gull	-	350	-	110	-	42	-	45	-	34	350	31	50
Common gull	-	46	-	130	-	350	-	28	-	20	350	43	50
Great Black-backed Gull	-	2	-	-	-	1	-	15	-	-	15	7	30
Herring gull	-	2	-	-	-	4	-	2	-	-	4	4	30
Lesser Black-backed Gull	-	8	-	-	-	-	-	-	-	-	8	2	10
Cormorant	-	-	-	-	-	1	-	-	-	-	1	1	10
Grey heron	1	1	-	-	-	-	-	-	-	3	3	5	30
Great white egret	-	-	-	-	-	-	-	-	-	1	1	1	10
Little egret-	-	2	-	2	-	1	-	-	-	-	2	5	30

Table 8-5 Waterbird Species Peak Counts and Occupancy Across Survey Visits within the Wider Survey Area during walkover surveys.

Species	Visit										Max Peak Count	Total Records	Occupancy over survey visits (%)
	October		November	December		January		February					
	1	2	3	4	5	6	7	8	9	10			
Greylag goose*	1	-	-	-	-	-	70	19	400	220	400	8	50
Pink-footed Goose-	-	-	-	1200	-	-	-	-	15	-	1200	3	20
Mute swan	-	-	2	-	2	2	6	2	-	2	6	11	60
Whooper swan--	-	-	-	1	-	8	-	-	-	-	8	2	20
Shelduck-	-	-	-	-	-	-	-	-	-	6	6	3	10
Gadwall--	-	-	-	-	-	-	2	-	-	2	2	3	20
Wigeon*	-	-	-	-	-	-	-	120	75	120	120	7	30
Mallard-	120	8	22	-	2	41	80	34	30	37	120	51	90
Teal*	1	-	20	2	9	21	3	110	40	80	110	25	90
Moorhen	3	1	3	6	14	-	3	2	2	1	14	24	90
Little grebe	-	-	1	1	-	-	-	-	-	-	1	2	20
Lapwing*	80	62	2	110	-	45	4	54	2	80	110	21	90
Golden plover*	-	26	1	34	-	-	-	-	-	-	34	3	30
Curlew-	-	-	-	-	-	-	-	1	-	1	1	3	20
Black-tailed Godwit-	-	-	-	-	-	48	-	-	-	-	48	1	10
Woodcock	-	-	1	-	1	-	1	1	8	1	8	21	60
Jack snipe	-	-	-	1	-	-	-	-	-	-	1	1	10
Snipe	4	-	-	1	-	-	-	-	2	-	4	6	30

Species	Visit										Max Peak Count	Total Records	Occupancy over survey visits (%)
	October		November		December	January		February					
	1	2	3	4	5	6	7	8	9	10			
Green sandpiper-	-	-	-	-	-	-	2	-	-	1	2	2	20
Black-headed Gull	-	200	-	200	-	40	-	450	-	120	450	32	50
Common gull	-	200	-	38	-	40	-	250	-	4	250	43	50
Great Black-backed Gull	-	5	-	-	-	1	-	-	-	-	5	2	20
Herring gull	-	1	-	-	-	5	-	-	-	-	5	2	20
Lesser Black-backed Gull	-	1	-	-	-	2	-	-	-	-	2	2	20
Cormorant	-	2	8	-	-	-	1	-	-	-	8	3	30
Grey heron	3	3	-	-	-	1	-	1	-	-	3	11	40
Little egret-	-	2	-	-	-	3	-	1	-	6	6	7	40

Table 8-6 Grounded Waterbird Species Peak Counts Across Survey Visits during the Vantage Point Surveys

Species	Oct	Nov	Dec	Jan	Feb
Black-headed Gull	-	114	27	200	26
Common Gull	84	37	34	250	4
Cormorant	-	-	-	-	1
Curlew	-	-	1	-	-
Golden Plover	4	-	-	-	-

Greylag Goose	-	-	-	-	4
Herring Gull	-	16	-	1	-
Lapwing	-	-	-	3	-
Moorhen	-	-	1	1	1
Mute Swan	-	-	-	2	29
Pink-footed Goose	-	-	8	-	-
Whooper Swan	-	11	-	-	-

8.5.56 Based on the results between October 2025 and February 2026 at the time of writing, a total of 17 qualifying species have been recorded within the Site.

8.5.57 The results presented are a snapshot of the survey results to date and present the maximum peak count of birds recorded in each month between October 2025 and February 2026; note that the survey results are still under assessment.

8.5.58 The following species exceed the 1% threshold of either Lower Derwent Valley and (or) the Humber Estuary SPA and Ramsar sites. Note that WeBS data for both SPAs have been sought from the BTO and include a small and broad assessment of the Five-year peak monthly counts of each qualifying species recorded within the Site:

- Pink-footed goose did not exceed the 1% threshold; however, up to 1,200 individuals were recorded on one survey visit adjacent to the Scheme boundary. Such occurrences will be considered within the detailed assessment (i.e. via impacts due to changes to landscape);
- Greylag goose exceeded the 1% threshold in January and February for both designated sites;
- White-fronted goose (February) is not a qualifying species; however, it exceeded the 2023/24 WeBS data for both designated sites and will therefore be included in the detailed assessment;
- Whooper swan exceeded the threshold in November for both designated sites;
- Shelduck did not exceed the 1% threshold for the Humber Estuary but did exceed it for the Lower Derwent Valley in January and February;
- Shoveler exceeded the 1% threshold for both sites in November and December; however, these exceedances are not considered ornithologically meaningful (i.e. based on a single bird);
- Gadwall exceeded the 1% threshold for both sites in January; however, as with shoveler, these exceedances relate to very low numbers and are not considered ornithologically meaningful;
- Wigeon exceeded the 1% threshold in December and January for both sites;
- Mallard exceeded the 1% threshold during all survey months for both sites;
- Teal exceeded the 1% threshold in December and January for both sites;
- Lapwing exceeded the 1% threshold in November only for both sites;
- Golden plover exceeded the 1% threshold in October and November for both sites;
- Curlew exceeded the 1% threshold for the Lower Derwent Valley in October, November, and December; however, this threshold is not considered ornithologically meaningful for this species. It did not exceed

the 1% thresholds for the Humber Estuary, of which it is designated for, under the assemblage feature of the citation;
- Green sandpiper exceeded the 1% threshold for the Humber Estuary in October, January, and February, although counts were low (one to two individuals); and
- Little egret exceeded the 1% threshold in January, based on a single individual.

8.5.59 Note that engagement with local Senior Reserve Manager(s) (Natural England) has been undertaken with regards to whimbrel locations during passage, as this species is incredibly faithful to sites (foraging and roosting). There are no known roosting or foraging locations located within the Site. However, this species will still be considered as part of the assessment, should they be recorded during on-going surveys.

Key Sensitivities

8.5.60 With reference to the desk-study and the field survey results to date, the following key sensitivities identified include the following:

- Internationally designated sites: SPAs, Ramsar Sites (Lower Derwent Valley and the Humber Estuary) within the 10–20 km Study Area that support qualifying bird species with potential to range into the Site or be affected indirectly (see bullet point 4);
- Ground nesting birds: BoCC5 Red/Amber-listed species, Section 41 of the NERC Act 2006 and UK BAP or equivalent and those associated with Melbourne and Thornton Ings SSSI, potentially breeding within and surrounding the Site;
- Schedule 1 species (breeding);
- Mobile Qualifying Features of SPAs/Ramsar sites: wintering and migratory waterbirds (if applicable) that may use land outside SPA/Ramsar boundaries as functionally linked habitat, particularly during breeding and/or non-breeding periods; and
- Potential cumulative impacts.

8.5.61 Of these sensitivities, breeding ground nesting birds and the potential for functionally linked land associated with SPA/Ramsar sites are considered the primary receptors for likely significant effects.

8.5.62 Note that particular focus will be given to non-breeding species falling into the following categories:

- Species listed within the Lower Derwent Valley and Humber Estuary SPA and Ramsar citations; and
- Species considered as part of the following waterbird assemblage(s) (Annex B and Annex B1).

Future Baseline - Ornithology

8.5.63 The future baseline for biodiversity is expected to remain as the current existing baseline in the absence of the Scheme proceeding as it is likely the current management of the Site as farmland will be maintained. However, ongoing changes in agricultural practices (intensification), climate influences, and potential nearby developments may influence species composition and abundance over time, particularly for mobile and migratory species associated the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

8.6 Potential Effects and Mitigation

Embedded Mitigation Measures

8.6.1 The Scheme is currently evolving through an environmentally led iterative design process.

8.6.2 Proposed embedded mitigation measures relevant to biodiversity are likely to include:

- The construction compounds will be located on low diversity habitat, where practicable, and will be located as far as practicable from sensitive receptors;
- Opportunities to retain grazing under panels will be explored and considered alongside other compatible land uses as measures to maximise biodiversity; however, for the purposes of the scoping phase, a precautionary approach will be adopted whereby machine-based vegetation management is assumed, unless grazing represents a demonstrably worse-case scenario for biodiversity outcomes;
- Buffer(s) around any identified ancient / veteran trees will be 15 times trunk diameter or canopy spread + 5 m (whichever is greater). For further information refer to Section 14.8 of **Chapter 14: Other Environmental Matters**;
- Loss of woodland and hedgerow will be avoided where practicable and where required, will be limited to that considered necessary to facilitate access points, cable routes or fencing with reinstatement following completion of works (using a mitigation hierarchy approach). Access tracks and cable routes will be positioned to pass through existing field gates and gaps in hedgerows where practicable;
- Where possible, minimum buffers for standard trees or hedgerows with trees;
- Where possible, minimum buffer will be established for non-veteran trees;
- A minimum buffer from the bank top for all watercourses (excluding those identified with GCN and other protected species presence- these are greater) from all infrastructure and construction works, except where

watercourse crossing are required (access tracks and cable routing will be located to pass across existing watercourse crossings where feasible);
- A minimum buffer from field boundary hedgerows and from fencelines will be maintained following guidance.;
- Infrastructure and construction works will be located at suitable buffer distances from protected species, (for example, 30 m from known badger sett locations etc.) where practicable;
- Fencing of the Humberhead Sites and associated infrastructure areas will be designed to allow passage of small mammals (e.g. badger, brown hare) through permeable fence design, including incorporation of appropriate mammal gates or small naturally occurring gaps. Commuting routes through the site for deer will be maintained, with fencing being designed around existing ditches and hedgerows which act as movement corridors for wildlife;
- Existing hedgerows in poor condition will be reinforced with new planting where feasible to strengthen habitat connectivity. Opportunities for connection and extension of woodland and hedgerow will also be explored to contribute towards LNRS targets;
- Lighting is not required within the Solar Array areas for the operational phase. Motion sensing security lighting will be provided within On-site Substations and within the BESS Compound to be used for maintenance and security purposes;
- Lighting mitigation will be included in the oOEMP (paragraph 8.6.3) to ensure lighting of suitable bat commuting, foraging and roosting habitats and otter/water vole habitat is minimised;
- Assignment and utilisation of an Ecological Clerk of Works ('ECoW') to carry out pre-construction nesting bird checks, define exclusion buffers around any active nests (if necessary), and oversee works as required. Vegetation clearance will be timed, where practicable, outside the bird breeding season (March–August), or otherwise undertaken under ECoW supervision with appropriate safeguards in place;
- Ensuring all open excavations are either ramped or fenced such that unintended entrapment of fauna, e.g. badgers, does not occur;
- Provision of an ECoW to minimise impacts to great crested newt, reptiles and nesting birds during construction, via conducting searches of habitats in advance and establishing temporary buffer zones;
- Measures to avoid pollution or sediment transfer during construction; and
- Provision of an Invasive Species Management Plan ('ISMP').

Management Plans

8.6.3 A number of management plans will be in place for the Scheme. Outline versions of these management plans will be submitted with the Development

Consent Order ('DCO') application to secure the commitments contained within. Those relevant to biodiversity include:

- oCEMP;
- Outline Operational Environmental Management Plan ('oOEMP');
- Outline Decommissioning Environmental Management Plan ('oDEMP');
- Outline Drainage Strategy; and
- Outline Landscape and Ecological Management Plan ('oLEMP'), including general operational measures alongside those specific to landscape and ecology and the commitment to deliver the embedded and additional mitigation proposed.

8.6.4 Note that this is not the final list of final plans, and other plans may be included prior to the final submission based on the information gathered throughout the assessment stage.

Additional Mitigation

8.6.5 Additional mitigation comprises measures requiring further intervention to reduce effects and/or achieve outcomes beyond those assumed as part of embedded mitigation. Such measures for biodiversity will be identified through consultation, reported within the ES and illustrated in the outline masterplan once the significance of effects has been determined, taking account of committed embedded mitigation.

8.6.6 Options for additional mitigation for the Scheme relevant to biodiversity will be dependent upon the ecological features found during the baseline surveys. This will include assessing the condition of habitats to provide a baseline for Biodiversity Net Gain ('BNG'). Once the value of the ecological features and the likely effects on them are fully understood, the following mitigation hierarchy will be adopted:

- Avoid impacts (e.g. move aspects of the Scheme to avoid ecological/ornithological features entirely);
- Minimise impacts if avoidance is not possible (e.g. reducing the area of land take, protecting sensitive areas); and
- Restore if impacts cannot be avoided or minimised (e.g. restoring a habitat damaged during construction).

8.6.7 If none of the above can be carried out, compensation (e.g. creating additional habitat to that embedded in the design) would be undertaken but will only be considered after all other options have been exhausted.

8.6.8 As far as practicable, the Scheme design will be guided to avoid ecological impacts. The additional mitigation to be defined during consultation and described in ES chapter on biodiversity, will focus on minimising, restoring and compensating for impacts that cannot be avoided. Where the design incorporates avoidance of ecological receptors, this will be identified. The

proposed mitigation will be designed to be proportionate to the value of the feature and consequent impacts of the Scheme. Where there is uncertainty in the level of effect, a precautionary approach will be taken.

8.6.9 The Scheme is expected to deliver a biodiversity net gain in excess of the current mandate of 10%, and this will be demonstrated through the appropriate use of the Statutory Biodiversity Metric. An outline Biodiversity Gain Plan will accompany the DCO application.

8.6.10 Options for additional mitigation for the Scheme relevant to Biodiversity may include the following:

- Further surveys may reveal the requirement for European Protected Species Mitigation Licences ('EPSML') with bespoke mitigation solutions for protected species such as bats, great crested newts and water vole; and
- Habitat uplift in comparison to the existing baseline conditions.

Potential Impacts – Ecology

8.6.11 The sensitive receptors identified, potential magnitude of impacts and the likelihood of a resulting significant effect during the construction phase, with consideration of mitigation, are summarised in **Table 8-7**. It should be noted that the CRSC is still being refined at the point of the preparation of this Scoping Report. The scoping exercise has, therefore, followed a precautionary basis based on the worst-case scenario. Ultimately, another screening exercise will be undertaken as part of consultation and ES Chapters once the CRC is fixed.

Construction

8.6.12 There is the potential for the following construction impacts on important ecological features:

- Indirect impacts to Lower Derwent Valley SPA & Ramsar and Humber Estuary SPA & Ramsar through impacts on functionally linked land;
- Indirect impacts to River Derwent SAC through pollution pathways;
- Direct and indirect impacts to nationally designated sites within and adjacent to the Site (disturbance/degradation of habitats and species);
- Direct and indirect impacts to locally designated sites within and adjacent to the Site (disturbance/degradation of habitats and species);
- Direct habitat loss within the Scoping Site Boundary;
- Fragmentation of habitat across the Scoping Site Boundary;
- Indirect habitat loss/damage through degradation of retained/adjacent habitats;
- Indirect impacts to habitats and species through pollution (e.g. dust deposition, runoff, lighting);

- Direct disturbance, killing and/or injury of protected/notable species as well as displacement of species within proximity of the Scheme; and
- Spread of invasive species.

Operation and maintenance

8.6.13 There is the potential for the following operational impacts on important ecological features:

- Degradation of retained habitats through lack of management;
- Disturbance / displacement of species due to presence of Solar Panels within the Humberhead Sites;
- Disturbance / displacement of species during operational maintenance within the Humberhead Sites;
- Disturbance / displacement due to the replacement of solar PV modules once and batteries up to four times during the operational phase within the Humberhead Sites;
- Disturbance / displacement due to lighting of habitats that support light sensitive species such as bats within the Humberhead Sites; and
- Potential increase in botanical, bird and invertebrate species-richness due to habitat enhancements and ongoing management associated with BNG.

8.6.14 Operational activity will be limited to periodic maintenance and operational replacement which would be temporary and short-term within the Humberhead Sites. These works can be managed through protection measures within the oOEMP.

8.6.15 With regards to the CRSC, operational impacts are likely to be temporary, short-term due to routine, and/or minor maintenance activities (where required) and is not considered to be of the same magnitude as maintenance undertaken within the Humberhead Sites, as the cabling will be under-ground and left in-situ for the operational lifetime.

Decommissioning

8.6.16 Decommissioning is anticipated to take approximately 12 to 24 months.

8.6.17 During the decommissioning phase, all the solar infrastructure including Solar Panels, Solar Panel Mounting Structures, above ground cabling, Conversion Units, Sub-distribution Switch Rooms, fencing, BESS and On-site Substations would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled whenever possible. All waste will be disposed of in accordance with the legislation at the time of decommissioning.

8.6.18 The underground ducting and joint bays associated with the cables will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse

environmental effects. It may be possible to remove the cable itself by extracting it at the joint bays from within the ducting, so that the cable can be recycled.

8.6.19 The land within the Scheme would be returned to its original use, as far as practicable, following decommissioning. However, depending on the ecological value of habitats established over the operational lifetime, there is potential for certain areas within the Humberhead Sites to be retained as a beneficial legacy, where they provide demonstrable biodiversity value and do not conflict with the resumption of agricultural use.

8.6.20 Any such retention would be considered in the context of the ecological mitigation hierarchy and relevant environmental legislation and policy in force at that time, recognising that post-decommissioning land management would ultimately remain at the discretion of the landowner.

8.6.21 It is considered that the decommissioning activities have the potential for the following impacts on important ecological features:

- Indirect impacts to an internationally designated site through pollution pathways;
- Direct and indirect impacts to locally designated sites (pollution, disturbance/degradation of habitats and species);
- Direct habitat loss of habitats (retained, or reinstated);
- Fragmentation of habitat (retained, or reinstated);
- Indirect habitat loss/damage through degradation of retained/adjacent habitats;
- Indirect impacts to habitats and species through pollution;
- Direct disturbance, killing and/or injury of protected/notable species as well as displacement of species within proximity of the scheme; and
- Spread of invasive species.

8.6.22 Mitigation measures for the decommissioning stage will be set out in oDEMP. The oDEMP will ensure that decommissioning was undertaken safely and with regard to the environmental legislation at the time of decommissioning such that ecological and ornithological effects are minimised.

Table 8-7 Ecology Scoping Summary

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
Designated Sites				
Humber Estuary Ramsar – Non-ornithological features (8 km south)	International	Grey seal River lamprey Sea lamprey	Potential impacts to qualifying species arising from indirect effects of construction from run-off entering estuary will be mitigated by following standard pollution prevention measures, to be included in the oCEMP.	Non-ornithological features scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
Humber Estuary SAC (8 km south)	International	Annex I habitats: Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), Coastal lagoons, Dunes with (*Hippophae rhamnoides*m) Embryonic shifting dunes, Esutaries, Mudflats and sandflats not covered by seawater at low tide, Fixed dunes with herbaceous vegetation ('grey dunes'), *Salicornia* and other annuals colonising mud and sand, Sandbanks which are slightly covered by sea water all the time, Shifting dunes along the shorelines with (*Ammophila arenaria)* ('white dunes').	Potential impacts to qualifying features such as river lamprey arising from indirect effects of construction from run off entering estuary will be mitigated by following standard pollution prevention measures, to be included in the oCEMP. As such, potential impacts to these species and other qualifying features of the SAC are considered unlikely.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
		Annex II species: Grey seal, river lamprey, sea lamprey.		
Thorne and Hatfield Moors SAC (16 km south-west)	International	Supports Annex I habitats: Degraded raised bogs still capable of natural regeneration.	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
Lower Derwent Valley Ramsar (3 km west)	International	Alluvial flood meadow Wetland invertebrate assemblage	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase.	Non-ornithological features scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
Lower Derwent Valley SAC (3 km west)	International	Supports Annex I habitats: Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) and Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*). Also supports Annex II species otter.	Potential impacts to qualifying features, such as otter, arising from indirect effects of construction if run off were to result in pollution will be mitigated by following standard pollution prevention measures to be included in the oCEMP and oLEMP.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			As such, potential impacts to these species and other qualifying features of the SAC are considered unlikely.	
Skipwith Common SAC (8 km west)	International	Supports Annex I habitats: Northern Atlantic wet heaths with *Erica tetralix* and European dry heaths	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase. Construction traffic movements will be insufficient to create potential pathways through air pollution.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
River Derwent SAC (5 km west)	International	Supports Annex II species River lamprey as well as Sea lamprey, Bullhead and Otter. Also supports Annex I habitat Water courses of plain to montane levels with the *Ranunculion fluitantis*. and *Callitricho-Batrachion* vegetation	Potential impacts to qualifying features, such as river lamprey, arising from indirect effects of construction if run off were to result in pollution to the River Derwent will be mitigated by following standard pollution prevention measures to be included in the oCEMP and oLEMP. Potential impacts to these species and other qualifying features of the SAC are considered unlikely.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
Strensall Common SAC (16 km north-west)	International	Supports Annex I habitats: Northern Atlantic wet heaths with *Erica tetralix* and European dry heaths.	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
White Carr Meadow SSSI (0.6 km south-west)	National	Traditionally, species-rich damp neutral grassland with diverse range of forbs, grasses and sedges, including widespread occurrence of pepper saxifrage.	Potential impacts to the features of this designation are considered unlikely due to distance and lack of potential impact pathways during the construction, operation, and decommissioning phase. Construction traffic movements will be insufficient to create potential pathways through air pollution.	Scoped out for construction, operation and decommissioning for both the Humberhead Sites and CRSC.
Pocklington Canal SSSI (adjacent to Humberhead Site 1-1)	National	Unrestored section of canal notable for its assemblage of aquatic, fringing swamp, and tall fen plant communities including rare and local species.	Construction and decommissioning activities close to the boundary of the SSSI could lead to disturbance of habitats and associated species. Operational impacts are considered to be limited based on embedded mitigation measures and best practice.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation for the

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
				Humberhead Sites and the CRSC.
South Cliffe Common SSSI (adjacent to Humberhead Site 4-8)	National	Mosaics of heathland, acid grassland, and wet woodland with rich invertebrate diversity. Also supports a wide range of bird species including nightjar and lesser-spotted woodpecker (*Dendrocopos minor*).	Construction and decommissioning activities close to the boundary of the SSSI could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase is anticipated to have reduced impact compared to current agricultural use.	Scoped in for construction and decommissioning for the the Humberhead Sites and CRSC. Scoped out for operation for the Humberhead Sites and the CRSC.
Skipwith Common SSSI (8 km west)	National	Skipwith Common is an extensive tract of heathland on a spur of glacial sands which forms the watershed between the lower Derwent and Ouse valleys in the Vale of York. The site supports an important breeding bird population.	Potential impacts to the features of this designation are considered unlikely due to distance and lack of potential impact pathways during the construction, operation, and decommissioning phase. Construction traffic movements will be insufficient to create potential pathways through air pollution.	Scoped out for construction, operation, decommissioning for both the Humberhead Sites and CRSC.
White Carr LWS (within CRSC)	County	Supporting a range of habitats and species.	Whilst it anticipated that the LWS can be avoided and appropriate buffers put in place, construction close to the boundary of these sites could lead to	Scoped in for construction and decommissioning (although will be Scoped out if can be

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase should have reduced impact compared to current agricultural use.	avoided entirely) for the Humberhead Sites and CRSC. Scoped out for operation for the Humberhead Sites and CRSC.
Bubwith – Holme-on-Spalding-Moor Disused Railway Line LWS (within CRSC)	County	Supporting a range of habitats and species.	Whilst it anticipated that the LWS can be avoided and appropriate buffers put in place, construction close to the boundary of these sites could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase should have reduced impact compared to current agricultural use.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation for the Humberhead Sites and CRSC.
Nunburnholme Meadow LWS (adjacent)	County	Supporting a range of habitats and species.	Construction and decommissioning activities close to the boundary of this LWS could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation for the

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			should have reduced impact compared to current agricultural use.	Humberhead Sites and CRSC.
South Cliffe Common LWS (adjacent)	County	Supporting a range of habitats and species.	Construction and decommissioning activities close to the boundary of this LWS could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase should have reduced impact compared to current agricultural use.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation for the Humberhead Sites and CRSC.
Scorbro Rush Plantation - historic LWS (adjacent)	County	Supporting a range of habitats and species.	Construction and decommissioning activities close to the boundary of this LWS could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase should have reduced impact compared to current agricultural use.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation for the Humberhead Sites and CRSC.
All other LWS (20) within 2km	County	Supporting a range of habitats and species.	Potential impacts to the qualifying features of these designations are considered unlikely due to distance and lack of impact pathways with the potential to affect designated features	Scoped out for construction, operation and decommissioning

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			during the construction, operation, and decommissioning phases.	for the Humberhead Sites and CRSC.
Habitats				
Arable land	Negligible	Throughout the Scoping Site Boundary	Loss of extensive areas of arable habitat is anticipated. This habitat is of negligible ecological importance. For those species of which this habitat has value (such as breeding and wintering birds), these species are scoped into the assessment and the value of this habitat is assessed as part of that aspect.	Scoped out for construction, operation and decommissioning for the Humberhead Sites and the CRSC.
Grassland	Local	Throughout the Scoping Site Boundary	Potential for habitat loss (losses as yet undefined).	Scoped in for construction, operation and decommissioning for the Humberhead Sites. Scoped out for operation for the CRSC.
Waterbodies	Local	Throughout the Scoping Site Boundary and up to 250m from the Scoping Site Boundary	Habitat loss in general is to be determined but the embedded mitigation measures will seek no loss of ponds and a buffer of 10 m to any works. This buffer, as well as the oCEMP and oLEMP, should suffice to prevent	Scoped in for construction and decommissioning for the Humberhead Sites. Scoped out for operation.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			impacts from potential damage to retained habitat during construction, operation, and decommissioning phases.	Scoped in for construction and decommissioning for the CRSC. Scoped out for operation for the CRSC.
Ditches	Local	Throughout the Scoping Site Boundary	Potential for small scale habitat loss (losses as yet undefined). Following the embedded mitigation measures, losses would be limited to necessary crossing locations.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Watercourses	Local	Throughout the Scoping Site Boundary	Potential for small scale habitat loss (losses as yet undefined) following the embedded mitigation measures, losses would be limited to necessary crossing locations.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Hedgerow	Local	Throughout the Scoping Site Boundary	Potential for habitat loss (losses as yet undefined) following the embedded mitigation measures, losses would be	Scoped in for construction and decommissioning for

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			limited to access locations, but sections of hedgerow may be removed to connect fields and allow for larger solar panel areas.	the Humberhead Site and CRSC. Scoped out for operation.
Trees	Local	Throughout the Scoping Site Boundary	Potential for habitat loss (losses as yet undefined) following the embedded mitigation measures, losses would be limited to access locations, but trees may be removed to connect fields and allow for larger solar panel areas.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Broad-leaved Woodland	Local	Throughout the Scoping Site Boundary	No loss of this habitat is anticipated as woodland habitat will be retained and a 10 m buffer from woodland habitat is proposed, which will be sufficient to protect the habitat from any potential damage during construction, operation, and decommissioning phases.	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.
Degradation of retained habitats	Local	Throughout the Scoping Site Boundary	Potential for damage to retained habitats will be avoided by following the embedded mitigation measures set out in the oCEMP and oLEMP to be submitted with the DCO application.	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
Invasive non-native flora	Negligible	Potentially throughout the Scoping Site Boundary. The data from NEYEDC revealed nine Invasive Non-Native Species (INNS) within 2km of the Site from the past 10 years, including 7 listed under Schedule 9 of the Wildlife and Countryside Act 1981. Schedule 9 species include American mink (5 records), Egyptian goose (2 records), grey squirrel (4 records), Himalayan balsam (43 records), Japanese knotweed (2 records), New Zealand pigmyweed (1 record), and signal crayfish (2 records). Other INNS include cherry laurel (1 record) and Jenkins' spire snail (8 records). Within the search area there were 11 records of Himalayan balsam, one record of New Zealand pigmyweed, one record of American mink and four records of Jenkins' spire snail.	Potential for spread if they occur in areas affected by construction, operation, and decommissioning activities. Invasive species impacts will be managed via embedded mitigation Measures in the form of an Invasive species management Plan ('ISMP').	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
Species				
Amphibians	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. Great crested newt HSI and eDNA surveys are scheduled for spring 2026. The data from NEYEDC revealed records of the following amphibian species within 2km of the Site from the past 10 years: common frog (1 record), common toad (2 records), great crested newt (18 records). None of these records were collected from within the search area itself.	Loss and/or temporary fragmentation of habitat and disturbance, killing and/or injury during construction and decommissioning. No significant impacts are anticipated during operation. Maintenance and replacement activities can be manged through appropriate embedded avoidance measures as part of the oOEMP. Habitats within solar areas will be improved for amphibians.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Reptiles	Local	Extent of presence within Scoping Site Boundary yet to be confirmed The data from NEYEDC revealed records of the following reptile species within 2km of the Site from the past 10 years: common lizard (3 records), slow-worm (1 record),	Arable habitats that dominate the Site provide suboptimal habitat for reptiles, with habitats offering more suitable reptile habitat, principally comprising field boundary habitats to largely be retained and protected throughout construction of the Scheme with 6 m buffers around field boundary habitats. Small scale habitat impacts will be managed through	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
		grass snake (8 records). None of these records were collected from within the solar areas.	embedded avoidance measures implemented by ECoW.	
Badger	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. The data from NEYEDC revealed 4 records of badger within 2 km of the Scoping Site Boundary. None of these records were collected from within the search area itself. Regular badger signs were identified with the Humberhead Sites during walkovers in early 2026, these included latrines and two setts considered likely to be main setts.	Loss and/or fragmentation of habitat Disturbance, killing and/or injury. Embedded mitigation measures will include the provision of mammal gates or natural gaps in boundary fences which will minimise impacts during operation.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Bats	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. The data from NEYEDC revealed records of seven bat species within 2km of the Site	Loss and/or fragmentation of habitat, disturbance, potential loss of roost opportunities in trees (impacts unclear until final design is known).	Scoped in for construction, operation and decommissioning for the Humberhead Sites. Scoped in for construction and

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
		from the past 10 years: UKBAP species include brown long-eared bat (19 records), noctule (19 records), and soprano pipistrelle (22 records), while non-UKBAP species include common pipistrelle (39 records), Daubenton's bat (1 record), Natterer's bat (4 records), and whiskered bat (3 records). Within the boundaries of the search area there were two records of common pipistrelle and three records of brown long-eared bat. Numerous trees with potential roosting features (PRFs) for bats were identified within and adjacent to the Humberhead Sites during the walkovers in early 2026. Bat GLTAs and activity surveys are scheduled for May to September 2026.		decommissioning of the CRSC. Scoped out for operation of the CRSC.
Otter	Local	Extent of presence within Scoping Site Boundary yet to	Loss and/or fragmentation of habitat, potentially including breeding habitat,	Scoped in for construction and

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
		be confirmed. The data from NEYEDC revealed historic records of Otter (over 10 years old) along the Pocklington Canal, which crosses the north-western part of the CRSC. Signs of otter were identified along one watercourse adjacent to the Humberhead Sites during the walkovers in early 2026. Otter surveys are scheduled for spring and autumn 2026.	Disturbance, killing and/or injury. Impacts on habitats are uncertain until the final design is known. Operational impacts are considered to be limited and access to watercourses for this species will be maintained.	decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.
Water vole	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. The data from NEYEDC revealed historic records water vole (over 10 years old) along a drain which crosses the southern part of the CRSC. Water vole surveys are scheduled for spring and autumn 2026.	Loss and/or fragmentation of habitat Disturbance, killing and/or injury. Impacts on habitats are uncertain until the final design is known. Operational impacts are considered to be limited and access to watercourses for this species will be maintained.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
Brown hare	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. The data from NEYEDC revealed 49 records of brown hare within 2 km of the Scoping Site Boundary. Within the boundaries of the search area there were 11 records of hare.	Construction impacts will be managed through embedded mitigation, such as ECoW, and appropriate avoidance measures. During operation, fencing of the solar panel areas and associated infrastructure areas will be designed to allow passage of small mammals through incorporation of appropriate gates.	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.
Hedgehog	Local	Extent of presence within Scoping Site Boundary yet to be confirmed. The data from NEYEDC revealed 41 records of brown hare within 2 km of the Scoping Site Boundary. Within the boundaries of the search area there were five records of hare.	Construction impacts will be managed through embedded mitigation, such as ECoW, and appropriate avoidance measures. During operation, fencing of the solar panel areas and associated infrastructure areas will be designed to allow passage of small mammals through incorporation of appropriate gates.	Scoped out for construction, operation and decommissioning the Humberhead Sites and CRSC.
Invertebrates	Local	Extent of presence within Scoping Site Boundary yet to be confirmed.	Loss / fragmentation of habitat is unlikely to be of sufficient magnitude to affect populations locally based on the dominance of monoculture agricultural habitats present. Embedded mitigation measures will	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in / Scoped out
			include a minimum buffer of 8m from field boundaries.	
Aquatic fauna	Local	Extent of presence within Scoping Site Boundary yet to be confirmed.	Loss and/or temporary fragmentation of habitat. Disturbance, killing and/or injury. Operational impacts are considered to be limited based on embedded mitigation measures and best practice.	Scoped in for construction and decommissioning for the Humberhead Sites and CRSC. Scoped out for operation of the Humberhead Sites. Scoped in for operation of the CRSC.

Potential Impacts - Ornithology

8.6.23 Baseline data from desk studies and field surveys indicate the presence of Important Ornithological Features ('IOF') within and surrounding the Site.

8.6.24 Many of these features are associated within the closest SPA and Ramsar Sites, specifically the Lower Derwent Valley and the Humber Estuary, which support comparable species assemblages.

8.6.25 The following species groups are considered IOFs based on survey results and conservation status, legal protection and/or their status as qualifying features of nearby designated sites:

- Schedule 1 species;
- Ground nesting birds; and
- SPA and Ramsar bird species associated with the Lower Derwent Valley and the Humber Estuary SPA and Ramsar Sites.

8.6.26 Note that although the Site is located at a distance from the Lower Derwent Valley (3.6 km) and Humber Estuary (8 km) SPA and Ramsar sites, qualifying bird species associated with these designations may utilise land within and surrounding the Site as functionally linked land ('FLL'). Therefore, potential indirect effects on the integrity of these designated sites via impacts to FLL are scoped into the assessment. FLL will be identified based on evidence of regular use by qualifying species, including frequency of occurrence, behaviour (e.g. foraging or roosting), and comparison with relevant SPA/Ramsar population data (including WeBS-derived thresholds where appropriate).

Construction and Decommissioning

8.6.27 The construction and decommissioning phases of the Scheme are expected to give rise to similar types of effects, as both phases will involve temporary activities such as vegetation clearance, vehicle movements, and the use of plant and machinery. As such, these phases are considered together for the purposes of this scoping assessment. See paragraphs 8.6.16 to 8.6.1920 for further detail that is not repeated here.

8.6.28 The following potential construction and decommissioning phase impacts on IOFs have been identified, based on the nature of the Scheme and the baseline conditions described in this document. These impacts are primarily associated with habitat loss, displacement, disturbance and changes in land-use and landscape within and surrounded by the Scheme.

8.6.29 Potential impacts during construction and decommissioning phase may include the following pathways (but are not limited to):

- Disturbance (audible and visual stimuli) and displacement: a temporary impact arising from construction activities including operating plant, vehicles and personnel to breeding and non-breeding species within both CRSC and the Humberhead Sites;
- Indirect effects on functionally linked land (if present): Disturbance effects may extend to any areas utilised by SPA and/or Ramsar qualifying species associated with the Lower Derwent Valley and the Humber Estuary SPA and Ramsar site, where these overlap with or occur adjacent to the Site; and
- Habitat and/or FLL loss and modification: Temporary (CRSC) and/or long-term loss (Humberhead Sites) and/or modification of agricultural habitats used by ground-nesting birds and foraging waders/wildfowl;
- Disturbance to breeding birds: Risk of disturbance to nesting birds, including Schedule 1 species, during the breeding season, which could result in nest abandonment or reduced breeding success; and
- Cumulative effects, where disturbance, displacement, or habitat loss may interact with other proposed or existing renewable developments in the surrounding area, leading to additive or synergistic impacts on shared bird populations. A cumulative assessment will consider consented, submitted and reasonably foreseeable developments within the Zone of Influence.

8.6.30 It is important to note that based on the distance from the Scoping Site Boundary, direct impacts of the Lower Derwent Valley and the Humber Estuary SPA and Ramsar site are not anticipated. However, direct impacts to FLL associated with these sites is likely.

8.6.31 In the absence of a complete baseline of Site utilisation by SPA/Ramsar qualifying species, effects on designated site features via FLL are considered likely and will be further assessed in detail within the ES and sHRA stages. This represents a precautionary approach pending confirmation through field surveys, quantitative and qualitative assessment of species usage relative to designated site populations.

8.6.32 FLL will be broadly assessed using the 1% threshold of the BTO Wetland Bird Survey ('WeBS') data with consideration of species-specific ecology, behaviour, regularity of use, and functional role of habitats. Species not meeting numerical thresholds but demonstrating regular or sensitive use (e.g. vulnerable or declining species such as whooper swan) will also be considered on a case-by-case basis.

8.6.33 It is important to note that decommissioning activities are anticipated to be shorter in duration and lower in intensity (due to staggering), which are likely to result in similar and/or reduced effects.

8.6.34 Should additional mitigation be implemented as a result of the Scheme, such as targeted habitat uplift, these will also be considered as part of the

decommissioning phase. For instance, there is potential for certain areas within the Humberhead Sites to be retained as a beneficial legacy, where they provide demonstrable biodiversity and ornithological value and do not conflict with the resumption of agricultural use.

8.6.35 Following decommissioning, it is anticipated that land will be returned to landowners and the Applicant will not retain control over its subsequent use or management. As such, whilst opportunities for habitat reinstatement may arise, it is not possible to predict future land use at this stage and no specific ecological and ornithological benefits are assumed. Any habitats present at that time would be subject to the legislative and policy framework in place.

Operation and maintenance

8.6.36 During the operational phase, the Scheme has the potential to result in both adverse and beneficial effects on IOFs. These effects will be largely associated with the presence of infrastructure, changes in landscape and management and periodic maintenance and replacement activities (but not limited to) within the Humberhead Sites.

8.6.37 With regards to the CRSC, operational impacts are likely to be temporary, short-term due to routine, and/or minor maintenance activities (where required) and is not considered to be of the same magnitude as maintenance undertaken within the Humberhead Sites, as the cabling will be under-ground and left in-situ for the operational lifetime.

8.6.38 Therefore, the following adverse effects largely relate to the Humberhead Sites only.

8.6.39 Potential adverse effects during the operational phase may include:

- Disturbance and displacement from maintenance and replacement activities (e.g. major campaign replacement, plant, vehicle and personnel presence) which may result in temporary displacement of IOFs, particularly ground-nesting birds, nesting Schedule 1 birds and SPA and Ramsar species within the Humberhead Sites;
- Habitat and/or FLL loss and modification from long-term change in land use from arable to solar infrastructure, within the Humberhead Sites;
- Barrier effects and habitat fragmentation via the presence of solar infrastructure within the Humberhead Sites;
- Indirect effects on FLL (if present) if the Site is used by SPA and Ramsar qualifying features within the Humberhead Sites;
- Glint and Glare effects arising from solar panels may create reflective surfaces, which could potentially influence bird behaviour (e.g. “lake effect”), although the evidence for significant effects is limited;
- Cumulative effects, where disturbance, displacement, or habitat loss may interact with other proposed or existing renewable developments in the

surrounding area, leading to additive or synergistic impacts on shared bird populations; and
- Habitat loss, fragmentation or change as a result of the delivery and installation of Scheme infrastructure.

8.6.40 Potential beneficial impacts during the operational phase may include:

- Habitat enhancement by the creation of managed botanically diverse grassland and reduced agricultural intensification will likely enhance foraging and breeding opportunities;
- Reduced disturbance compared to the existing agricultural practices across the Site;
- Reduction of chemical use across the landscape;
- Potential of extension of support for non-breeding and breeding birds via managed grasslands and habitats dependent on habitat quality and management;
- Indirect benefits of solar farms, which has been evidenced to increase fauna and flora, particularly in relation to breeding birds species (Ref 145; Ref 146); and
- Retention and enhancement of hedgerows, providing valuable habitat for boundary-associated species, particularly passerines, and supporting nesting, foraging, and sheltering opportunities (see 8.6.1 onwards).

8.6.41 These beneficial effects are contingent on the delivery of a detailed LEMP for the Scheme, which would be secured by a requirement in the DCO.

8.6.42 The magnitude and significance of operational effects will be dependent on the final design layout, habitat and management proposals and the extent at which the Site is used by breeding and non-breeding species.

8.6.43 The above will be assessed in detail within the ES and sHRA.

Additional Mitigation

8.6.44 Retained areas within the Scoping Site Boundary may be utilised as part of the mitigation strategy, with management during the operational phase tailored to the ornithological and ecological requirements for breeding and non-breeding birds, to avoid adverse impacts on FLL, breeding habitats and to secure habitat retention, enhancement and uplift. All habitat retention and enhancement will be illustrated on the outline masterplan that will be submitted with the DCO application to secure the commitments contained within.

Scoped Out - Ornithology

Thorne and Hatfield Moors & Allerthorpe Common SSSI – Nightjar

8.6.45 Records returned from wider datasets (including BTO and local record centre data; NEYEDC) were reviewed with consideration of their relevance to the Site, including species ecology, mobility, and the potential for connectivity with habitats within the Site or its immediate surroundings (within 2 km).

8.6.46 Records associated with geographically discrete and ecologically distinct sites, specifically Thorne and Hatfield Moors SPA, have been reviewed but are not considered representative of the Site or Functionally Linked Land associated with the qualifying feature (nightjar). These sites comprise extensive raised bog habitats supporting breeding nightjar that are not comparable to the habitats present within and surrounding the Site, as well nightjar being spatially constrained during the breeding period (typical range ~3 km). Furthermore, no evidence has been identified to indicate presence and/or movements though and/or between the Site (specifically nightjar) and the associated SPA. According to the BTO Data Report, records of breeding nightjar are beyond 10 km and they are not considered a "notable" species at any geographical scale (local to international).

8.6.47 On this basis, Thorne and Hatfield Moors SPA and Allerthorpe Common SSSI has been excluded from detailed assessment. This approach is consistent with relevant guidance on defining ecologically meaningful study areas and avoiding over-precautionary inclusion of non-connected ornithological receptors.

Non-ground nesting birds

8.6.48 Given the embedded mitigation measures (retention of hedgerow and woodlands; see paragraph 8.6.1 onwards), it is considered that construction and operational phase impacts are likely to be limited to species associated with agricultural land, including ground-nesting birds and breeding waders and wildfowl.

8.6.49 Non-ground nesting bird species (passerines and boundary thriving species), which are not designated features, Schedule 1 species, or otherwise are generally considered less sensitive to the impacts associated with this type of development and are unlikely to be significantly affected by the Scheme.

8.6.50 Evidence from the Solar Energy UK (Ref 145; Ref 146) indicates that solar farms in the UK support increased abundance and diversity through the retention and management of boundary habitats and the creation of botanically diverse grassland.

8.6.51 On this basis and given the limited pathways for adverse significant effects, non-ground nesting bird species (excluding Schedule 1 birds) are considered

unlikely to be significantly affected by the Scheme. This conclusion is further supported by the implementation of embedded mitigation measures, including distances from boundary features and ECoW during construction, operation (replacement activities only) and decommissioning, which will ensure the safeguarding of retained habitats and avoidance of disturbance.

8.6.52 Instead, they are likely to experience beneficial effects as a result of the Scheme. Accordingly, this group is scoped out of detailed assessment.

Water quality (pathway)

8.6.53 Potential effects on ornithological receptors via changes in water quality (e.g. sediment runoff or pollution during construction) have been considered. Hydrological pathways exists between the Scheme and downstream/upstream watercourses; however, this pathway is indirect and subject to substantial attenuation.

8.6.54 Any construction-related effects would be temporary, localised and managed through design considerations and standard good practice measures which will be secured in detailed CEMP. These will include pollution prevention controls and a minimum 10 m stand-off from watercourses will be maintained as per the embedded mitigation measures, providing a physical buffer to intercept surface runoff and further reduce the potential for sediment or pollutant mobilisation to enter the drainage network.

8.6.55 The Scheme would not result in routine discharges or changes to hydrological regimes that would affect habitats used by IOFs, including those associated with the designated sites (Lower Derwent Valley and Humber Estuary SPA and Ramsar sites) or potential FLL. The Site is predominantly arable farmland of low pollution sensitivity, and there is no reliance by IOFs on on-site waterbodies. Given this separation distance, the intervening drainage network, and the implementation of embedded mitigation (including the 10 m stand-off), any potential effects would be subject to dilution, dispersion, and sediment settlement such that no measurable change in water quality would occur at receptors used by IOFs.

8.6.56 On this basis, effects on IOFs via water quality are not considered likely to be significant and are scoped out of further detailed assessment. However, potential pathways to European designated sites will be considered on a precautionary basis through the screening process Stage 1 (screening) within the sHRA.

Cable Route Corridor – operational phase

8.6.57 As the cables within the CRC will be buried underground and remain in situ for the duration of the Scheme's operational life, no effects on IOFs are anticipated. The cables will not introduce any permanent above-ground presence or ongoing disturbance pathway. Any future maintenance activities

(if required) would be infrequent, localised and temporary in nature and would typically involve short-term disturbance, comparable to those associated with the use and upkeep of Public Rights of Way and farming activities. Such activities are considered unlikely to give rise to significant effects on ecological receptors and IOFs, subject to standard construction best practice and mitigation measures.

Ornithology Scoping Summary

8.6.58 Below details the features, importance, the potential for significant effects and whether each feature is scoped in or out of further detailed assessment (**Table 8-8**).

Table 8-8 Ornithology Scoping Summary

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in/ Scoped out
Designated Sites				
Humber Estuary SPA & Ramsar (8 km south)	International	Ramsar Bar-tailed godwit,- Wintering; Black-tailed godwit – Passage/Wintering Dunlin- Passage/Wintering Golden plover- Passage/Wintering Knot Passage/Wintering Redshank- Passage/Wintering Shelduck- Wintering Waterbird Assemblage (Annex B) SPA: Avocet- Breeding/non-breeding Bar-tailed godwit- non-breeding Bittern- breeding/non-breeding Black-tailed godwit- non-breeding Dunlin- non-breeding	No potential for direct effects due to separation distance (approximately 8 km). However, there is potential for indirect effects on qualifying bird species via impacts to FLL within and surrounding the Site, including disturbance, displacement and habitat loss and/or modification of supporting habitat used by qualifying species.	Scoped in for construction, operation and decommissioning for the Humberhead Sites. Operational phase for the CRSC is scoped out, construction and decommissioning are scoped in.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in/ Scoped out
		Golden plover- non-breeding Hen harrier- non-breeding Knot- non-breeding Little tern-breeding Marsh harrier- breeding Redshank- non-breeding Ruff-non-breeding Shelduck-non-breeding Waterbird Assemblage (Annex B)		
Thorne and Hatfield Moors SPA (16 km south-west) & Allerthorpe Common SSSI	International	Supports a breeding population of nightjar (*Caprimulgus europaeus*).	Potential impacts to the qualifying features of this designation are considered unlikely due to distance (16 km) and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phases.	Scoped out for construction, operation and decommissioning for the Humberhead Sites and CRSC.
Lower Derwent Valley SPA & Ramsar (3 km west)	International	Ramsar: Assemblage of migratory waders – Passage Teal- Wintering Waterbird assemblage – Wintering	No potential for direct effects due to separation distance (approximately 3 km). However, there is potential for indirect effects on qualifying bird species via impacts to FLL within and surrounding the Site, including	Scoped in for construction, operation and decommissioning for the Humberhead Sites.

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in/ Scoped out
		Wigeon- Wintering SPA: Bewick's swan – non-breeding Golden plover- non-breeding Ruff- non-breeding Shoveler- breeding Teal- non-breeding Waterbird assemblage (Annex B1) Wigeon- non-breeding	disturbance, displacement and habitat loss and/or modification of supporting habitat used by qualifying species.	Operational phase for the CRSC is scoped out
Melbourne and Thornton Ings SSSI (1.2 km west)	National	Supports a breeding bird community with over 80 species recorded. It has 13 species of breeding wildfowl, including notable species such as pintail, garganey and gadwall. It holds high densities of breeding waders including: Curlew Lapwing	Impacts to ground nesting birds which may be recorded within and surrounding the Site. This may include loss of suitable nesting habitat, disturbance, and harm and/or injury during vegetation clearance and construction/maintenance activities. Note that non-breeding bird species will be assessed collectively under the internationally designated sites	Scoped in for construction, operation and decommissioning for the Humberhead Sites. Operational for the CRSC is scoped out

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in/ Scoped out
		Snipe Redshank Wintering bird interest is also nationally significant, with: Teal (up to 2000) – nationally important numbers Bewick's swan (up to 65) Wigeon (up to 3000)		
Ground nesting birds	Local to County (precautionary)	Suitable habitat is present within the Site (e.g. arable land and field margins) which may support ground nesting bird species. Surveys are ongoing and therefore the assemblage and population levels are not yet fully defined.	Potential impacts include the loss of suitable nesting habitat, disturbance to birds, and the risk of harm or injury during vegetation clearance and construction or maintenance activities.	Scoped in for construction, operational and decommissioning for the Humberhead Sites. Operation phase for the CRSC is scoped out, construction and decommissioning are scoped in.
Schedule 1 birds	National	Schedule 1 species are afforded additional protection under the Wildlife and Countryside	Disturbance to breeding birds and dependant young (including risk of nest abandonment);	Scoped in for construction, operational and

Feature	Feature Importance	Summary of Features	Potential for significant effect	Scoped in/ Scoped out
		Act 1981 (as amended). Suitable habitat is present within and surrounding the Site, and such species may occur during the breeding and/or non-breeding periods. Surveys are ongoing to confirm presence and distribution.	Loss and/or modification of habitat; and risk of harm or injury during construction activities.	decommissioning for the Humberhead Sites. Operational phase for the CRSC is scoped out and Construction and decommissioning phase are scoped in.
Non-breeding birds	County to International (precautionary, dependent on linkage to SPA populations)	The Site and surrounding land may support non-breeding assemblages of waders and wildfowl, including species associated with the Lower Derwent Valley and Humber Estuary. These habitats may serve as FLL. Surveys are ongoing to determine species composition, abundance and usage.	Disturbance and displacement; loss and/or modification of foraging and/or roosting habitat; and indirect effects on FLL.	Scoped in for Construction, operational and decommissioning for the Humberhead Sites. Operational phase for the CRSC is scoped out. Construction and commissioning are scoped in.

Questions for Consultees

8.6.59 At this stage, several aspects of the ornithological scope and assessment methodology remain uncertain. The following questions have been raised to the consultees to ensure that there is clarity, and subsequent assessments meet the consultees expectations:

1) Do the consultees have any expectations on the level of evidence required at the ES stage to demonstrate connectivity with SPA/Ramsar sites, particularly where use by qualifying species is intermittent or below standard WeBS thresholds?
2) Do the consultees have any specific expectations on the treatment of widespread or non-designated bird assemblages (e.g. passerines), where embedded mitigation is proposed and significant effects are not anticipated?
3) Can the consultees provide the expectations of the spatial extent and types of developments that should be included within cumulative ornithological assessments for solar NSIPs, particularly in areas with multiple proposed schemes?
4) Are the consultees aware of any expectation for detailed assessment of glint and glare effects on bird receptors, or is a qualitative assessment generally considered sufficient where evidence of significant effects is limited?

8.7 Methodology

8.7.1 This section describes the methodology proposed for the assessment of effects on Ecology and Ornithology, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

8.7.2 The assessment process will include the following stages:

- Determination and evaluation of important ecological features within the existing baseline of the Scheme and surrounding area;
- Identification and characterisation of potential impacts of the Scheme;
- Determination of the significance of effects;
- Outlining mitigation measures to avoid and reduce significant impacts;
- Assessment of the significance of any residual effects after such measures;
- Identification of appropriate compensation measures to offset significant residual effects; and
- Identification of opportunities for ecological enhancement.

8.7.3 The ES Chapters (both ecology and ornithology) will be supported by technical appendices and relevant figures, which will provide full details of desk studies, consultations and field studies undertaken to inform the design and assessment of the Scheme.

8.7.4 Ecological data considered sensitive (e.g. that pertaining to the breeding and/or resting places of protected species) will be included within a Confidential Appendix to the ES Chapters.

8.7.5 Sufficient information will be presented within the ES Chapters to allow an objective and robust assessment of potentially significant adverse or beneficial impacts upon important ecological features to take place. Information will include relevant desk -based searches and data gathered through surveys.

Determining Importance

8.7.6 The ES Chapters will only assess in detail impacts upon important ecological features which are likely to be significantly affected by the Scheme. A detailed assessment of features that are sufficiently widespread, unthreatened and resilient to impacts of the Scheme will not be undertaken and justification for scoping out is provided.

8.7.7 Relevant European, national and local legislation policy and guidance will be referred to in order to determine the importance (or sensitivity) of ecological features. This will include, but is not limited to, the Conservation of Habitats and Species Regulations 2017 (as amended), the Wildlife and Countryside Act 1981 (as amended), and relevant guidance published by CIEEM and Natural England, including best practice guidance for Ecological Impact Assessment and ornithological survey and assessment. In addition, importance will also be determined using professional judgement, specialist consultation advice and the results of baseline surveys and the importance of features within the context of the geographical area.

8.7.8 Importance will not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

8.7.9 The importance of ecological features will be defined in a geographical context from 'Site' to 'International' in line with **Table 8-9**.

Table 8-9 Ecological Importance

Importance	Definition
International	A regularly occurring, nationally significant population of an internationally important species or site supporting such a species

Importance	Definition
	(or supplying a critical element of their habitat requirement) or species listed in Annex IV of the Habitats Directive. An internationally designated site (SPA, SAC and/or Ramsar sites) or proposed and/or candidate site ('pSPA' or 'cSAC'). Large area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole.
National	A regularly occurring, regionally significant population of any nationally important species listed as a UK BAP / Biodiversity List and priority species listed under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act), and Species listed under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act or Annex II or Annex IV of the Habitats Directive. A nationally designated site (e.g. SSSI) or a discrete area which meets the selection criteria for national designation. An area of a priority habitat listed under Section 41 of the NERC Act or which constitutes a significant proportion of the UK resource of that habitat.
Regional (England)	Regionally significant populations of species identified in the NERC Act Part 1 as being of principal importance for the conservation of the biodiversity of England, or otherwise formally deemed to be nationally rare and threatened (e.g. red-listed), the loss of which would significantly change the species' overall conversation status (i.e. range, abundance, population trend) at the regional scale. A significant area of non-designated habitat type identified in the NERC Act, as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term. Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.
County (East Riding of Yorkshire)	Significant populations of species identified in the NERC Act as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. red-list), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Locally designated sites (Local Nature Reserves, County or LWS). Areas of priority habitat which constitutes a significant proportion of the County's resource of that habitat.
Local	Local area around the Scheme.

Importance	Definition
	For example, areas of priority habitat which are not large enough to meet the criteria for County value, or small but sustainable populations of a protected or notable species
Site	Considered within the context of the Site only.

Identification and Characterisation of Impacts

8.7.10 The identification and characterisation of impacts on important ecological features will be undertaken in accordance with the CIEEM guidelines (Ref 148) with reference made to magnitude (in line with descriptions in **Table 8-10**), extent, duration and reversibility, as appropriate.

Table 8-10 Magnitude of Impact

Magnitude of Effect	Criteria
Major	The change may negatively or positively affect the conservation status of a site or species population, in terms of the coherence of its ecological structure and function, that sustains the habitat, complex of habitats and/or the population levels of species of interest.
Moderate	Conservation status of a site or species population will not be negatively or positively affected, but some element of the functioning of the site or population might be affected and the change to the site and/or population is likely to be significant in terms of its ability to sustain some part of itself in the long term.
Minor	Neither of the above applies, but some minor negative or positive change is evident on a temporary basis, or the change affects extent of habitat or individuals of a species abundant in the local area.
Negligible	No observable effect in either direction

8.7.11 Impacts will be considered during the construction, operation and decommissioning phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Significance of effect

8.7.12 CIEEM guidelines define a significant effect as an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general (i.e. the feature could be positively or negatively significantly affected).

8.7.13 CIEEM guidelines on ecological impact assessment note that, "*A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures as long as the mitigation hierarchy has been applied effectively as part of the decision-making process.*"

8.7.14 CIEEM guidelines do not recommend the sole use of a matrix table as commonly set out in ES chapters to determine 'significant' and 'not significant' effects. For the purposes of this assessment presented herein, **Table 8-11** sets out adapted CIEEM terminology and equivalent in the context of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ("the EIA Regulations"; Ref 147).

Table 8-11 Effect (EIA significance)

Significance	Definition	
Significant	Major Adverse/ Beneficial	An adverse or beneficial effect resulting in a permanent or long-term change to the integrity of an ecological feature of national or international importance, such that its structure, function, or conservation status is fundamentally altered.
	Moderate Adverse/ Beneficial	An adverse or beneficial effect resulting in a medium to long-term change to the integrity of an ecological feature of regional importance (or higher), affecting its structure or function but not fundamentally compromising its conservation status.
Not significant Significant	Minor Adverse/ Beneficial	An adverse or beneficial effect resulting in a short-term and/or reversible change to the integrity of an ecological feature of local importance (or below), with no lasting effect on its structure or function.

8.7.15 Potentially significant effects identified will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ecological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.

8.7.16 In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect will be assumed as a

precautionary approach. Where uncertainty exists, this will be acknowledged in the ES Chapters.

Supplementary Assessment

8.7.17 A BNG Assessment Report and sHRA – Stage 1 Screening and Stage 2 Appropriate Assessment ('AA') (where necessary) will be prepared and submitted as supplementary assessments to the chapter and DCO application.

8.7.18 A sHRA is required as the Scheme has the potential to result in Likely Significant Effects (LSE) on European designated sites, including the Lower Derwent Valley SPA/Ramsar and Humber Estuary SPA/Ramsar, primarily through indirect effects on qualifying bird species and potential impacts to FLL.

8.7.19 The sHRA will comprise Stage 1 Screening for LSE and, where required, Stage 2 Appropriate Assessment (AA) to determine whether the Scheme would adversely affect the integrity of any European site, alone or in-combination.

8.7.20 The assessment will include (but is not limited to) consideration of potential impact pathways including disturbance and displacement, impacts to FLL, habitat loss or modification, and in-combination effects.

8.7.21 Engagement with Natural England will be undertaken to agree the scope and methodology of the sHRA through the DAS.

8.7.22 The sHRA will be informed by ongoing aquatic, ecological and ornithological surveys and will be submitted with the Environmental Statement, with updates as required through the pre-application process.

Cumulative and In-Combination Effects

8.7.23 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Scheme (intra-project) and cumulative effects from the interrelationship between different projects along with the Scheme (inter-project) is set-out in **Chapter 2: Methodology**.

8.7.24 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects of the ES.

8.7.25 Receptors identified within the ecology assessment will be assessed within in-combination effects assessment of up to 5 km. The ornithology assessment will assess cumulative effects from the interrelationship between different projects of up to 20 km based on foraging ranges of the species identified as IOFs.

8.8 Assumptions, Limitations and Uncertainties

8.8.1 This EIA Scoping Report does not represent the results of an Ecological Impact Assessment (EcIA) but provides a conservative judgement about impact pathways and receptors for which significant effects are considered possible, and which should therefore be scoped into the EIA for further assessment. Those where there is no likely significant effect, and the confidence level at this stage is high, should be scoped out of the EIA.

8.9 Summary of Elements Scoped In and Scoped Out

8.9.1 A summary of the elements detailed in **Table 8-7** (Ecology) and **Table 8-8** (Ornithology) scoped into and out of the assessment of Ecology and Ornithology is presented in Table 8-12.

8.9.2 The rationale for the below scoping assessment is detailed in paragraphs 8.6.11 - 8.6.22 for biodiversity and paragraphs 8.6.23- 8.6.57 for ornithology.

Table 8-12 Elements scoped in and out of the assessment of Ecology and Ornithology

Element	Scoped in / Scoped out		Scoped in / Scoped out
	Humberhead Sites		CRSC
Humber Estuary SPA & Ramsar (8 km south) FLL associated with ornithological features	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Humber Estuary SAC (8 km south)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Thorne and Hatfield Moors SPA (16 km south-west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Thorne and Hatfield Moors SAC (16 km south west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Lower Derwent Valley SPA & Ramsar (3 km west) FLL	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped Out
	Decommissioning	Scoped in	Scoped in
Lower Derwent Valley SAC (3 km west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out

Element	Scoped in / Scoped out		Scoped in / Scoped out
	Decommissioning	Scoped out	Scoped out
Skipwith Common SAC (8 km west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
River Derwent SAC (5 km west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Strensall Common SAC (16 km north-west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
White Carr Meadow SSSI (0.6 km south-west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Pocklington Canal SSSI (adjacent)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
South Cliffe Common SSSI (adjacent)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Skipwith Common SSSI (8 km west)	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
White Carr LWS (within)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Bubwith – Holme-on-Spalding-Moor Disused Railway Line LWS (within)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Nunburnholme Meadow LWS (adjacent)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
South Cliffe Common LWS (adjacent)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in

Element	Scoped in / Scoped out		Scoped in / Scoped out
Scorbro Rush Plantation - historic LWS (adjacent)	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
All other LWS (20) within 2 km	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Habitats			
Arable land	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Grassland	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Waterbodies	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Ditches	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Watercourses	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Hedgerow	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Trees	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Broad-leaved Woodland	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Degradation of retained habitats	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out

Element	Scoped in / Scoped out		Scoped in / Scoped out
Invasive non-native flora	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Species			
Amphibians	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Reptiles	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Badger	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Bats	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Otter	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Water vole	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped in	Scoped in
Brown hare	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Hedgehog	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Invertebrates	Construction	Scoped out	Scoped out
	Operation	Scoped out	Scoped out
	Decommissioning	Scoped out	Scoped out
Aquatic fauna	Construction	Scoped in	Scoped in
	Operation	Scoped out	Scoped in
	Decommissioning	Scoped in	Scoped in

Element	Scoped in / Scoped out		Scoped in / Scoped out
Birds (breeding) – ground nesting birds and Schedule 1 species	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in
Birds (non-breeding) associated with the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.	Construction	Scoped in	Scoped in
	Operation	Scoped in	Scoped out
	Decommissioning	Scoped in	Scoped in

9 Water Environment

9.1 Introduction

9.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to water environment. Water environment includes surface water features (e.g. rivers, streams, ditches and canals), and groundwater bodies. Impacts cover water quality, water resources, physical changes to hydromorphology and the function of water environment systems, flood risk and drainage.

9.1.2 Where designated ecological sites are sensitive to changes in hydrology or water quality (i.e. they are 'water dependent') they are considered in this assessment when they are relevant to a particular water feature. However, the principal assessment of potential impacts to ecological sites as well as ponds is included within **Chapter 8: Biodiversity**. Similarly, potential impacts from contaminated land on any controlled water (surface or groundwater) are considered in **Chapter 14: Other Environmental Matters**.

9.1.3 This chapter also includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to the water environment. Matters that are proposed to be scoped in and out of the assessment are identified.

9.1.4 Where relevant, water features and their attributes have been presented in a series of figures that support this chapter. These are as follows:

- **Figure 9-1: Surface Water Receptors and their Attributes;**
- **Figure 9-2: Groundwater Receptors and their Attributes;**
- **Figure 9-3: Fluvial Flood Risk**;
- **Figure 9-4: Surface Water Flood Risk;** and
- **Figure 9-5: Catchment Plan for Surface Water, Water Framework Directive Waterbodies**.

9.1.5 The chapter is also supported by the following Appendix:

- **Appendix 9-A: Water Framework Directive Screening and Scoping Report**.

9.2 Legislation, Planning Policy Context and Guidance

9.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

9.2.2 Relevant legislation includes:

- Environment Act 2021 (Ref 79);
- Water Act 2003 and 2014 (Ref 161);
- Flood and Water Management Act 2010 (Ref 162);
- Environment Act 1995 (Ref 205);
- Land Drainage Act 1991 (Ref 163);
- Water Resources Act 1991 (Ref 164);
- Environmental Protection Act 1990 (Ref 165).
- Salmon and Freshwater Fisheries Act 1975 (Ref 166);
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 167); Environmental Permitting (England and Wales) Regulations 2016 (Ref 169);
- Environmental Damage (Prevention and Remediation) Regulations 2015 (Ref 168);
- Building Regulations 2010 (Ref 178), Document Part H: Drainage and Waste Disposal (2010): includes details of foul water drainage requirements both above and below ground;
- Flood Risk Regulations 2009 (Ref 179);
- Eels (England and Wales) Regulation 2009 (Ref 180);
- The Control of Substances Hazardous to Health (Amendment) Regulations 2004 (Ref 170);
- Control of Pollution (Oil Storage) (England) Regulations 2001 (Ref 181);
- The Anti-Pollution Works Regulations 1999 (Ref 171); and
- The Water Framework Directive ('WFD') (Standards and Classification) Directions 2015 (Ref 172).

National Planning and other Policy

9.2.3 The following planning documents and policies have been considered as part of the water environment, drainage and flood risk assessment methodology, receptor selection, receptor importance and sensitivity, potential significant environmental effects, and scope for mitigation:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') (2026) (Ref 8), specifically Section 5.16 and Section 5.8;
- The NPS for Renewable Energy Infrastructure ('EN-3') (2026) (Ref 9) specifically, paragraph 2.10.84 to 2.10.88; and
- The NPS for Electricity Networks ('EN-5') (2026) (Ref 10).

9.2.4 The NPS reiterates that major developments should incorporate Sustainable Drainage Systems ('SuDS') unless there is clear evidence that this would not be appropriate.

9.2.5 Other important and relevant planning policy includes:

- The National Planning Policy Framework ('NPPF') (2024) (Ref 11) specifically and Section 14 Meeting the challenge of climate change, flooding and coastal change, and Section 15 Conserving and enhancing the natural environment.

9.2.6 Consideration will also be given to the following strategic policy:

- UK Government Environmental Improvement Plan 2023 (Ref 173);
- UK Government's Plan for Water: Our Integrated Approach to Delivery Clean and Plentiful Water 2023 (Ref 174);
- UK Government's 25 Year Environment Plan (Ref 113);
- The UK Government's Future Water Strategy (2011) (Ref 175);
- Non-statutory technical standards for SuDS (Ref 176); and
- Building Research Establishment ('BRE') Digest 365: Soakaway Design and Sewers for Adoption (7th Edition, 2012) (Ref 177).

Local Planning Policy

9.2.7 The Scheme is within the East Riding of Yorkshire Council. Of the 23 Parishes within the Study Area, 2 parishes (Allerthorpe and Pocklington) currently have a Neighbourhood Plan. Local planning policy includes:

- East Riding Local Plan Update 2020-2039 (2025) (Ref 13);
- Pocklington Neighbourhood Plan (2023) (Ref 18);
- Allerthorpe Neighbourhood Plan (2020) (Ref 17);
- Strategic Flood Risk Assessment Stage 1 (2019) (Ref 193); and
- Local Flood Risk Management Strategy (2015) (Ref 194).

Guidance

9.2.8 The following guidance documents have been considered as part of the water environment, drainage and flood risk assessment methodology, receptor selection, receptor importance and sensitivity, potential significant environmental effects, and scope for mitigation:

- The National Planning Policy Guidance ('NPPG') (Ref 202) provides guidance for local planning authorities on assessing the significance of water environment effects of proposed developments.
- Planning Inspectorate – Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (2024) (Ref 25).

9.3 Consultation

9.3.1 Consultation will be undertaken with statutory parties, including the Environment Agency, Anglian Water, the Local Planning Authority, Lead Local

Flood Authority and the Foss Internal Drainage Board and the Ouse and Humber Drainage Board.

9.3.2 An Information Request regarding local receptors and consultation on flood risk and drainage issues was submitted to the National Infrastructure Team at the Environment Agency on 27 February 2026. Consultation with the Environment Agency will be continued throughout the assessment process. Additionally, East Riding of Yorkshire Council ('ERYC') will be contacted for details on Private Water Supplies ('PWS') as part of the next stage of assessment.

9.3.3 Foss Internal Drainage Board and the Ouse and Humber Drainage Board will be consulted as part of the next stage of assessment.

9.4 Study Area

9.4.1 A Study Area of 1 km from the Scoping Site Boundary, which includes the Cable Route Search Corridor ('CRSC'), has been considered in order to identify water features that could reasonably be affected by the Scheme. The 1 km Study Area is based on professional judgement and is an accepted distance for a water environment Study Area. This area is shown on **Figure 9-1: Surface Water Receptors and their Attributes**. Due to the large Study Area, descriptions have been included to indicate their location within the Study Area.

9.4.2 However, given that water quality and flood impacts may propagate downstream, the assessment also considers a wider, catchment-based Study Area where relevant, which extends as far downstream as a potential impact may influence the quality or quantity of the water body.

9.4.3 The catchment of the Study Area drains to the Derwent Humber Operational Catchment, and the Hull and East Riding Operational Catchment. Humberhead 1-1 and 1-2 and parts of Site 2-1 are within the Derwent Humber catchment and drain via Bielby Beck to Pocklington Beck to the River Derwent. It is considered that Bielby Beck at Thornton Lock, Melbourne is the ultimate downstream receptor, approximately 2.5 km downstream. For the rest of the Humberhead Sites and CRSC, the Market Weighton Canal, downstream of the Foulness is considered the ultimate downstream receptor located 750 m downstream of Humberhead Sites. The Q95 flow of the Foulness at Holme House Farm is 0.041m^3/s. Bielby Beck (Q95 of 0.027 m3/s at Melbourne) and Market Weighton Canal are chosen as the downstream receptors for surface water and hydromorphology due to the available flow for dilution potential. The Humber Estuary is 7.5 km downstream, with a managed connection via sluice gates. There would be dilution and dispersion of any pollutants thus we do not consider it to be at risk of significant effects, noting the mitigation that will be proposed on site.

9.4.4 For flood risk and groundwater, the baseline assessment has also considered a wider Study Area informed by the extent of hydrological and hydrogeological pathways. This typically extends up to approximately 2 km from the Site, where relevant, to capture downstream flood risk receptors and groundwater interactions. The extent has been defined to ensure that all receptors with a plausible pathway for effect are considered, and has been refined where appropriate based on catchment characteristics and the presence of sensitive receptors.

9.5 Baseline Conditions

9.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas.

9.5.2 The water environment baseline conditions have been determined by a desk study of available information, and various online data sources including:

- Online Ordnance Survey ('OS') maps viewed to identify any surface water features within 1 km of the Scheme (Ref 184);
- Online aerial photography (Ref 185);
- Part 1: Anglian River Basin District River Basin Management Plan (Ref 186);
- Environment Agency Catchment Data Explorer website (Ref 187);
- Department for Environment, Food and Rural Affairs ('DEFRA') hydrology data explorer website;
- Environment Agency Water Quality Explorer (Ref 198)
- National Soil Resources Institute Soilscapes website (Ref 188)
- Multi Agency Geographical Information for the Countryside ('MAGIC') map website; (Ref 135)
- British Geological Society ('BGS') Geoindex website (Ref 189)
- Meteorological Office website (Ref 154)
- BGS Borehole and Geology Mapping (Ref 190); and
- Environment Agency Online Interactive Maps (Ref 191);
- Environment Agency Online Flood map for planning (rivers and sea) (Ref 199);
- Environment Agency Online Risk of flooding from surface water (Ref 200);
- Environment Agency Online Risk of flooding from reservoirs (Ref 201); and
- Environment Agency Online Flood warning areas and risk (Ref 203).

9.5.3 Further review of existing geological plans, hydrogeological data and site investigation data will be carried out at later assessment stages to support the assessment of local ground and groundwater conditions. Summarised data will be recorded and provided within a Flood Risk Assessment ('FRA') and will be used to inform the outline Surface Water Drainage Strategy ('oSWDS'). A general walkover and hydromorphological survey of the Site will also be undertaken in order to inform the assessment.

Topography, Land Use, Climate and Geology

9.5.4 The majority of the Study Area is characterised by fairly flat topography ranging between 2 m and 15 m above ordnance datum ('AOD'). However, towards the northeast of the Study Area the topography increases to 166 mAOD. The majority of the Site is located on the flatter land, but where Humberhead 2 and the CRSC is located near Londesborough, the topography is slightly more hilly and between 30-70 mAOD.

9.5.5 The Study Area is contained within land that is predominantly used for agriculture, mainly of an arable nature, with small patches of woodland, grassland and isolated industrial premises and residences. The villages of Londesborough, Burnby, Hayton, Allerthorpe, Bursea, and Laytham lie entirely within the Study Area, while the outskirts of Pocklington market town and parts of Shiptonthorpe, Everingham, Holme-on-Spalding-Moor, and Seaton Ross villages also overlap the Study Area.

9.5.6 Based on the Meteorological Office website, the nearest rainfall station is Leconfield, which is positioned approximately 7 km west to the Study Area boundary of Humberhead 2. Using data from this weather station, for the period 1991 to 2020, it is estimated that the Study Area experiences approximately 660 mm of rainfall per year, with it raining more than 1 mm on approximately 124 days per year, which are both low in the UK context. This is relevant to the whole Study Area.

9.5.7 The bedrock and superficial geology for the Study Area is identified by the BGS GeoIndex online mapping. The Study Area is predominantly underlain by the Mercia Mudstone Group, comprising Triassic-aged mudstone, siltstone, and sandstone. Thin bands of the Lias Group, Grey Chalk Subgroup, and White Chalk Subgroup occur in the northeast of the Study Area, including Humberhead 2 and the CRSC between the Humberhead 2 Sites. Overlying the bedrock of the Study Area and Pocklington Gravel Formation are Quaternary-aged superficial deposits, primarily clay lacustrine sediments, and areas of gravelly, silty sand, with smaller areas of alluvium, isolated peat deposits in the south, and diamicton till near Londesborough in the northeast of the Study Area.

9.5.8 A review of the Study Area on the Soilscapes website shows that the predominant soil type comprises naturally wet very acid sandy and loamy soils. Surrounding this, both the eastern and western boundaries of the Study Area feature slowly permeable seasonally wet slightly acid but base rich loamy and clayey soils. In addition, smaller deposits of freely draining lime-rich loamy soils and loamy and clayey floodplain soils with naturally high groundwater are present in the Study Area. Humberhead 3 contains an isolated deposit of loamy soils with naturally high drainage, while Humberhead 4 includes a localised area of slightly acid loamy and clayey

soils with impeded drainage. In addition, the CRSC between Humberhead 1 and 4 contains a small deposit of freely draining lime-rich loamy soils

Surface Water Features

9.5.9 Surface Water Features in the Study Area are outlined in **Table 9-1,** and shown on **Figure 9-1: Surface Water Features and their Attributes**.

9.5.10 Main Rivers are defined according to criteria set under the Water Resource Act (Ref 155) as usually larger rivers and streams with a potentially significant flood risk associated with them. There are six Main Rivers within the Study Area, for which the Environment Agency is the regulating authority for flood risk (Ref 156). All other watercourses are 'Ordinary Watercourses' managed by the Lead Local Flood Authority ('LLFA') or Internal Drainage Boards ('IDB'). The IDB in this area are Foss Internal Drainage Board and the Ouse and Humber Drainage Board. The LLFA is the East Riding of Yorkshire Council.

9.5.11 The Study Area consists of numerous becks, drains, and dikes, which generally flow in a south-to-south-westerly direction and ultimately discharge into the Humber. In addition to the mapped Ordinary Watercourses, OS Maps indicate the presence of extensive unnamed drains and dikes that border the agricultural fields within the Study Area.

9.5.12 From the desk study, there are no notable ponds, lakes or other lentic habitats identified within the Study Area, other than small agricultural ponds. Isolated ponds as receptors are considered within **Chapter 8: Biodiversity** of this EIA Scoping Report.

Table 9-1 Surface Water Features within the Study Area or potentially impacted by the Scheme

Surface Water Feature	Description	Considered for Assessment?
River Foulness and tributaries (Main River)	The River Foulness, comprising the WFD water bodies Foulness from Source to Black Beck and Foulness from Black Beck to Market Weighton Canal, flows across the Study Area and CRSC. The river originates east of Londesborough and flows in a south-westerly direction towards its confluence with Black Beck, passing through Humberhead 2 and 3. This upper reach is designated as a heavily modified water body under the WFD and is approximately 12.7 km in length. From its confluence with Black Beck, the River Foulness continues in a generally southerly direction before joining the Market Weighton Canal, flowing through the Study Area, in the area of Humberhead 1, 3 and 4 and CRSC. Northeast of Market Weighton, the upper reaches of the Foulness is designated as Chalk River, with a tributary from the north, near Goodmanham, also designated as Chalk River. A National River Flow Archive ('NRFA') flow gauging station downstream close to Foggathorpe close to the A163 is time (Q95) of 0.041 m^3/s.	Yes – flows through the Study Area.
Pocklington Beck and tributaries (Main River)	Pocklington Beck originates to the north of Pocklington, fed by two feeder streams, and flows in a south-westerly direction through Humberhead 1 and the CRSC between Humberhead 1-1 and 1-2. Within Pocklington, the beck is culverted extensively through the town centre before continuing downstream as an open watercourse. As it leaves the Study Area in the area of Humberhead 1, it flows parallel to Pocklington Canal, forming the principal drainage channel for the surrounding catchment. Downstream of the Study Area, the beck ultimately discharges into the River Derwent at East Cottingwith. The combined length of the watercourse, including its upper tributaries and downstream reaches, is approximately 12-13 km. Pocklington Beck is known to be susceptible to flooding, owing to its low-lying catchment, historic culverting through Pocklington and accumulation of silt and gravel within channelised sections.	Yes – flows through the Study Area in the area of Humberhead 1.

Surface Water Feature	Description	Considered for Assessment?
	Northwards, and upstream of Pocklington, the upper reaches of Pocklington Beck is designated as a Chalk River.	
Bielby Beck and tributaries (Main River)	Bielby Beck is approximately 9.9 km in length, is classified under the WFD, and is not designated as an artificial or heavily modified watercourse. It is in the Study Area, close to Humberhead 1 and through the CRSC between Humberhead 1-2 and 1-3 before confluence with Hayton Beck (Missik Beck) and flows southwest out of the Study Area towards Bielby. Along its length this is also labelled as West Beck / Burnby Beck and Hayton Beck. These are included here within Bielby Beck From the upper parts of the catchment to the downstream confluence, Bielby Beck is designated as a Chalk River. There is a NRFA flow gauging station located at Thornton Lock, this shows a flow that is exceeded 95% of the time (Q95) of 0.027 m^3/s.	Yes - Bielby Beck flows through the Study Area in the area of Humberhead 1.
Weighton Beck and tributaries (Main River)	Weighton Beck originates within Market Weighton and flows south-westerly through the Study Area, in the area of Humberhead 4, until it is classified as Black Delfin at National Grid Reference ('NGR') SE8525339206. It has a total length of approximately 3.3 km.	Yes – flows within the Study Area, in the area of Humberhead 4.
Black Delfin and tributaries (Main River)	Black Delfin flows from the boundary between Market Weighton and Holme upon Spalding Moor boundary at NGR SE8525339206, flowing southwards through the Study Area, in the area of Humberhead 4, and CRSC. Additionally, it flows along the boundaries of the Humberhead 4-1, 4-2, 4-3, and 4-4. At the confluence between Black Delfin and Main Drain at NGR SE8445734359, the waterway becomes Market Weighton Canal. Northwards, and upstream of Market Weighton, Black Delfin is designated as a Chalk River.	Yes – flows within the Study Area in the area of Humberhead 4, and Humberhead 4-1, 4-2, 4-3 and 4-4.

Surface Water Feature	Description	Considered for Assessment?
Pocklington Canal and tributaries (Canal)	Pocklington Canal is designated a WFD water body, and is an artificial water body which forms part of the Canal & River Trust network, extending for approximately 15 km from Canal Head near Pocklington to its confluence with the River Derwent near East Cottingwith in a south westerly direction. Constructed to run broadly parallel to Pocklington Beck, the canal receives no direct drainage inflows from the surrounding catchment, as local drains discharge instead to the beck (see above).	Yes – the canal defines the eastern border of the red line boundary for Humberhead 1-1.
Market Weighton Canal and tributaries (Canal)	Market Weighton Canal is an artificial water body extending from the Humber Estuary to its junction with the River Foulness. Market Weighton Canal forms the downstream receiving surface water feature for the Foulness from Black Beck to Market Weighton Canal WFD water body. The canal is 15.3 km in length but is not part of the Canal & River Trust. A NRFA flow gauging station on Market Weighton Canal shows a Q95 of 0.03 m^3/s	Yes – upstream section of Canal is within the Study Area and is the receiving water body for the Study Area.
Cocoa Beck and tributaries (Ordinary Watercourse)	Cocoa Beck is located east of Pocklington, within the Bielby Beck WFD water body catchment, at SE8211149023 and flows south-westerly to SE8089946437, where it confluences with Common Beck. It has a length of approximately 3 km and passes through the northeast part of the Study Area, in the area of Humberhead 1 to its confluence with Common Beck on the northwest boundary of Humberhead 1-2.	Yes – flows through the Study Area, in the area of Humberhead 1 and borders Humberhead 1-2.
Common Beck and tributaries (Ordinary Watercourse)	Common Beck is located northwest of Burnby at SE8273147010, within the Bielby Beck WFD water body catchment. and flows westerly to its confluence with Cocoa Beck at SE8089946437. It has a length of approximately 2 km and pass though the eastern part of the Study Area, in the area of Humberhead 1 to the northwest boundary of Humberhead 1-2.	Yes – flows through the Study Area, the area of Humberhead 1 and borders Humberhead 1-2.
Whiterail Beck and tributaries (Ordinary Watercourse)	Whiterail Beck, within the Bielby Beck WFD water body catchment, flows from the confluence of Cocoa and Common Beck south of Pocklington at SE8089946437 south-westerly to Missik Beck at SE8041545414. The watercourse is approximately 1 km in length and flows along the western border of Humberhead 1-2, alongside the CRSC.	Yes – flows along the boundary of Humberhead 1-2 and within the Study Area.

Surface Water Feature	Description	Considered for Assessment?
Missik Beck and tributaries (Main River)	Missik Beck, within the Bielby Beck WFD water body catchment, is only approximately 300 m in length, defined by downstream portion of Hayton Beck and upstream of their confluence with Pocklington Beck at SE8027145327.	Yes – the beck is downstream of Humberhead 1-2 and within the Study Area.
Stone Beck and tributaries (Ordinary Watercourse)	Stone Beck flows south-easterly from east of Allerthorpe at NGR SE7769847158, within the Pocklington Beck WFD water body catchment, to its confluence with Bielby Beck at NGR SE7869943978. It is approximately 4 km in length and pass through the Study Area, in the area of Humberhead 1 and the CRSC.	Yes – flows through the Study Area, in the area of Humberhead 1.
Baulker Drain and tributaries (Ordinary Watercourse)	Baulker drain originates from the west boundary of Humberhead 1-4 at NGR SE8036743924, in Foulness from Black Beck to Market Weighton WFD water body catchment, and flows south westwards to its confluence with New Drain at NGR SE7920441187 into Black Beck. Baulker drain is approximately 4 km in length.	Yes – downstream receptor of Humberhead 1-4 and flows in the Study Area, in the area of Humberhead 1.
Nunburnhome Beck and tributaries (Ordinary Watercourse)	Nunburnholme Beck is approximately 2.2 km in length, in the Bielby Beck WFD water body catchment, flowing from Bratt Wood at SE8552849048 to south Nunburnholme, and within the Study Area, in the area of Humberhead Humberhead 2, at SE8459147315.	Yes – flows through the northeast of the Study Area, in the area of Humberhead 2.
Towthorpe Beck and tributaries (Ordinary Watercourse)	Towthorpe Beck is approximately 1.2 km in length, within the Foulness from Source to Black Beck WFD water body, flow southerly from The Lake at NGR SE8702644784 to East Beck at NGR SE8673143763. The Beck flows alongside the eastern boundary of Humberhead 2-3.	Yes – flows alongside Humberhead 2-3 boundary.
East Beck and tributaries (Ordinary Watercourse)	East Beck is approximately 1.6 km in length, flowing from Towthorpe Beck at NGR SE8673143763 to Shiptonthorpe, within the Foulness from Source to Black Beck WFD water body, draining into River Foulness at NGR SE8533143130. A small reach of East Beck, east of Shiptonthorpe is designated as a Chalk River.	Yes – flows within the Study Area, in the area of Humberhead 2, with the chalk river flowing adjacent to Humberhead 2-3.

Surface Water Feature	Description	Considered for Assessment?
The Runner and tributaries (Ordinary Watercourse)	The Runner is approximately 2 km in length and flows through, and perpendicular to the CRSC between Humberhead 1 and 4, east of Everingham. This is within the Foulness from Source to Black Beck WFD water body.	Yes – flows through the Study Area.
Foss Dike and tributaries (Ordinary Watercourse)	Foss Dike flows in a north-south direction from NGR SE7597141144 to the River Foulness at NGR SE7754236738. It flows through the Study Area, in the area of Humberhead 3, and specifically along the eastern boundary of Humberhead 3-1 and the CRSC. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 3, boundary of Humberhead 3-1.
Wood Dike and tributaries (Ordinary Watercourse)	Wood Dike flows from NGR SE7736939775 to River Foulness at NGR SE7811938312, passing through the Study Area, in the area of Humberhead 3, alongside Humberhead 3-2 and through the CRSC. Its total length is approximately 2.4 km. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 3, boundary of Humberhead 3-2.
West Carr Drain and tributaries (Ordinary Watercourse)	West Carr Drain flows from NGR SE8002841027 south-westerly to Black Beck at NGR SE7942540246, totalling approximately 1 km in length. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows within the Study Area, in the area of Humberhead 3.
Black Dike and tributaries (Ordinary Watercourse)	Black Dike flows along the northern boundary of Humberhead 3-3 from NGR SE8107540087 to River Foulness at NGR SE7974540185. It is a total of 1.5 km in length. A tributary of this is the Skelfleet Drain, which is a location with surface water quality monitoring, as noted in Table 11-3. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows within the Study Area, in the area of Humberhead 3, and alongside Humberhead 3-3.
Lowmath Drain and tributaries (Ordinary Watercourse)	Lowmath Drain originates from Anthony's Hill at NGR SE8299640368 and flows westwards to Black Dike at NGR SE8107540087. It is approximately 2 km in length, with the downstream portion within the Study Area, in the area of Humberhead 3. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes- flows within the Study Area, in the area of Humberhead 3.

Surface Water Feature	Description	Considered for Assessment?
East Ings Drain and tributaries (Ordinary Watercourse)	East Ings Drain flows from NGR SE8505540795 southwards through the Study Area, in the area of Humberhead 4 and alongside Humberhead 4-1 and the CRSC, into Black Delfin at NGR SE8443037803. It is approximately 3.3 km in length. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows within the Study Area, in the area of Humberhead 4, and along the boundaries for Humberhead 4-1.
Bowman Drain and tributaries (Ordinary Watercourse)	Bowman Drain flows from outside the Study Area at NGR SE8885839771 westerly into Study Area, in the area of Humberhead 4, into Black Delfin at NGR SE8490138636, totalling approximately 4.7 km in length. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows within the Study Area, in the area of Humberhead 4, and through Humberhead 4-2.
Beils Beck and tributaries (Ordinary Watercourse)	Beils Beck flows from NGR SE8848238826 in a southwest direction into Black Delfin at NGR SE8432536904, totalling approximately 4 km in length. It flows into the northeast of the Study Area, in the area of Humberhead 4 , and between the borders of Humberhead 4-4 and the CRSC. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows with the Study Area, in the area of Humberhead 4 and alongside Humberhead 4-4.
Egremont Drain and tributaries (Ordinary Watercourse)	Egremont Drain flows from within the CRSC at NGR SE8431337437, southwards through Humberhead 4-3, draining into Main Drain at NGR SE8440234379 over approximately 3 km. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through Humberhead 4-3 and within the Study Area.
Main Drain and tributaries (Ordinary Watercourse)	Spanning approximately 5.8 km in length, Main Drain flows from east Holme-on-Spalding-Moor at NGR SE7970937854 in a south-eastly direction through the CRSC in the area of Humberhead 4, until draining into Black Delfin at NGR SE8445534361. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 4.
Carr Dike and tributaries (Ordinary Watercourse)	Carr Dike flows along the boundary of Humberhead 4-8 at NGR SE8638834522 and into Market Weighton Canal, passing through the CRSC, at NGR SE8447634079. The length of Carr Dike is approximately 2 km. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 4 and boundary of Humberhead 4-8.

Surface Water Feature	Description	Considered for Assessment?
Pollard Drain and tributaries (Ordinary Watercourse)	Pollard Drain flows southerly from Bunnyhill Plantation at NGR SE8598135691 into Carr Dike at NGR SE8638834522, totalling 1.2 km in length. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 4.
Suehead Drain and tributaries (Ordinary Watercourse)	Suehead Drain flows parallel to Pollard Drain above, originating at NGR SE8490135798 and draining into Carr Dike at NGR SE8535734279. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 4.
Dunn's Drain and tributaries (Ordinary Watercourse)	Dunn's Drain flows from the the Study Area, in the area of Humberhead 4 , at NGR SE8015034809 south-westerly, draining into River Foulness at NGR SE7971933872. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows through the Study Area, in the area of Humberhead 4.
Featherbed Drain and tributaries (Ordinary Watercourse)	Featherbed Drain originates southwest of Spaldington at NGR SE7538932491. It flows in an easterly direction for approximately 6.7 km, before discharging into the River Foulness southwest of Bursea at NGR SE8018933354. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – the Drain flows within the southwest of the Study Area, in the area of Humberhead 4 .
Bishopsoil Drain and tributaries (Ordinary Watercourse)	Bishopsoil Drain flows parallel to Featherbed drain from just outside the Study Area at NGR SE7865332270, diverging within the Study Area at NGR SE8007633109 to flow parallel to River Foulness, before diverging again and flowing out of the Study Area at Sandholme Lodge at NGR SE8345631835. In total, the Drain is approximately 14.5 km in length, where it ultimately drains to the River Ouse. This is within the Foulness from Black Back to Market Weighton Canal WFD water body,	Yes – flows within the Study Area, in the area of Humberhead 4.
Black Dike and tributaries (Ordinary Watercourse)	The Black Dike flows from within the Study Area at NGR SE8739333123, in a westerly direction to Market Weighton Canal at NGR SE8470232614. This is within the Foulness from Black Back to Market Weighton Canal WFD water body.	Yes – flows within the Study Area, in the area of Humberhead 4.

Hydromorphology

9.5.13 The River Foulness within the Study Area is designated as the Foulness from Source to Black Beck and Foulness from Black Beck to Market Weighton Canal WFD water bodies and has a hydromorphological designation of heavily modified. Geology mapping shows that the River Foulness sits within a corridor of alluvium through most of its length, indicating a degree of channel movement across its floodplain. Within the downstream reaches of the River Foulness, superficial peat deposits are present, in historic wetland areas. Some sections of the River Foulness appear overly straight and comparisons with historic mapping show that the channel was once more sinuous.

9.5.14 Pocklington Beck within the Study Area is designated as the Pocklington Beck from Source to Bielby Beck and Pocklington Beck from Bielby Beck to River Derwent WFD water bodies. The upper reach is not designated as artificial or heavily modified and the lower reach is classified as heavily modified for its hydromorphological designation. For the majority of its length Pocklington Beck has a narrow corridor of alluvium deposits, indicating a low degree of channel migration. There are also superficial peat deposits associated with the Storwood Carr wetland. Historical maps show that the present day course of Pocklington Beck has not deviated much from its course in the early 1900s.

9.5.15 Hayton Beck within the Study Area is designated as the Bielby Beck from Source to Pocklington Beck WFD water body, classified as not artificial or heavily modified for its hydromorphological designation. Hayton Beck sits within a narrow alluvial corridor, indicating limited movement across its floodplain over time. The watercourse has many sections which appear overly straight, which is likely a result of channel modification.

9.5.16 Bielby Beck within the Study Area is designated as part of the Pocklington Beck from Bielby Beck to River Derwent. Bielby Beck is moderately sinuous, and shows areas where the channel has changed over time, with the presence of meander cut-offs which may be a result of natural processes or anthropogenic modification.

9.5.17 There are numerous smaller watercourses across the Study Area as listed in **Table 9-1**, many of which are artificially straight drainage channels, likely created or modified to aid agricultural land drainage. These watercourses are likely to be of low hydromorphological quality, with limited connection between the channel and the floodplain.

9.5.18 There are two water bodies classified as artificial for their hydromorphological designation. These are the Pocklington Canal and Market Weighton Canal.

WFD Classification

9.5.19 The present (Cycle 3, 2022) classification of the potential impacted WFD surface water bodies are given in **Table 9-2**. These are shown on **Figure 9-5: Catchment Plan for Surface Water, Water Framework Directive Waterbodies**.

9.5.20 There are also four groundwater bodies (Cycle 3, 2019) underlying the Study Area:

- East Riding Mercia Mudstone;
- Derwent (south) Mercia Mudstone, Lias, Ravenscar and Norton Corallian;
- Hull and East Riding Chalk; and
- Derwent Sherwood Sandstone.

9.5.21 These groundwater bodies are discussed under Hydrogeology and Groundwater. The reasons for water bodies not achieving good status are presented in **Appendix 9-A: Water Framework Directive Screening and Scoping Report**.

Table 9-2 WFD Classification (2022 data) for WFD Surface Water Bodies underlying the Study Area.

Classification Item	Foulness from Source to Black Beck (South) Water Body	Foulness from Black Beck to Market Weighton Canal Water Body	Bielby Beck from Source to Pocklington Beck Water Body	Pocklington Beck from Source to Bielby beck Water Body	Pocklington Beck from Bielby Bk to River Derwent Water Body	Birk Lane Drain Catch (trib of Derwent)	Derwent from Elvington Beck to River Ouse Water Body	Market Weighton Canal Water Body	Pocklington Canal Water Body
Humberhead Study Area	Humberhead 1 and 2	Humberhead 1, 2, 3, and 4	Humberhead 1 and 2	Humberhead 1	Humberhead 1	Humberhead 3	Humberhead 3	Humberhead 4	Humberhead 1
CRSC	CRSC between Humberhead 1 and 4	CRSC within Humberhead 1, 3 and 4	CRSC within area of Humberhead 1	CRSC within area of Humberhead 1	CRSC within area of Humberhead 1	NA	NA	CRSC	CRSC
Water Body ID	GB104026066720	GB104026066690	GB104027063450	GB104027063480	GB104027063440	GB104027063430	GB104027068311	GB70410031	GB70410502
Operational catchment	Foulness	Foulness	Derwent Lower Yorkshire	Derwent Lower Yorkshire	Derwent Lower Yorkshire	Derwent Lower Yorkshire	Derwent Lower Yorkshire	Hull and East Riding Canals Operational Catchment	Humber AWB
Hydromorphological designation	Heavily modified	Not designated artificial or	Not designated artificial or	Not designated artificial or	Heavily modified	Not designated artificial or	Heavily modified	Artificial	Artificial

Classification Item	Foulness from Source to Black Beck (South) Water Body	Foulness from Black Beck to Market Weighton Canal Water Body	Bielby Beck from Source to Pocklington Beck Water Body	Pocklington Beck from Source to Bielby beck Water Body	Pocklington Beck from Bielby Bk to River Derwent Water Body	Birk Lane Drain Catch (trib of Derwent)	Derwent from Elvington Beck to River Ouse Water Body	Market Weighton Canal Water Body	Pocklington Canal Water Body
		heavily modified	heavily modified	heavily modified		heavily modified			
Ecological	Moderate	Poor	Moderate	Poor	Moderate	Bad	Moderate	Moderate	Good
Biological quality elements	High	Poor	Moderate	Poor	High	Bad	High	n/a	n/a
Physico-chemical quality elements	Moderate	Good	Good	Good	Good	Moderate	Moderate	Moderate	Good
Hydromorphological Supporting Elements	Not high	Not high	Not high	Not high	Not high	Not high	Moderate	n/a	n/a
Hydrological Regime	Supports good	Supports good	High	Supports good	Supports good	Supports good	Not assessed	n/a	n/a
Supporting Elements (Surface Water)	Moderate	Not assessed	Not assessed	Not assessed	Moderate	Not assessed	Moderate	Moderate	Good

Classification Item	Foulness from Source to Black Beck (South) Water Body	Foulness from Black Beck to Market Weighton Canal Water Body	Bielby Beck from Source to Pocklington Beck Water Body	Pocklington Beck from Source to Bielby beck Water Body	Pocklington Beck from Bielby Bk to River Derwent Water Body	Birk Lane Drain Catch (trib of Derwent)	Derwent from Elvington Beck to River Ouse Water Body	Market Weighton Canal Water Body	Pocklington Canal Water Body
Mitigation Measures Assessment	Moderate or less	Not assessed	Not assessed	Not assessed	Moderate or less	Not assessed	Moderate or less	Moderate or less	Good
Specific pollutants	Not assessed	High	Not assessed	High	High	Not assessed	High	n/a	n/a
Chemical	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Fail	Fail
Priority substances	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Fail	Fail
Other pollutants	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment

Water Quality

9.5.22 This section sets out the baseline water quality monitoring data that is publicly available pertaining to the Study Area (see **Table 9-3**).

9.5.23 Baseline water quality is accessible via the Environment Agency's Water Quality Explorer (Ref 157).

Table 9-3 Available water quality data within, and immediately outside of the Study Area

Watercourse	Sampling Name	ID	Comment	Summary
Allerthorpe Drain	Allerthorpe Drain near Barmby Moor	NE-SSN1345	The monitoring site is in the Study Area, at the northern border of Humberhead 4.	Between January 2025 to 2026, this site was visited monthly but noted to have no flow/no sample 11 out of the 12 months. The month with flow was assessed for an eDNA report and Mitochondrial marker noting 12 fish species.
Eastmoor Drain	RSN1288 Eastmoor Drain near Bielby	NE-RSN1288	The monitoring site is situated ~ 800 m and ~1.5 km southwest, and downstream, to the Study Area (in the area of Humberhead 1) respectively.	Monthly sampling was undertaken between January 2024 and 2025 for 17 determinands and a flow observation. Results indicate High status for average pH of 7.43, 98th percentile of water temperature of 17.8°C and 90th percentile total ammonia of 0.2 mg/l compared to WFD standards. 10th percentile dissolved oxygen of 48.1% indicates Moderate status to WFD standards. Average total oxidised nitrogen ('TON') concentrations were 1.72 mg/L and 0.02 mg/L for orthophosphate.
River Derwent	Derwent at A163 Derwent Bridge Bubwith	NE-49600134	The monitoring site is within the River Derwent which is a receptor for the Study Area, in the area of Humberhead 1 and 2. The watercourses at the west end of the Study Area drain via the River Derwent to the River Ouse.	Monthly sampling from August 2017 to present day, originally testing for 14 determinands. Between January 2025 to 2026 testing occurred four times across the year and for five determinands. Results indicate an average pH of 7.99. The 10th percentile dissolved oxygen of 90.25% and 98th percentile water temperature of 16.66°C both indicate High status against WFD standards (Ref 158).

Watercourse	Sampling Name	ID	Comment	Summary
River Foulness	Foulness at Haswell Bridge	NE-49105172	The monitoring site is approximately 500 m west, and a downstream receptor to the Study Area between Humberhead 1 and 4, and the Study Area in the area of Humberhead 2. The monitoring site is upstream of the Study Area, in the area of Humberhead 3.	89 samples taken during 2025, testing for 12 determinands overall. In 2025, pH averaged 8.04, indicating circum-neutral to slightly alkaline water. The 10th percentile of dissolved oxygen was 79.7% indicating High status against WFD standards.
River Foulness	RSN0416 Foulness downstream Spring Wood	NE-RSN0416	The monitoring site is ituated northwest outside the Study Area, in the area of Humberhead 3. The monitoring site is downstream of the CRSC and the Study Area, in the area of Humberhead 2.	Between January 2025 to 2026, 119 determinands were tested 7-8 times. According to WFD standards, the 10th percentile dissolved oxygen of 148%, average pH of 8.24, 98th percentile water temperature of 21.58°C and 90th percentile total ammonia of 0.1 mg/L all indicate High status. The average concentrations for TON were 6.42 mg/L and 0.09 mg/L for orthophosphate.
River Foulness	River Foulness at major bridge - A163	NE-49100406	The monitoring site is directly outside the southern boundary of the Study Area (~ 500 m south), in the area of Humberhead 3. The	Available monthly data from January 2000 to September 2025, testing for 13 determinands. Between March 2025 and 2026, pH averaged at 7.79 indicating circum-neutral water and 10th percentile dissolved oxygen was 77.03%

Watercourse	Sampling Name	ID	Comment	Summary
			monitoring site is a downstream receptor for the Study Area, in the area of Humberhead 1, 2 and 3, as well as the CRSC between Humberhead 3 and 4.	indicating High status against WFD standards. The results also indicate High status for Ammonia.
Seller Dike	Seller Dike downstream Foggathorpe STW	NE-49105251	The monitoring site is directly outside the southern boundary of the Study Area, in the area of Humberhead 3 (~ 500 m south) by Foggathorpe. The monitoring site is likely a downstream receptor of the Study Area, in the area of Humberhead 3.	Sampling at monthly intervals between April 2024 to March 2025, testing for 12 determinands. Monitoring has since ceased. pH averaged 7.58, indicating circum-neutral to slightly alkaline water. The 10th percentile of dissolved oxygen was 52.59% indicating Poor status against WFD standards.
River Foulness	Foulness upstream Featherbed Drain	NE-49105169	The monitoring site Within the Study Area, in the area of Humberhead 4, southwest of the village of Bursea. Due to its downstream location, serves as a receptor for all of the Study Area.	Monthly sampling between November 2011 and March 2025, testing for 12 determinands. Results between March 2024 and 2025 indicate an average pH of 7.66. The 10th percentile of dissolved oxygen was 65% indicating Good status against WFD standards. Average TON is 9.63 mg/L and orthophosphate 0.06 mg/L.

Watercourse	Sampling Name	ID	Comment	Summary
River Foulness	RSN1128 River Foulness at Sandholme	NE-RSN1128	Situated within the southern area of the Study Area, in the area of Humberhead 4. The site is a receptor for the Study Area and CRSC.	Monthly sampling between January 2024 and March 2025. Results between January 2024 and 2025 demonstrate an average pH of 7.6 and 98th percentile water temperature of 20.6°C, which both indicate High status against WFD standards. The 10th percentile of dissolved oxygen of 47% indicates Poor status against WFD standards. Average TON was 7.27 mg/L and orthophosphate 0.04 mg/L. The 90th percentile of total ammonia was 0.4 mg/L indicating Good WFD status.
Skelfleet Drain	Skelfleet Drain at Hotham Common	NE-SSN0001	Receptor of the Study Area, in the area of Humberhead 4, situated south of Snake Hall Plantation.	Recent sampling from April 2023 to August 2025 over monthly intervals, testing for 47 determinands. Sampling results between January 2025 to 2025 compared to WFD standards indicates the 10th percentile for dissolved oxygen of 73.5%, average pH of 7.72 and 98th percentile of water temperature of 14.3°C all indicate High status. 90th percentile value for total ammonia of 0.94 mg/L indicates a Moderate status against WFD standards. The averages concentrations for TON were 1.6 mg/L and 0.018 mg/L for orthophosphate.
Market Weighton Canal	Market Weighton Canal at Newport	NE-49100259	The site is a downstream receptor for the Study Area, being approximately 2 km downstream from Humberhead 4 boundary.	Long term monthly monitoring from January 2000 to March 2025, testing for 12 determinands. Compared to WFD standards, results between January 2024 and 2025 indicate an average pH of 7.72 achieving High status, 10th percentile dissolved oxygen of 60.4% achieving Good status, 98th percentile water temperature of 20.3°C achieving High status, and 90th percentile total ammonia of 0.4 mg/L

Watercourse	Sampling Name	ID	Comment	Summary
				achieving Good status. Average concentrations for TON and orthophosphate were 9.63 and 0.06 mg/L, respectively.
Bishopsoil Drain	Bishopsoil Drain at Cheapsides	NE-SSN1281	Receptor of the Study Area, in the area of Humberhead 4, situated south of Bursea.	Sampling occurred 10 times between January 2025 to 2025 for 18 determinands, seven times for 2 determinands, twice for 21 determinands, and once for 51 polyfluoroalkyl substances (PFAS) determinands. Results indicate WFD status for average pH of 6.92 as High status, 10th percentile dissolved oxygen of 14.4% as Bad status, 98% percentile water temperature of 23°C High status and total ammonia of 0.6 mg/L as Moderate status. While average TON concentration of 1.48 mg/L is lower than other sites, the average concentration of orthophosphate of 0.31 mg/L is higher than other sites.

Flood Risk from all Sources

9.5.24 The EA publishes online floodplain maps. These maps show the possible extent of fluvial flooding for a 1 in 100 year flood (1% annual probability of occurrence) and the possible extent of tidal flooding associated with a 1 in 200 year event (0.5% annual probability of occurrence), ignoring the presence of flood defences. Also shown is the possible extent of flooding arising from a 1 in 1,000 year event (0.1% probability). Flood Zones are defined by the EA as the following:

- Flood Zone 1: Low probability, land having a less than 0.1% annual probability of river or sea flooding;
- Flood Zone 2: Medium probability, land having between a 1% and 0.1% annual probability of river flooding; and
- Flood Zone 3: High probability, land having a 1% or greater annual probability of river flooding.

9.5.25 The flood risk from all sources for the Scheme is summarised in **Table 9-4** and **Table 9-5** below. The EA online interactive maps have been used to obtain information on sources of flooding. Please also refer to **Figure 9-3: Fluvial Flood Risk** and **Figure 9-4: Surface Water Flood Risk**, throughout.

Table 9-4 Flood Risk from all source (Humberhead Sites)

Flood Risk Source	Pre-Scheme Flood Risk	Comments
Fluvial	Low-High	The majority of the Humberhead Sites are located within Flood Zones 2 and 3. Humberhead 4 is affected the greatest, with Humberhead 4-4, 4-7, and 4-8 almost entirely located within the Flood Zone 3 extents. Humberhead 1-1, 1-4 and 3-4 are also largely within the Flood Zone 2 and 3 extents, as well as Humberhead 3-5 which is also located entirely within Flood Zone 3.
Tidal	Low	The Back Delfin is classified as a Main River that runs through the Site, and eventually becomes Mark Weighton Canal, which extends from the Humber Estuary. The Humber Estuary, located approximately 9 km south of Humberhead 4-7, has a series of flood embankments that provide a level of protection from tidal flooding. As such, according to the East Riding of Yorkshire Council Strategic Flood Risk Assessment ('SFRA'), the majority of the flood risk posed to the area is a residual risk as a result of flood events exceeding the standard of protection provided by the defence or

Flood Risk Source	Pre-Scheme Flood Risk	Comments
		pumping failure, or flooding behind the defences due to local runoff or groundwater. Since this is classified as a residual risk, risk of flooding from tidal sources is low.
Surface Water	Low - High	There are isolated areas at low, medium and high risk of flooding within all of the Humberhead Sites. However, these areas are likely associated with areas of low topography where surface water is gathering in low points and draining towards smaller Ordinary Watercourses and/or local land drains.
Groundwater	High	Using the East Riding of Yorkshire Council SFRA Flood Risk from Groundwater map, the majority of the Scheme is located in areas that are susceptible to groundwater flooding by a probability of greater than 75%.
Sewer	Low	The Humberhead Sites are located in predominantly rural areas, however where a plot is located adjacent to a highway/settlement there is potential for flooding from sewer sources.
Reservoirs	Low	There are some Humberhead Sites at risk of flooding from reservoir failure, more specifically Humberhead 4. This is due to the water storage area located within Market Weighton. Reservoir flood risk is also located in some areas within Humberhead 1, where there is risk of reservoir flooding when there is also flooding from rivers. Reservoir flood risk is considered a low residual risk, as it is expected the reservoir will be maintained and within a formal inspection regime. The remainder of the Humberhead Sites are not within the extents of reservoir flooding. No other risk from artificial sources have been identified within the Site.

Table 9-5 Flood Risk from all source (CRSC)

Flood Risk Source	Pre-Scheme Flood Risk	Comments
Fluvial	Low - High	Fluvial Flood Risk level varies across the CRSC from low to high risk. Areas of high risk are typically found were the search area crosses watercourses. One large area of the CRSC that is classified as medium risk (Flood Zone 2) is located between Humberhead 4-7 and 4-3. The CRSC

Flood Risk Source	Pre-Scheme Flood Risk	Comments
		adjacent to Humberhead 1-1, 1-2 and 1-3 also consist of areas predominately of medium risk (Flood Zone 2).
Tidal	Low	As discussed in **Table 9-4**, tidal risk for the CRSC is classified as a residual risk, therefore risk of flooding from tidal sources is low.
Surface Water	Low - High	There are isolated areas at low, medium and high risk of flooding. However, these areas are likely associated with areas of low topography where surface water is gathering in low points and draining towards smaller Ordinary Watercourses and/or local land drains.
Groundwater	High	Using the East Riding of Yorkshire Council SFRA Flood Risk from Groundwater map, the majority of the CRSC is located in areas that are susceptible to groundwater flooding by a probability of greater than 75%.
Sewer	Low	The CRSC is located in predominantly rural areas, however where an area is located adjacent to a highway/settlement there is potential for flooding from sewer sources.
Reservoirs	Low	There are some areas of the CRSC that are at risk of flooding from reservoir failure; specifically in the area east of Humberhead 1, and the areas around Humberhead 4-1 and 4-3 which is associated with the water storage area located within Market Weighton, and an area in Harswell between Humberhead 1 and Humberhead 4 associated with a reservoir in Londesbrorugh. There is also risk of reservoir flooding associated with the reservoir in Londesborugh when there is also flooding from rivers in an area of the CRSC between Humberhead 3-2 and 3-2. Reservoir flood risk is considered a low residual risk, as it is expected the reservoir will be maintained and within a formal inspection regime. The remainder of the Scoping Site Boundary is not within the extents of reservoir flooding. No other risk from artificial sources have been identified within the Site.

Water Resources

9.5.26 MAGIC Maps indicates that the Surface Water Drinking Water Safeguard Zone of Humber Elvington and Loftsome Bridge (SWSGZ6008) intersects with the Study Area, in the area of Humberhead 1 and 2 and within the CRSC

between Humberhead 1 and 4. This zone is at risk from pesticides and turbidity.

9.5.27 These safeguard zones are catchment areas that influence the water quality for their respective Drinking Water Protected Area, which are at risk of failing the drinking water protection objectives. In this area, the water quality pressures are associated with risk of impacts from pesticide pollution and turbidity.

9.5.28 Groundwater Source Protection Zones ('SPZs') are defined zones centred on groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution to the source and surrounding area. The closer the activity to the source, the greater the risk. The SPZs are subdivided into three Zones; where Zone 1 is the Inner Protection Zone, Zone 2 is the Outer Protection Zone and Zone 3 is the Total catchment. These are shown on **Figure 9-2: Groundwater Receptors and their Attributes**.

9.5.29 There is a small Zone 1 and 2 SPZ within the Site, in the area of Humberhead 2, east of Londesborough, and a number or smaller individual zone 1 borehole abstractions, in the area of Humberhead 3, south of Seaton Ross and Zone 1 in the Study Area, in the area of Humberhead 4, at East Common. To the northeast and east of the Study Area there is a large SPZ which consists of Zones 1, 2 and 3 which is generally located where the Burnham Chalk Formation is located. Between Sancton and South Newbald, which are to the east of the Study Area south of Market Weighton, there is a SPZ which consists of Zones 1 and 2. All SPZs present within the Study Area are displayed in **Figure 9-2: Groundwater Receptors and their Attributes**.

9.5.30 The entire Study Area lies within three Nitrate Vulnerable Zones ('NVZs') for surface water, except for two small areas to the west of the Study Area, in the area of Humberhead 3, west of Foggathorpe, and another in the southernmost area of the Study Area, in the area of Humberhead 4. NVZs are statutory designated areas as being at risk from agricultural nitrate pollution and includes about 55% of land in England. The NVZs are summarised below.

9.5.31 The surface water NVZs, ordered from north to south, consist of:

- Blackfloss Bk lower Catch (trib of Pocklington Bk) NVZ (ID: S283);
- Foulness from Black Beck to Market Weighton Canal NVZ (ID: S249); and
- Market Weighton Canal/Bk from Source to Humber NVZ (ID: S250).

9.5.32 Details of groundwater abstractions, pollution incidents, licensed discharges and private water supplies within the Study Area are not known at this stage. This data will be requested from the Environment Agency and local authorities to support the impact assessment.

Internal Drainage Boards

9.5.33 The Study Area in the area of Humberhead 3 and 4, and the Study Area between Humberhead 3 and 4 and 1 and 4, are wholly within one internal drainage board ('IDB') (Ref 159), the Ouse and Humber Drainage Board. The IDB district broadly extends north of the Humber Estuary, from South Cave in the southeast to Market Weighton in the northeast, westward to Ellerton, and southwest to Barmby on the Marsh, located north of the River Ouse. These are shown on **Figure 9-3: Fluvial Flood Risk**.

9.5.34 The southwest portion of the Study Area in the area of Humberhead 1 and the Study Area west of Humberhead 1 are within the Foss (2008) IDB. This district comprises two main areas within the Vale of York: one located northeast of the City of York, and the other, which includes the Study Area, extending from Melbourne to Full Sutton.

9.5.35 The Study Area, in the area of Humberhead 2 and the Study Area between Humberhead 1 and 2 do not fall within the boundary of any IDB.

Nature Conservation Sites

9.5.36 This section describes the statutory sites designated for nature conservation that are relevant to the water environment assessment. For further information relating to ecology, refer to **Chapter 8: Biodiversity**.

9.5.37 Statutory sites that are designated for nature conservation and are relevant to the water environment assessment were identified through a review of MAGIC. The following are located within the Study Area:

- Allerthorpe SSSI is located over 2 km to the northwest of Humberhead 1, at an elevation of 17-18 m Above Ordnance Datum. The closest Humberhead 1 site is located at 12-13 m AOD, and is downhill and over 2 km distant from the Humberhead 1 Site. Therefore, it is considered there is no pathway and this is scoped out of further assessment.
- South Cliffe Common Site of Special Scientific Interest ('SSSI') is located within and on the boundary of the Study Area, one unit being adjacent to Humberhead 4-8. One unit is located adjacent to Pollard Drain, with two units upstream with tributaries flowing through the area of the SSSI. They are nationally important sites as one of only six extensive heathlands on sand remaining in Humberside, supporting a mosaic of habitats. The sites are also rich in insects and other invertebrates, including many nationally uncommon species (Ref 160). This is scoped in to further assessment.
- Approximately 2.5 km of Pocklington Canal SSSI is within the Study Area, on the eastern border of Humberhead 1-1 and through the CRSC. The canal and its margins support diverse habitats including open water, fen, swamp, neutral grassland, hedgerows and scrub, providing exceptional invertebrate diversity (notably dragonflies and reed beetles) and a rich

breeding bird community typical of lowland open waters, with species such as tufted duck, kingfisher and reed warbler. Pocklington Canal SSSI is currently designated as under high-risk pressure of siltation and agricultural sources of water pollution. This is associated with White Carr Meadow SSSI and both are scoped into the assessment.

Hydrogeology and Groundwater

9.5.38 The bedrock across the Scoping Site Boundary is dominated by the Mercia Mudstone Group, which is classified as a Secondary B aquifer. The majority of Humberhead 2 is also underlain by the Mercia Mudstone Group, however in the east it is underlain by the Penarth Group-Mudstone, Redcar Mudstone Formation-Mudstone, Marlstone Rock Formation-Ferruginous limestone and ferruginous sandstone, Whitby Mudstone Formation-Mudstone. These are Secondary (Undifferentiated) Aquifers. Ferriby Chalk Formation-Chalk, Hunstanton Formation-Chalk and the Welton Chalk Formation-Chalk (which are all Principal Aquifers) are all present within the Study Area but do not underlie Humberhead Sites. The closest outcropping of chalk is approximately 450 m east of Humberhead 2. The Study Area also extends over areas of Sherwood Sandstone in the west, although none of the Humberhead Sites lie above this bedrock and Principal Aquifer.

9.5.39 Principal aquifers comprise layers that have high permeability, meaning they usually provide a high level of water storage and transmission. They may support water supply and/or river baseflow on a strategic scale.

9.5.40 Secondary A aquifers comprise permeable layers that can support local water supplies and may form an important source of baseflow to rivers.

9.5.41 Secondary B aquifers comprise predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

9.5.42 Secondary (undifferentiated) aquifer has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

9.5.43 All of the Humberhead Sites are overlain by superficial deposits with occasional gaps where bedrock is exposed. The superficial deposits across the Humberhead Sites are as follows:

9.5.44 The majority of Humberhead 1 and the nearby CRSC is underlain by the Pocklington Gravel Formation-Sandy gravel in the east and the Bielby Sand Member-Gravelly silty sand situated across the rest of Humberhead 1. Alluvium is situated along some surface water features, particularly

Allerthorpe Lakeland Park, and Stone, Hayton, Whiterail, Pocklington and Bielby Becks. All of the superficial deposits present in this area are classified as Secondary (Undifferentiated) aquifers. There are some small areas of exposed bedrock around SE 79223 47172, SE 77988 46682 and SE 77657 47076.

9.5.45 Fewer superficial deposits cover Humberhead 2 and the nearby CRSC than Humberhead 1, the majority of which are Till, Mid Pleistocene-Diamicton and Head-Clay, silt and sand. Some Pocklington Gravel Formation-Sandy gravel may be present on the western border, and alluvium is located around Burnby (Burnby Beck). All of the superficial deposits present in this area are classified as Secondary (Undifferentiated) aquifers

9.5.46 The majority of Humberhead 3 and the nearby CRSC is underlain by the Hemingbrough Glaciolacustrine Formation-Silty clay to the east of Southfield Lane, and the Thorganby Clay Member-Silty clay to the west of Southfield Lane. Both are classified as unproductive aquifers. The eastern areas of Humberhead 3 are located on the Bielby Sand Member-Sand and clay. Alluvium-Clay, peat and silt is located around the River Foulness in the east. Both the Alluvium and the Bielby Sand Member are classed as Secondary (undifferentiated) aquifers.

9.5.47 Humberhead 4 and the nearby CRSC is dominated by Bielby Sand Member-Sand and clay, and the Hemingbrough Glaciolacustrine Formation-Silty clay. Variously sized areas of Alluvium-Clay, silt, sand and gravel and Peat are located in the south and southeast and around the River Foulness. Glaciofluvial deposits-Sand and gravel is present in patches around Holme-upon-Spalding Moor. All of the superficial deposits in this area are Secondary (undifferentiated) aquifers with the exception of the glaciofluvial deposits and eastern sections of alluvium and peat, which are classified as Secondary A aquifers.

9.5.48 The CRSC between Humberhead 1 and Humberhead 3 is underlain by superficial deposits which largely comprise the Bielby Sand Member-Sand and clay, the Pocklington Gravel Formation-Silty gravel, the Bielby Sand Member-Gravelly silty sand, and Alluvium-Clay, peat and silt. These are all classified as Secondary (undifferentiated) aquifers

9.5.49 The bedrock aquifers underlying the Scheme are contained within the Anglian (WFD groundwater) Management Catchment. The Study Area is underlain by four groundwater bodies (see also **Figure 9-2: Groundwater Receptors and their Attributes**):

- East Riding Mercia Mudstone Water Body (GB40402G990200);
- Derwent (south) Mercia Mudstone, Lias, Ravenscar and Norton Corallian Water Body (GB40402G702200);
- Hull and East Riding Chalk Water Body (GB40401G700700); and

- Derwent Sherwood Sandstone (GB40401G700600).

9.5.50 A summary of the status, objectives and reasons for not achieving good status of WFD groundwater bodies is included within **Appendix 9-A: Water Framework Directive Screening and Scoping Assessment**.

9.5.51 Groundwater levels for Humberhead 1 and the nearby Study Area are indicated from two boreholes available within the Study Area on Geoindex. Borehole reference SE74NE22 recorded a groundwater level of 13.25 m below ground level ('BGL') at SE 78160 46600 (601 m west at nearest point) near sand Beck. Much of the strata was described as various marls. Borehole SE74NE17 is located at SE 77413 45958 (188 m north at nearest point) and showed a groundwater level of 2.4 mBGL.

9.5.52 Groundwater levels for Humberhead 2 and the nearby Study Area are indicated from Borehole SE84NW68, which shows a groundwater level of 28.70 mBGL located at SE 84921 45226 (267 m southeast at nearest point). Borehole SE84NW58 located at SE 83540 46421 (394 m east at nearest point) shows a groundwater level of 2.50 mBGL. Both boreholes are within the Mercia Mudstone.

9.5.53 A shallow groundwater strike near Humberhead 3 and the nearby cable corridor was recorded at 1.8 mBGL at SE 75088 38875 (387 m west at nearest point) in Borehole SE73NE6. Towards the east of Humberhead 3 Borehole SE73NE7 at St Helens Farm, SE 77600 39160 (284 m south at nearest point) recorded a groundwater strike of 91 mBGL.

9.5.54 Across Humberhead 4 and the nearby Study Area two boreholes are available. Borehole SE83SE43 is located at SE 86520 33020 (0 m from Humbheread 4) towards the south of the Site. It has a groundwater strike of 31 mBGL. A groundwater level of 13.30 mBGL was recorded in the centre of the Site within Borehole SE83SW6 at SE 82380 33020 (204 m west at nearest point).

9.5.55 Overall, across the Study Area groundwater levels are very variable. It is likely that many of the shallow groundwater strikes consist of perched groundwater within permeable sands and gravels within clays and marls within the superficial deposits.

9.5.56 There are no drinking water safeguard zones (groundwater) in the Study Area.

9.6 Potential Effects and Mitigation

9.6.1 This section sets out the potential effects of the Scheme on the water environment, flood risk and drainage. For this Scheme, and in line with the nature of solar development, potential impacts are anticipated to be limited in extent and primarily associated with construction-phase activities and

minor changes to surface water runoff, providing appropriate mitigation is implemented through design or operational processes. Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments** Register, along with how they be secured as part of the DCO.

Construction and Decommissioning

9.6.2 There are a number of activities which would be undertaken during the Scheme construction and decommissioning phases that are likely to generate impacts which have the potential to adversely affect the water environment, drainage and flood risk, if unmitigated.

9.6.3 The greatest risk of adverse water environment impacts during construction and decommissioning are likely to occur within the WFD catchments of Pocklington Beck and the River Foulness/Market Weighton Canal. Within these catchments individual channels may be directly affected or pollution impacts could propagate downstream.

9.6.4 During construction pollution of surface water or groundwater (and any designated ecology sites that are water dependent) may occur. This may be due to accidental spillage or release of, sediments, oils, fuels, or other construction materials, or through uncontrolled site run-off (e.g. at watercourse crossings, dewatering of excavations or from construction compounds)

9.6.5 However, mitigation measures applicable to the Scheme construction phase for surface water will be included in an outline Construction Environmental Management Plan ('oCEMP') which will be prepared as part of the DCO application. Good practice measures for the management of construction site runoff would be inform construction methods such as CIRIA guidance (Ref 182).

9.6.6 During construction, there may be temporary impacts on the hydromorphology of watercourses (e.g. from the installation of watercourse cable crossings, construction of temporary vehicle access crossings, drainage outfalls, and any associated changes in drainage flow paths).

9.6.7 The construction of a Cable Route Corridor ('CRC') to connect the Humberhead Sites to each other and to the National Grid at the National Grid Thornton Substation will necessitate the crossing of watercourses and drainage ditches. The construction of the cable route, and potentially, temporary access crossings over watercourses has the potential to result in localised and temporary changes to their hydromorphology, particularly where open-cut installation methods are required. Where practicable, trenchless cable crossing techniques will be prioritised to avoid direct disturbance to watercourses. However, where open-cut crossings or access requirements are necessary, these may result in short-term disturbance to the

channel and flow regime. Some crossings may also be permanent (e.g. access crossings within the Humberhead Sites), but will be designed in accordance with good practice and in consultation with the relevant statutory bodies. Where works to a watercourse are required, a pre-construction riparian and hydromorphological survey will be undertaken to provide baseline data for full reinstatement of the channel. Where possible, options for enhancement will also be considered.

9.6.8 There will be crossings of more significant water features, such as Main Rivers (e.g. Pocklington Beck, and Back Delfin) and WFD designated channels, by non-intrusive trenchless techniques (e.g. Horizontal Directional Drilling ('HDD') at a suitable depth beneath the bed level to avoid the risk of future exposure by scour of the bed (typically cables would be at least 1.5 m below the bed of a watercourse). It is also possible that watercourse crossings (or modifications to existing crossings) are required as part of works to above ground installations, for example access track crossings. Crossings of other water features may also require non-intrusive trenchless techniques, such as Canals and any IDB managed channels.

9.6.9 During construction there may be potential impacts on groundwater resources, abstractions baseflow to watercourses from construction activities, such as temporary dewatering of excavations where groundwater is encountered.

9.6.10 Mitigation measures applicable to the Scheme construction phase for groundwater will be included in an oCEMP which will be prepared as part of the DCO application. Good practice measures for the management of construction site runoff informed construction methods such as CIRIA guidance, and the Environment Agency's approach to groundwater protection (2018) (Ref 204) will be included in the oCEMP.

9.6.11 The nature of the Scheme means there would be limited physical disturbance of aquifers and groundwater. The main disturbance would relate to driving the Solar Panel Mounting Structures piles, for which a maximum depth of 4 m is expected, and the construction of cable trenches at a maximum depth of 2 m for cable routes. There would also be shallow excavations related to new permanent infrastructure such as the BESS, On-site Substations, and ancillary buildings. The need for piling and non-intrusive techniques has yet to be determined but will be confirmed in the ES. Where piling is required, a maximum depth of 15 m for the Onsite Substations and 12 m for BESS.

9.6.12 During construction there may be temporary changes in flood risk associated with construction activities, including alterations to surface water runoff, blockage of drainage pathways, siltation of watercourses and drainage features and any dewatering of excavations; and potential localised impact on flood conveyance routes if materials are stored within areas at risk of flooding.

9.6.13 Mitigation measures applicable to the Scheme construction phase for surface water runoff and flooding potential will be included in an oCEMP which will be prepared as part of the DCO application. As set out above, good practice measures for the management of construction site runoff will be included in the oCEMP, while flood risk measures within the oCEMP would be aimed at preventing an increase in flood risk during the construction works.

9.6.14 At this stage any foul wastewater generated on site would be stored in self-contained foul drainage system to a sealed cesspit or similar sealed system. These tanks would be emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage has been scoped out of further assessment.

9.6.15 In addition, any water needed would be provided by a commercial source. As no on-site abstraction is proposed, assessment of water supply has not been considered further given that it would not be expected to have an appreciable impact on water resource provision in the area. Therefore, impact on water supply has been scoped out of further assessment.

9.6.16 During decommissioning, potential impacts would be equal to or less than to the construction phase. All solar infrastructure including Solar Panels, Solar Panel Mounting Structures, above ground cabling, Conversion Units, Sub-distribution Switch Rooms, fencing, BESS and On-site Substations would be removed.

9.6.17 The underground ducting and joint bays associated with the cables will be decommissioned in accordance with the latest regulations and good practice at that time but are anticipated to be left in-situ to minimise adverse environmental effects. Thus, it is anticipated that the Grid Connection Cables may be left in situ beneath watercourses and there would be less excavation works required close to watercourses, thus decommissioning impacts would be equal to or less than the construction phase.

9.6.18 An outline Decommissioning Environmental Management Plan ('oDEMP') will be prepared as part of the EIA and will set out the general principles to be followed during the decommissioning of the Scheme.

9.6.19 Should the Scheme receive development consent, the oCEMP and oDEMP would be developed into a detailed CEMP and DEMP by the appointed Contractor prior to the start of works. This will be secured through requirements of the Development Consent Order. Examples of measures which would mitigate the potential for impacts and effects on the water environment during construction and decommissioning include:

- Implementation of an appropriate temporary drainage system that prevents uncontrolled surface water runoff from the site, provides adequate storage space, and treatment of the runoff as required prior to discharge from the Site to a watercourse or ground;

- Fuel to be stored in accordance with good practice and legislation, in self-bunded leak proof containers or stored in impermeable bunded and secure areas;
- Waste / debris to be prevented from entering any surface water drainage or water feature; and
- Storage of topsoil / subsoil at a minimum of 20 m from watercourses on flat lying land; and
- The Contractor would produce an Emergency Response Plan to detail the response to any flood events predicted by the Environment Agency's flood warning system.

Operation and Maintenance

9.6.20 During the operational phase, and including maintenance works and operational replacement of items such as Solar Panels and Batteries within the BESS, the following potential water environment, drainage, and flood risk impacts may occur in the absence of suitable design or other mitigation:

- Potential impacts on water quality in watercourses and / or groundwater from surface water run-off and the potential for accidental spillages;
- Potential for impact on surface or groundwater from firewater runoff in the unlikely event of a fire in the battery storage areas or substations;
- Minor and localised interactions with shallow groundwater associated with foundations and buried infrastructure (e.g. power cables) is possible.
- Potential localised impacts on surface water runoff rates and volumes, including on any potential downstream receptors. Unlike conventional impermeable development, Solar Arrays typically retain largely permeable ground conditions and are therefore generally capable of maintaining greenfield runoff rates through appropriate drainage design;
- Potential for localised physical changes to watercourses where permanent crossings or outfalls are required;
- Potential beneficial impacts associated with a reduction in agricultural land use and associated use of agri-chemicals or water for irrigation;
- The surface water drainage for the Scheme will be designed to greenfield runoff rates, which is as existing. However, the edge swales used in the Solar Array areas would intercept runoff in an extreme rainfall event, thus providing betterment downstream, and reducing flood risk;
- As the Scheme is located in Flood Zone 3, there may be potential for displacement of floodwater. This could require the construction of flood compensation or mitigation measures to ensure no increase in flooding from the development. This is likely to be dependent on the sources of flood risk and will be confirmed as part of the FRA.

9.6.21 It has previously been suggested that heat from underground cables could potentially impact the temperature of groundwater or surface water (where

cables pass beneath watercourses. This potential impact has been investigated by AECOM on other recent solar schemes (for example Shepway Energy Park, Planning Inspectorate ref. EN0110017) and it was concluded that the risk of any adverse impact is low. This is unlikely to be significant due to underground grid connection cables being relatively shallow across land (i.e. above groundwater) and the localised nature of any temperature change. Therefore, it is not proposed to carry out any further assessment.

9.6.22 At this stage any foul wastewater generated on site would be of small volumes only and would be stored in self-contained foul drainage system to a sealed cesspit or similar sealed system. These tanks would be emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage has been scoped out of further assessment.

9.6.23 In addition, any water needed for the operation of the Scheme would be provided by a commercial source. As no on-site abstraction is proposed, assessment of water supply has not been considered further given that it would not be expected to have an appreciable impact on water resource provision in the area. Therefore, impact on water supply has been scoped out of further assessment.

9.6.24 During the operational phase, the Scheme is not expected to give rise to significant effects on the water environment, flood risk or drainage, given the passive nature of solar photovoltaic development, providing an appropriate design of the scheme including suitable mitigation. Mitigation measures applicable to the Scheme's operation will be included in an outline Operational Environmental Management Plan ('oOEMP') prepared as part of the DCO application. The oOEMP will form the basis of the detailed OEMP which is expected to be secured as a Requirement of the DCO. Details of mitigation already confirmed is provided within **Appendix 1-A: Commitments Register**. It is currently expected that mitigation will include:

- All watercourses and/or water features to be buffered from any new development by at least 10 m measured from the top of bank or water's edge, as appropriate (other than where it must be located nearer such as surface water outfalls or new access crossings);
- At this stage, there are no proposed watercourse realignments, diversions or new permanent crossings required. These will be avoided during the design wherever possible. However, if required, any permanent access watercourse crossings will, where practicable, comprise clear-span structures with abutments set back from the top of the bank, unless culverts can be justified and agreed with regulators;
- Where culverts are proposed they will be sympathetically designed to minimise impacts on the water environment, and compensatory

enhancement provided upstream or downstream to account for impacts that cannot be ameliorated fully through design alone;

- Surface water drainage will adopt a combined SuDS and proprietary measure approach to attenuate any increase in runoff rates, and manage the pollution risk to the receiving water environment;
- At the BESS and/or substation, appropriate fire water containment measures will be provided, including lined basins or sealed storage facilities to capture and retain fire water, during the unlikely event of a fire, for off-site disposal and any runoff would be controlled by adherence to good practice measures included within the outline Battery Safety Management Plan ('oBSMP') and oSWDS;
- Surface water outfalls will preferentially discharge via new ditches, where practicable, to avoid the need for new engineered structures;
- Access tracks will be permeable;
- Electrical infrastructure including the BESS and substations would be located on concrete bases surrounded by lined gravel filled filter trenches;
- The surface water drainage for the Scheme will be designed to greenfield runoff rates, which is as existing. However, the edge swales used in the Solar Array areas would intercept runoff in an extreme rainfall event, thus providing betterment downstream, and reducing flood risk;
- Sensitive electrical infrastructure such as the BESS and substations will be located outside of Flood Zones 2 and 3, where feasible;
- Where sensitive infrastructure, other than Solar Array Panels, is within Flood Zones 2 and 3, mitigation will be provided either by raising the infrastructure or protecting with a bund or a wall to ensure they remain operation in times of flood; and
- Fixed Solar Panels will have a minimum clearance of no less than 0.3 m above the 1% Annual Exceedance Probability flood risk including allowance for climate change.

9.6.25 Also, where possible enhancement of watercourses within the Scoping Site Boundary will be considered where practicable.

9.7 Methodology

9.7.1 Due to the potential for impacts and effects on the water environment, flood risk and drainage, a full water environment impact assessment will be included in the ES. This will also be supported by an FRA, an oSWDS and a WFD Assessment. The scope for these assessments and how the significance of effects will be determined is described in this section.

9.7.2 This section describes the methodology proposed for the assessment of effects on the water environment, which includes drainage and flood risk, as a result of the Scheme, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline

conditions. The assessment methodology would be the same for the Humberhead Sites and CRSC.

9.7.3 Potential impacts of the Scheme on the water environment, drainage, and flood risk will be assessed by:

- Considering the existing (baseline) status of the water environment within the Site and relevant surrounds following the source-pathway-receptor approach;
- Identifying potential impacts of the Scheme on the water environment, drainage and flood risk during the operational, construction and decommissioning phases, as well as cumulative effects;
- Proposing suitable mitigation measures to be incorporated into the Scheme design, construction, operation and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
- Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

Source-Pathway-Receptor Approach

9.7.4 The water environment, drainage, and flood risk impact assessment will generally be based on a source-pathway-receptor model. For an impact on the water environment to exist the following is required:

- An impact **source** (such as the release of polluting chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or the loss or damage to all or part of a water body);
- A **receptor** that is sensitive to that impact (i.e. water features and the services they support); and
- A **pathway** by which the two are linked.

9.7.5 The assessment of the likely significant effects is qualitative, and will consider the construction, operational and decommissioning phases, as well as cumulative effects with other developments.

Water Quality and Resource Assessment

9.7.6 Relevant data has been requested from the Environment Agency, and most information was received on 30 March 2026. This information will be used for the ES assessment to supplement the publicly available online data sources described in Section 9.5. A site walkover survey will be undertaken by a hydromorphologist and a water resources specialist to inform the WFD assessment, and the water environment assessment. This will be to observe surface water features in the Study Area and to make observations about their current condition and character, the presence of existing risks and any potential pathways for construction, operation and decommissioning impacts

as a result of the Scheme. Further site surveys may be required as the Scheme develops.

9.7.7 Water quality data for watercourses in the Study Area will be taken from Environment Agency monitoring (see locations in **Figure 9-1: Surface Water Receptors and their Attributes**). However, the importance of water features will be determined from a holistic review of water body features and does not rely on water quality due to the principle that no controlled water may be polluted. Water quality impacts will be based on a risk assessment basis that does not require input of raw background water quality data. Water quality monitoring is also only effective when there is a clear purpose for it and may require monitoring over a long period of time to ensure reliable and robust results. Therefore, no water quality sampling is proposed to support the water environment assessment.

9.7.8 A qualitative assessment of potential effects on surface water quality from construction, operation, and decommissioning of the Scheme will be undertaken. This will consider the risk to surface water features resulting from construction, decommissioning works or future operation activity using the source-pathway-receptor approach described in paragraph 9.7.4. Where there is a risk of pollution, mitigation measures will be described with reference to best practice guidance (e.g. Guidance on Pollution Prevention Notes and Construction Industry Research and Information Association ('CIRIA') guidance).

9.7.9 The appropriateness of the surface water drainage measures in terms of providing adequate treatment of diffuse pollutants will be assessed with reference to the Simple Index Assessment method described in the SuDS Manual (Ref 183). As the SuDS Manual only provides a limited number of land use types and so those selected will be the most suitable for the components of the Scheme, based on professional judgement. Where more than one pollution hazard category applies to a component of the Scheme, the worst pollution hazard will be selected.

9.7.10 As part of the groundwater assessment, a groundwater risk analysis will be undertaken of each location where there would be a watercourse crossing. This will compare the likely depth of excavation for instance for HDD exit and entry pits or for deep foundations with available estimates of groundwater level at each location.

Hydromorphology and Water Framework Directive ('WFD') Assessment

9.7.11 Due to the potential for impacts upon WFD water bodies, initially a WFD Screening and Scoping Assessment has been undertaken in keeping with Planning Inspectorate Advice on the WFD. This assessment has been

undertaken, and is included as **Appendix 9-A: Water Framework Directive Screening and Scoping Report**. The assessment has determined that there are potential risks from the Scheme to the WFD objectives of those waterbodies screened in.

9.7.12 The risk of WFD impacts are low, and it is likely that all WFD risks can be designed out or mitigated. However, until designs affecting water bodies including appropriate mitigation measures become available, risks to WFD objectives cannot be ruled out. This assessment therefore concludes, on a precautionary basis, that this screening and scoping exercise should be revisited at the Environmental Statement stage.

9.7.13 A rationalised WFD Impact Assessment will need to be undertaken to demonstrate WFD compliance if water bodies and activities remain screened in.

9.7.14 At the ES stage, when more construction and design information is available, the assessment will be revisited in order to determine the potential for any non-compliance of the Scheme with WFD objectives for affected water bodies, using readily available information and Site observations. This will include a qualitative examination of the potential construction, operation and decommissioning phase impacts of the Scheme on relevant WFD hydromorphological, biological and physio-chemical parameters. Depending on the outcomes of the assessment, more detailed investigations may be required, which will be determined in consultation with the EA.

9.7.15 The site walkover will inform the understanding of the hydromorphological condition of water features within the Study Area. This will allow for the hydromorphological importance to be determined. The potential for impacts from the Scheme to have a significant effect on the hydromorphological quality of watercourses will be assessed at ES stage.

Outline Surface Water Drainage Strategy

9.7.16 The design of drainage systems aims to ensure that there will be no increase in surface water flood risk downstream, during storms up to and including the 1 in 100 (1%) annual probability design flood, with an allowance for climate change.

9.7.17 An oSWDS will be prepared as a technical appendix to the Water Environment chapter of the ES to ensure the risk of surface water flooding is not increased as a result of the Scheme, including any increased land take for new impermeable areas. Albeit for a Scheme of this nature there will only be a very limited amount of new impermeable areas (associated with the On-Site Substations, BESS compounds, Conversion Units and Sub-Distribution Switchrooms). Internal Access Tracks within the Solar Arrays will be permeable. Whilst solar panels may locally alter runoff pathways beneath

panel drip lines, the Scheme will retain predominantly permeable ground conditions and will be designed to maintain greenfield runoff rates through appropriate drainage design and SuDS measures. The surface water drainage for the Scheme will be designed to greenfield runoff rates, which is as existing. However, the edge swales used in the Solar Array areas would intercept runoff in an extreme rainfall event, thus providing betterment downstream, and reducing flood risk.

9.7.18 Consideration of the SuDS features, in keeping with local planning policy and through liaison with the East Riding of Yorkshire Council LLFA, the Ouse and Humber IDB, Foss (2008) IDB and Environment Agency, will be undertaken to ensure that the oSWDS adequately attenuates and treats runoff from the Scheme, whilst minimising flood risk to the Site and surrounding areas.

9.7.19 In accordance with local planning policies of East Riding of Yorkshire Council (paragraph 9.2.7) and general good practice, mitigation will be provided by restricting surface water discharge rates and providing on-site attenuation, primarily via SuDS or other appropriate solutions. The potential for managing fire water runoff from unlikely emergency incidents at either the BESS or substations will be considered with suitable mitigation.

9.7.20 A water quality risk assessment of all above ground installations will be undertaken using the Simple Index Approach described in (Version 6) (CIRIA C753) and also summarised above. This will inform what, if any treatment measures are required to manage the risk from diffuse urban runoff to watercourses or ground.

Flood Risk Assessment

9.7.21 A FRA will be prepared for the Scheme to assess the current and future flood risk to the Study Area. This will be a technical appendix to the Water Environment chapter of the ES. The FRA will include a review of the current and future flood risk to the Study Area from all sources (including surface water, groundwater, tidal and fluvial sources and other artificial sources), in keeping with in keeping with the NPS and NPPF guidance, to inform the Scheme design and set out any proposed mitigation requirements that are to be addressed within the FRA and within the oSWDS.

9.7.22 The NPPF includes solar farms as ‘Essential Infrastructure’, as categorised in Annex 3: Flood risk vulnerability classification.

9.7.23 Below ground cable routes are not generally considered in flood risk terms. However, the approach to the Sequential and Exception Tests for the CRC will be clarified with the Environment Agency and East Riding of Yorkshire Council as required.

9.7.24 Significant areas of the Humberhead Sites are located within Flood Zones 2 and 3. Where development is proposed within areas at risk of flooding, the

Scheme will be designed to avoid or minimise impacts on floodplain storage and flow routes. Where necessary, appropriate mitigation measures may be required to ensure no increase in flood risk elsewhere, including site layout design, flood resilience measures and, where relevant, compensatory flood storage. The conclusions of this will be reported within the water environment assessment presented in the ES.

9.7.25 As the Scheme is classified as "Essential Infrastructure" and the Humberhead Sites are located in Flood Zone 2 and 3, the Sequential Test and Exception Test will be required to be undertaken as part of the FRA. As set out in Paragraph 5.8.11 of NPS-EN1, for the Exception Test to be satisfied that development can be located in Flood Zone 3 (Flood Zone 3a or 3b,) the FRA will be required to demonstrate:

- *The project would provide wider sustainability benefits to the community that outweigh flood risk; and*
- *The project will be safe for its lifetime, taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

9.7.26 These tests have been met by other Solar NSIP Schemes, for example East Yorkshire Solar Farm [Planning Inspectorate Ref. EN10143] and Tillbridge Solar [Planning Inspectorate Ref. EN010142].

9.7.27 This requirement will influence positioning of infrastructure within the Humberhead Sites and the minimum heights of Solar Panels above the ground.

Determining the Significance of Effects

9.7.28 The significance of effects will be determined using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges LA113 Road Drainage and the Water Environment (Ref 192) and Design Manual for Roads and Bridges ('DMRB') LA 104 - Environmental assessment and monitoring (Ref 197) adapted to take account of hydromorphology. This can be applied to all development types and represents the most robust and nationally accepted criteria for the determination of potential effects on the water environment.

9.7.29 The criteria that will be used to determine receptors importance are presented in **Table 9-6**.

9.7.30 In accordance with the stages of the methodology, there are three stages to the assessment of effects on water environment, drainage, and flood risk as follows:

- A level of importance (very high to low) is assigned to the water resources receptor from **Table 9-6** and is based on a combination of attributes (such

as water supply, biodiversity, recreation) and on receptors to flood risk based on the vulnerability of the receptor to flooding (i.e. as shown in **Table 9-6**, essential infrastructure would be very high importance, to water compatible development which would be of low importance);

- The magnitude of potential and residual impact (classed as negligible, minor, moderate or major adverse/ beneficial) is determined based on the criteria listed in **Table 9-7** and the assessor's knowledge of the Scheme. Embedded or standard mitigation measures are considered in the initial assessment, but any other mitigation is not considered until the assessment of residual effects. The magnitude of impact will be determined considering the likelihood of the effect occurring. The likelihood of an effect occurring is based on a scale of certain, likely or unlikely. Likelihood has been considered in the case of water resources only, as likelihood is inherently included within the flood risk assessment; and
- A comparison of the importance of the resource and magnitude of the impact (for both potential and residual impacts) results in an assessment of the overall significance of the effect on the receptor using the matrix presented in **Table 9-8**. The significance of each identified effect (both potential and residual) will be classed as very large, large, moderate, slight or neutral and either beneficial or adverse significance.

Table 9-6 Criteria to determine receptor importance (adapted from DMRB LA 113)

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology[5]	Flood Risk
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.	Watercourse having a WFD classification as shown in a River Basin Management Plan ('RBMP') and Q95 ≥ 1.0 m^3/s. Site protected / designated under UK habitat legislation (SAC, SPA, SSSI, Water Protection Zones, Ramsar site). Species protected by UK legislation. Critical social or economic uses (e.g. public water supply and navigation).	SPZ 1. Principal aquifer providing a regionally important resource and/or supporting a site protected under UK legislation. Groundwater locally supports Groundwater Dependent Terrestrial Ecosystem ('GWDTE'). Water abstraction: >1,000 m^3/day.	Unmodified, near to or pristine conditions, with well-developed and diverse geomorphic forms and processes characteristic of river and lake type.	Essential Infrastructure or highly vulnerable development.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is	Watercourse having a WFD classification as shown in a RBMP and Q95 < 1.0 m^3/s; Species protected	Principal Aquifer providing locally important source supporting rover ecosystem; SPZ 2;	Conforms closely to natural, unaltered state and will often exhibit well-developed and	High

[5] Based on the water body 'Reach Conservation Status' presently being adopted for a major infrastructure project (and developed originally by Atkins) and developed from Environment Agency conservation status guidance (Environment Agency, 1998a; 1998b as LA113 does not provide any criteria for morphology.

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology[5]	Flood Risk
	of high environmental value, or of national importance.	under UK habitat legislation. Critical social or economic uses (e.g. water supply and navigation). Important social or economic uses such as water supply, navigation or mineral extraction.	Groundwater supports GWDTE; Water abstraction: 500-1,000m^3/day.	diverse geomorphic forms and processes characteristic of river and lake type.	
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value or is of regional importance.	Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m^3/s. May be designated as a local wildlife site and support a small/ limited population of protected species. Limited social or economic uses.	Secondary Aquifer providing water for agricultural or industrial use with limited connection to surface water SPZ 3. Water abstraction: 50-499 m^3/day.	Shows signs of previous alteration and/or minor flow/ water level regulation but still retains some natural features, or may be recovering towards conditions indicative of the higher category.	Less vulnerable development.
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance.	Watercourses not having a WFD classification shown in a RBMP and Q95 <0.001m^3/s. Low aquatic fauna and flora biodiversity and no	Generally Unproductive strata. Water abstraction: <50m^3/day.	Substantially modified by past land use, previous engineering works or flow/ water level regulation. Watercourses likely to possess an artificial	Low

Importance	General Criteria	Surface Water	Groundwater	Hydromorphology[5]	Flood Risk
		protected species. Minimal economic or social uses.		cross-section (e.g. trapezoidal) and will probably be deficient in bedforms and bankside vegetation. Watercourses may also be realigned or channelized with hard bank protection or culverted and enclosed.	
Negligible	The receptor is resistant to change and is of little environmental value	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Note 1: Professional judgement is applied when assigning an importance category to all water features. The WFD status of a watercourse is not an overriding factor and in many instances, it may be appropriate to upgrade a watercourse which is currently at poor or moderate status to a category of higher importance to reflect its overall value in terms of other attributes and WFD targets for the watercourse. Likewise, a watercourse may be below Good Ecological Status, this does not mean that a poorer quality discharge can be emitted. All controlled waters are protected from pollution under the Environmental Permitting (England and Wales) Regulations 2016 and the Water Resources Act 1991 (as amended) and future WFD targets also need to be considered. Note 2: Based on the water body 'Reach Conservation Status' presently being adopted for a major infrastructure project (and developed originally by Atkins) and developed from EA conservation status guidance (Environment Agency, 1998a; 1998b (Ref 195 and Ref 196) as LA113 does not provide any criteria for morphology.					

Table 9-7 Magnitude of impact criteria (adapted from DMRB LA 113)

Magnitude of Impact	Description
Major Adverse	Results in a loss of attribute and/or quality and integrity of the attribute.
Moderate Adverse	Results in impact on integrity of attribute, or loss of part of attribute.
Minor Adverse	Results in some measurable change in attribute's quality or vulnerability.
Negligible	Results in impact on attribute, but of insufficient magnitude to affect the use or integrity.
Minor Beneficial	Results in some beneficial impact on attribute or a reduced risk of negative impact occurring.
Moderate Beneficial	Results in moderate improvement of attribute quality.
Major Beneficial	Creation of new attribute or major improvement of attribute quality.
No change	No loss or alteration of characteristic, features of elements; no observable impact in either direction.

Table 9-8 Matrix for assessment of significance (DMRB LA 104)

Importance of Receptor (Table 9-6)	Magnitude of Impact (Table 9-7)				
	Major	Moderate	Minor	Negligible	No Change
Very High	Very Large	Large of Very Large	Moderate or Large	Slight	Neutral
High	Large of Very Large	Moderate or Large	Slight or Moderate	Slight	Neutral
Medium	Moderate or Large	Moderate	Slight	Neutral or Slight	Neutral
Low	Slight or Moderate	Slight	Neutral or Slight	Neutral or Slight	Neutral
Negligible	Slight	Neutral or Slight	Neutral or Slight	Neutral	Neutral

9.7.31 Effects of moderate or greater are considered significant in planning terms.

9.7.32 At spatial level, 'local' effects are those affecting the Site and neighbouring receptors, while effects upon receptors beyond the vicinity of the Site are at a 'regional' level. Effects which affect different parts of the country, or England as a whole, are considered being at a 'national' level.

Cumulative and In-Combination Effects

9.7.33 Cumulative effects and In-combination effects will be assessed within the ES. Cumulative effects are the combined residual effects of the Scheme and another project or projects on a single receptor, e.g. a watercourse. These will be assessed within the Water Environment Chapter of the ES.

9.7.34 Consideration of the likely Zone of Influence ('ZoI') for water environment will be instrumental in determining which projects are of interest for inclusion in the cumulative assessment. The ZoI for water environment would be dictated by the location of the other projects in relation to the catchments. This would be examined further at ES stage.

9.7.35 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects chapter of the ES. Receptors identified within the water assessment will be assessed within in-combination effects assessment.

9.8 Assumptions, Limitations and Uncertainties

9.8.1 The final route for the CRC, and the cable route construction methodologies and mitigation, have not yet been determined. This is of particular importance when considering impacts associated with any potential watercourse crossings, the quality of surface water runoff, impacts to hydromorphology and channel hydraulics. It is assumed that the protection of water environment receptors will be taken into consideration within the iterative design process, including the choice of crossing methodology, buffering of water features and use of good practice methodologies for construction.

9.8.2 The locations of PWS and licenced abstractions have not yet been obtained, and so these are not included as receptors at this time. Water activity permits (i.e., permitted discharges) are also not yet known and have not been considered in the current baseline. These receptors and water feature attributes will be considered as further assessment is undertaken.

9.8.3 Requirements for hydraulic modelling of watercourses will be discussed with the Environment Agency and/or LLFA; any modelling required will be undertaken as part of the ES to inform the FRA and oSWDS. The IDBs will be consulted on the FRA and oSWDS.

9.8.4 Visual surveys will be undertaken of accessible water/drainage features to inform the SWDS. However, it may not be possible to survey all significant locations (such as crossing locations) or structures due to access constraints. Where this is the case, we will attempt to survey close to the area of interest and use data from that as a proxy. In addition, some watercourses may be

small, ephemeral and flow only intermittently, and these may not be identified in the field. It is not proposed to carry out any water quality sampling and testing, but Environment Agency data will be used to ascertain baseline water quality in the Study Area.

9.8.5 Other than the site walkover survey, the FRA and SWDS will be based on desktop surveys and best available site layout proposals in line with best practice. LiDAR data will be used to inform the FRA and the oSWDS.

9.8.6 Groundwater level data for the Study Area is limited. Further understanding of groundwater levels across the Scoping Site Boundary will be ascertained from information requests to the Environment Agency.

9.8.7 At the time of writing, it is assumed that foul wastewater would instead be stored in self-contained foul drainage system to a sealed cesspit or similar sealed system. These tanks would be emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage or water supply has been scoped out of further assessment.

9.8.8 At this stage it is assumed that any water needed for the construction or operation of the Scheme would be provided by a commercial source. As no on-site abstraction is proposed, assessment of water supply has not been considered further given that it would not be expected to have an appreciable impact on water resource provision in the area. Therefore, impact on water supply has been scoped out of further assessment.

9.9 Summary of Elements Scoped In and Scoped Out

9.9.1 The assessment of potential effects is currently based on the description of the Scheme set out in **Chapter 4: Scheme Description** of this EIA Scoping Report.

9.9.2 A summary of the elements scoped into and out of the assessment of water environment is presented in **Table 10-3**.

Table 9-9 Elements scoped in and out of the water environment assessment

Element	Scoped in / Scoped out	Rationale
Construction		
Surface water features as listed in **Table 9-1** for water quality and hydromorphology	The features listed in **Table 9-1** are Scoped in.	The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that with the inclusion of management measures within an oCEMP to be produced at ES stage significant adverse effects could be avoided.
Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.

Element	Scoped in / Scoped out	Rationale
White Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
South Cliffe Common SSSI	Scoped in	Located within the Study Area.
Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
Groundwater	Scoped in	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that with the inclusion of management measures within an oCEMP to be produced at ES stage significant adverse effects could be avoided.
Flood risk from all sources, as described in **Table 9-4**	Scoped out	Flood risk measures during construction to be managed by contractor via CEMP.
Water supply	Scoped out	The ES will provide information on water needs and supply options, but no impact assessment is proposed on the basis that no new onsite abstraction is proposed, with water being sourced from commercial, licenced sources.
Foul drainage	Scoped out	It is assumed that given the rural nature of the Site that it would not be possible to connect to a public sewer, and thus foul wastewater would instead be stored in self-contained foul drainage system for offsite disposal.
Operation		
Surface water features as listed in **Table 9-1** for water quality and hydromorphology	The features listed in **Table 9-1** are Scoped in	The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oCEMP to be produced at ES stage would reduce the potential effect on water features.
Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
White Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
South Cliffe Common SSSI	Scoped in	Located within the Study Area.
Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.

Element	Scoped in / Scoped out	Rationale
Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
Groundwater	Scoped in	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oOEMP to be produced at ES stage would reduce the potential effect on water features.
Groundwater Thermal interaction	Scoped out	Heat generated by underground grid connection cables is unlikely to be significant due to underground grid connection cables being relatively shallow across land and the localised nature of any temperature change.
Flood risk from all sources, as described in **Table 9-4**	Scoped in	Elements of the Scheme may impact on flood risk in the Study Area.
Outline Drainage Strategy	Scoped in	Elements of the Scheme may impact the existing surface water runoff regime.
Water supply	Scoped out	The ES will provide information on water needs and supply options, but no impact assessment is proposed on the basis that no new onsite abstraction is proposed, with water being sourced from commercial, licenced sources.
Foul drainage	Scoped out	It is assumed that given the rural nature of the Site that it would not be possible to connect to a public sewer, and thus foul wastewater would instead be stored in self-contained foul drainage system for offsite disposal.
Decommissioning		
Surface water features as listed in **Table 9-1** for water quality and hydromorphology	The features listed in **Table 9-1** are Scoped in	The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oCEMP to be produced at ES stage would reduce the potential effect on water features.
Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
White Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
South Cliffe Common SSSI	Scoped in	Located within the Study Area.

Element	Scoped in / Scoped out	Rationale
Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
Groundwater	Scoped in	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oDEMP to be produced at ES stage would reduce the potential effect on water features.
Flood risk from all sources, as described in **Table 9-4**	Scoped out	Flood risk measures during decommissioning to be managed by contractor via DEMP.

10 Cultural Heritage

10.1 Introduction

10.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to Cultural Heritage (comprising archaeology, built heritage and historic landscapes). It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Cultural Heritage. Matters that are proposed to be scoped in and out of the assessment are identified.

10.1.2 This chapter is supported by the following figures:

- **Figure 10-1: Designated Heritage Assets**; and
- **Figure 10-2: Non-designated Heritage Assets**.

10.2 Legislation, Planning Policy Context and Guidance

10.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

10.2.2 Relevant legislation includes:

- Infrastructure Planning (Decisions) Regulations 2010;
- Ancient Monuments and Archaeological Areas Act 1979 (amended by the National Heritage Act 1983 and 2002) (Ref 206);
- Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref 207);
- Planning and Infrastructure Act 2025 (Ref 208); and
- Hedgerow Regulations 1997 (Ref 104).

National Planning and Other Policy

10.2.3 Relevant national planning and other policy and guidance includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') (2025) (Ref 8) with particular reference to Section 5.9: Historic Environment;
- NPS for Renewable Energy Infrastructure ('EN-3') (2025) (Ref 9) with particular reference to Section 2.10: Solar Photovoltaic Generation;
- NPS for Electricity Networks Infrastructure ('EN-5') (2025) (Ref 10) with particular reference to Section 2.2: Factors Influencing Site Selection and Design; and
- National Planning Policy Framework ('NPPF') (2024) (Ref 11) with particular reference to Section 16: Conserving and Enhancing the Historic Environment.

Local Planning Policy

10.2.4 Relevant local planning policy includes:

- East Riding of Yorkshire Local Plan Update 2020-2039 (2025) (Ref 13), within which the relevant policy for Cultural Heritage is Policy ENV3: Valuing our heritage;
- Allerthorpe Neighbourhood Plan (2020) (Ref 17); and
- Pocklington Neighbourhood Plan (2023) (Ref 18).

Relevant Guidance

10.2.5 Relevant guidance for Cultural Heritage includes:

- Planning Practice Guidance ('PPG') (as amended August 2023) (Ref 209) which provides further guidance and advice to accompany the policies set out in NPPF;
- Archaeology and Solar Farms. Good Practice Guide. Advice for developers, archaeological advisors, consultants and contractors. (2026) (Ref 210);
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England (2015) (Ref 211);
- Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017) (Ref 212);
- Statements of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12 (2019) (Ref 213);
- Commercial Renewable Energy Development and the Historic Environment. Historic England Advice Note 15 (2021) (Ref 214);
- Chartered Institute for Archaeologists ('CIfA') Standard and Guidance for Historic Environment Desk-Based Assessment ('DBA') (2020) (Ref 215);
- CIfA Code of Conduct: professional ethics in archaeology (2025) (Ref 216); and
- Institute of Environmental Management and Assessment ('IEMA') (now Institute of Sustainability and Environmental Professionals ('ISEP')), the Institute of Historic Building Conservation ('IHBC') and the CIfA, Principles of Cultural Heritage Impact Assessment in the UK (2021) (Ref 217).

10.3 Consultation

10.3.1 Consultation will be undertaken with statutory consultees, including the Archaeological Advisor to East Riding of Yorkshire, the Conservation Officer for East Riding of Yorkshire, and Historic England representatives.

10.3.2 Consultation has been undertaken with the Archaeological Advisor to East Riding of Yorkshire to agree the scope of the archaeological assessment and

archaeological evaluation surveys required to support the Development Consent Order ('DCO') application. The scope of assessment and surveys agreed are set out in Section 10.7 below.

10.3.3 Consultation has been undertaken with Historic England and the Conservation Officer for East Riding of Yorkshire to agree the scope and Study Areas for designated heritage assets and built heritage assets. The Study Areas agreed are set out in Section 10.4 below, and the scope of assessment is set out in Section 10.7 below.

10.4 Study Area

10.4.1 The following Study Areas have been defined to include all known designated and non-designated heritage assets with the potential to be affected by the Scheme, and to ensure comprehensive data capture, encompassing all heritage assets, both designated and non-designated, including archaeological sites, historic buildings, conservation areas, scheduled monuments and registered parks and gardens, together with the relevant historic landscape characterisation. The Study Areas are presented on **Figures 10-1** and **10-2**.

10.4.2 The Scoping Site Boundary is separated into the 'Humberhead Sites' which comprises the main development area, and the Cable Route Search Corridor ('CRSC') which comprises the current proposed area where the Cable Route Corridor ('CRC') will be located.

10.4.3 The Study Areas may be amended as the design is refined, as guided by the assessment, potential impacts and through consultation with the statutory consultees.

3 km Study Area

10.4.4 A Study Area of 3 km from the Scoping Site Boundary has been defined to identify designated heritage assets with the potential to be affected by the Scheme. The 3 km Study Area also includes the CRSC as it falls entirely within the Study Area, however, as the CRSC will be entirely below ground following construction, potential impacts on the setting of designated heritage will be assessed up to 1 km from the CRSC. This Study Area will allow for designated heritage assets to be set within their wider context and allow for the assessment of archaeological potential within the Scoping Site Boundary, and assessment of the setting of designated heritage assets within the surrounding landscape.

10.4.5 Designated heritage assets beyond the 3 km Study Area may be considered where identified as necessary by the EIA technical discipline team or through consultation with statutory consultees. This will be guided by the Scheme's Zone of Theoretical Visibility ('ZTV') (to be prepared as part of Landscape and

Visual Amenity assessment) but will also consider physical and historical connectivity and relationships with other assets and the wider landscape.

1 km Study Area

10.4.6 A Study Area of 1 km from the Scoping Site Boundary has been defined to identify non-designated heritage assets and historic landscapes with the potential to be affected by the Scheme. This Study Area will allow for non-designated heritage assets to be set within their wider context and allow for the assessment of archaeological potential within the Scoping Site Boundary, and assessment of the setting of non-designated heritage assets within the surrounding landscape where relevant.

10.5 Baseline Conditions

10.5.1 This section describes the historical and archaeological baseline for the Scoping Site Boundary and surrounding Study Areas. To assist with the scoping assessment, data has been considered from the National Heritage List for England ('NHLE') and the Humber Historic Environment Record ('HER'). All heritage assets identified within the Scoping Site Boundary and Study Areas are illustrated on **Figure 10-1: Designated Heritage Assets** and **Figure 10-2: Non-designated Heritage Assets**. Assets are referred to in the text by a unique identity code in bold and parentheses assigned by the NHLE (e.g. **NHLE 1012338**) and HER (e.g. **MHU4366**).

Designated Heritage Assets

10.5.2 Within the Humberhead Sites, there are no designated heritage assets located.

10.5.3 Within the CRSC , there is one Grade II* Registered Park and Garden, and nine Grade II listed buildings, namely:

- Grade II* Registered Park and Garden Londesborough Park (**NHLE 1000924**);
- Grade II Listed Building Pocklington Canal Giles Lock (**NHLE 1083876**);
- Grade II Listed Building Pocklington Canal Coat's Lock (**NHLE 1084126**);
- Grade II Listed Building Pocklington Canal Sandhill Lock (**NHLE 1084127**);
- Grade II Listed Building Sodhouse Lock (**NHLE 1233351**);
- Grade II Listed Building Pocklington Canal Silburn Lock (**NHLE 1251052**);
- Grade II Listed Building Bridge Spanning Drainage Channel to the North of Sodhouse Lock (**NHLE 1276651**);
- Grade II Listed Building Seaton Old Hall (**NHLE 1310421**);
- Grade II Listed Building Low Farmhouse (**NHLE 1346440**); and

- Grade II Listed Building Pocklington Canal Coat's Bridge (**NHLE 1393980**).

10.5.4 Within the 3 km Study Area, there are seven Scheduled Monuments, one Grade II Registered Park and Garden, 10 Conservation Areas, 11 Grade I listed buildings, 11 Grade II* Listed Buildings, and 123 Grade II Listed Buildings.

10.5.5 The Scheduled Monuments located within the 3 km Study Area comprise:

- Cleaving Hall Moated Site (**NHLE 1007817**);
- Moated Grange at Monk Farm (**NHLE 1008675**);
- Site of Nunburnholme Priory (**NHLE 1011897**);
- Moated site 170 m north of Wholsea Farm (**NHLE 1015302**);
- Moated site at Chapelgarth, 450 m north east of Manor Farm (**NHLE 1015303**);
- Moated site at Manor Farm, Portington (**NHLE 1015304**); and
- Park Closes Moated Lodge, 130 m south west of Park Farm (**NHLE 1015311**).

10.5.6 The Registered Park and Garden located within the 3 km Study Area consists of:

- Grade II RPG Houghton Hall (**NHLE 1000923**).

10.5.7 The Conservation Areas located within the 3 km Study Area comprise:

- Goodmanham Conservation Area;
- Londesborough Conservation Area;
- Market Weighton Conservation Area;
- Everingham Conservation Area;
- Shiptonthorpe Conservation Area;
- Allerthorpe Conservation Area;
- Barmby Moor Conservation Area;
- Pocklington Conservation Area;
- North Cave Conservation Area; and
- Hotham Conservation Area.

10.5.8 The Grade I Listed Buildings located within the 3 km Study Area comprise:

- Church of St. Martin (**NHLE 1084144**);
- Church of All Saints (**NHLE 1025868**);
- Everingham Hall (**NHLE 1084130**);
- Church of All Saints (**NHLE 1162006**);
- Gates, Gatepiers, Flanking Walls and Abutments (**NHLE 1310607**);
- Chapel of The Virgin and Saint Everilda (**NHLE 1346301**);
- Church of All Saints (**NHLE 1084136**);
- Church of All Saints (**NHLE 1160460**);

- Church of All Hallows (**NHLE 1084132**);
- Church of All Saints (**NHLE 1310431**); and
- Church of Saint James (**NHLE 1209850**).

10.5.9 The Grade II* Listed Buildings located within the 3 km Study Area comprise:

- Hall Garth (**NHLE 1160374**);
- Stable Block at Hotham Hall (**NHLE 1346681**);
- Church of Saint Giles (**NHLE 1084145**);
- Church of St Oswald (**NHLE 1083305**);
- Church of St Giles (**NHLE 1084123**);
- Church of St Michael (**NHLE 1346434**);
- Holme Hall (**NHLE 1083338**);
- Gate Piers (**NHLE 1160419**);
- Church of Saint Everilda (**NHLE 1310669**);
- The Manor House (**NHLE 1309940**); and
- Church of St Catherine (**NHLE 1083879**).

10.5.10 The 123 Grade II Listed Buildings located within the 3 km Study Area are predominantly post-medieval residential and farm buildings, milestones, and religious buildings, primarily located within the conservation areas listed above.

Non-designated Heritage Assets

10.5.11 The HER records that there are approximately 85 non-designated heritage assets located within the Humberhead Sites comprising 71 areas of archaeological settlement activity, 12 findspots and two buildings. Within the CRSC, 123 non-designated heritage assets are recorded comprising 92 areas of archaeological settlement activity, 29 findspots and two buildings.

10.5.12 In addition, a further 463 non-designated heritage assets are recorded within the 1 km Study Area.

10.5.13 The majority of the archaeological settlement activity recorded within the Scoping Site Boundary and 1 km Study Area consists of Iron Age – Romano-British enclosures and field systems (including **MHU11028**; **MHU10829**; **MHU22343**; **MHU10375**; **MHU1136**), and/or medieval – Post-Medieval agricultural features such as boundary ditches and ridge and furrow (including **MHU22511**; **MHU27213**; **MHU27322**; **MHU22540**).

10.5.14 In addition to the known non-designated heritage assets located within the Scoping Site Boundary and 1 km Study Area, there is also the potential for previously unrecorded archaeological remains to survive.

10.6 Potential Effects and Mitigation

10.6.1 This section sets out the potential effects of the Scheme on Cultural Heritage and any potential mitigation measures that could be implemented to avoid or reduce potential effects on heritage assets. Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

10.6.2 The Scheme has the potential to affect designated and non-designated heritage assets and the historic landscape during the construction and operation phases of the Scheme, due to:

- Physical impacts on the fabric of a heritage asset;
- Impacts upon the value (heritage significance) of a heritage asset due to changes to its setting; and
- Changes to the character of the historic landscape.

10.6.3 There is potential for physical impacts on non-designated heritage assets and previously unrecorded archaeological remains that may survive located within the Scoping Site Boundary. These remains could potentially be affected during excavation works required during construction, including, but not limited to, ground works for the On-site Substations, Battery Energy Storage System ('BESS'), Cabling, and the establishment and removal of Temporary Construction Compounds and Access Tracks. There is anticipated to be no physical impacts on non-designated heritage assets and previously unrecorded archaeological remains during the operation and decommissioning phases, as impacts would have occurred and been mitigated during the construction phase. It is anticipated that physical impacts to designated heritage assets would be avoided during construction, operation and/or decommissioning phases, where practicable.

10.6.4 There is also potential for impacts on designated and non-designated heritage assets located within the Scoping Site Boundary and surrounding Study Areas through changes to their setting that may affect the heritage value of the asset, during the construction and/or operation phases of the Scheme. There is anticipated to be no further changes to the setting of heritage assets during the decommissioning phase, beyond those already identified during the construction and operation phases, as the infrastructure will be removed and the Site returned to its former use.

10.6.5 There is potential for changes to the character of the historic landscape during the construction and operation phases of the Scheme. There is anticipated to be no further changes to the character of the historic landscape during the decommissioning phase, beyond those already identified during the construction and operation phases, as the infrastructure will be removed and the Site returned to its former use.

10.6.6 At this scoping stage, embedded mitigation within the design of the Scheme is limited to the assumption that effects on the settings of heritage assets will be mitigated through the incorporation of appropriate set backs, buffers and landscaping, as well as careful consideration of the siting of Substations and the BESS. With regards to buried archaeological remains, the Scheme will incorporate design flexibility to reduce ground disturbance where practicable. This may include the use of alternative techniques for solar PV infrastructure, such as ballast or above-ground mounting systems, in place of driven or screw-anchored foundations and above-ground cabling, in any areas of archaeology sensitivity.

10.6.7 Where intrusive groundworks are required for higher impact elements of the Scheme, including the installation of cabling, Substations, access roads, temporary construction compounds and BESS infrastructure, the design will seek to avoid known archaeological remains and areas of archaeological potential as far as practicable. Where avoidance is not possible, impacts will be minimised through micro-siting, reduction of ground disturbance, and adoption of appropriate construction techniques, with a programme of archaeological investigation or mitigation agreed where necessary with the Archaeological Advisor to East Riding of Yorkshire.

10.6.8 Any identified mitigation measures relevant to Cultural Heritage will be set out in the outline Construction Environmental Management Plan ('oCEMP'), outline Operational Environmental Management Plan ('oOEMP'), outline Decommissioning Environmental Management Plan ('oDEMP') and outline Archaeological Mitigation Strategy ('oAMS'), prepared as part of the DCO application for the construction, operation and decommissioning phases. The plans will form the basis of the detailed CEMP, OEMP, DEMP and AMS and are expected to be secured through corresponding requirements in the DCO.

10.7 Methodology

10.7.1 This section describes the methodology proposed for the assessment of effects on Cultural Heritage, including the criteria for the determination of the importance (value) of the receptor and the magnitude of change.

10.7.2 The value of a heritage asset (its heritage significance) is guided by its designated status, but derived also from its heritage interest which may be archaeological, architectural, artistic or historic (NPPF Annex 2, Glossary). Each identified heritage asset will be assigned a value in accordance with the criteria set out in **Table 10-1**. Using professional judgement and the results of consultation carried out as part of the assessment, heritage assets will be assessed on an individual basis, with regional variations and individual qualities taken into account, where applicable, to assign the value.

Table 10-1 Criteria for assessing the value of heritage assets

Asset Value	Description
High	▪ World Heritage Sites; ▪ Scheduled monuments; ▪ Grade I and II* listed buildings; ▪ Registered battlefields; ▪ Grade I and II* registered parks and gardens; ▪ Conservation areas of demonstrable high value; ▪ Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance; and ▪ Well preserved historic landscape character areas ('LCAs'), exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	▪ Grade II listed buildings; ▪ Conservation areas; ▪ Grade II registered parks and gardens; ▪ Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance; ▪ Averagely preserved historic LCAs, exhibiting reasonable coherence, time-depth or other critical factor(s); and ▪ Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.
Low	▪ Locally listed buildings; ▪ Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance; ▪ Assets whose heritage interests are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade; and ▪ Historic LCAs whose value is limited by poor preservation and/ or poor survival of contextual associations.
Very Low	▪ Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic interest; and ▪ Historic landscapes with no or little significant historical merit.

10.7.3 Having identified the value of the heritage asset, the next stage in the assessment will be to identify the level and degree of impact to an asset arising from the Scheme. Impacts may arise during construction, operation and/or decommissioning and can be temporary, reversible, or permanent. Such impacts may be beneficial or adverse. Impacts can occur to the physical fabric of the asset or affect its setting. The contribution of setting to the value of any affected assets will be subject to assessment.

10.7.4 The level and degree of impact (impact rating) will be assigned with reference to a four-point scale as set out in **Table 10-2**. The assessment of the level and degree of impact will be made in consideration of any embedded mitigation measures for the Scheme. If no impact is identified, no impact rating will be given, and no resulting effect reported.

Table 10-2 Factors influencing the assessment of magnitude of impacts

Magnitude of Impacts	Description of Impact
High	▪ Changes to most or all key components of the asset, such that it is totally altered or destroyed, resulting in a comprehensive impact upon its overall value; and/or ▪ Comprehensive alteration, including the total loss or complete restoration, of elements of an asset's setting that cause a fundamental change in our ability to understand and appreciate its heritage interests; thereby resulting in a comprehensive impact upon its overall value.
Medium	▪ Changes to many key components of the asset, such that it is significantly altered or modified, resulting in a noticeable impact upon its overall value; and/or ▪ Changes to the setting of an asset which noticeably affect our ability to understand and appreciate its heritage interests, resulting in a noticeable impact upon its overall value.
Low	▪ Changes to some key components of the asset, such that it is slightly altered, resulting in a slight impact on its overall value; and/or ▪ Changes to the setting of an asset that slightly alter our ability to understand and appreciate its heritage interests, resulting in a slight impact upon its overall value.
Very Low	▪ Very minor changes to key components of an asset, resulting in no real change upon its overall value; and/or ▪ Changes to the setting of an asset that have little effect on our ability to understand and appreciate its heritage

Magnitude of Impacts	Description of Impact
	interests, resulting in no real change upon its overall value.

10.7.5 An assessment to classify the effect, having taken into consideration any mitigation, will be determined using the matrix in **Chapter 2: Methodology** of this EIA Scoping Report.

10.7.6 Major and moderate effects will be considered significant. Within NPS EN-1 Section 5.9 paragraphs 5.9.28 to 5.9.33 and NPPF Section 16 paragraphs 212 to 216, impacts affecting the value of heritage assets are considered in terms of harm, and there is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. There is no direct correlation between the classification of effect as reported in the ES and the level of harm caused to heritage significance in accordance with the NPS and NPPF.

10.7.7 Pursuant to NPS EN-1 paragraph 5.9.32, any harmful impact to the value (heritage significance) of a designated heritage asset should be weighed against the public benefit of the Scheme, whilst Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010 requires the Secretary of State to have regard to the desirability of preserving a listed building, conservation area, or scheduled monument, or its setting. In all cases, the determination of the level of harm to the value (heritage significance) of the asset arising from development impact is one of professional judgement and will be undertaken adopting a precautionary approach.

10.7.8 Furthermore, paragraph 4.2.30 of NPS EN-1 refers to the residual impacts of Critical National Priority ('CNP') Infrastructure and sets out that where residual impacts remain after mitigation has been applied, these residual impacts are unlikely to outweigh the urgent need for this type of infrastructure. This means that the Secretary of State will take as a starting point that CNP Infrastructure will meet a list of tests, including 'Where substantial harm to or loss of significance to heritage assets should be exceptional or wholly exceptional'.

10.7.9 The baseline assessment will be undertaken in accordance with guidance set out by the CIfA and Historic England, and other relevant guidance, as set out in Section 10.3.

10.7.10 Principles of Cultural Heritage Impact Assessment in the UK is a guide to good practice in cultural heritage impact assessment published jointly by the IEMA, the IHBC and the CIfA. The document provides guidance on understanding cultural heritage assets and evaluating the consequences of change and will be considered when undertaking the assessment.

Sources of Information

Desk-Based Sources

10.7.11 A cultural heritage DBA will be prepared in accordance with industry standards and good practice guidelines (Refer to Section 10.3), and with reference to any statutory consultation responses received as part of the Scoping Opinion.

10.7.12 The DBA will inform the Cultural Heritage chapter of the ES and will form an appendix to the ES.

10.7.13 Sources of information that will be consulted include:

- NHLE database (Ref 218);
- Formal searches of the Humber HER for information on non-designated heritage assets, previous archaeological investigations and the Historic Landscape Characterisation data;
- Portable Antiquities Scheme online database for data relating to archaeological finds (Ref 219);
- The British Geological Survey ('BGS') Onshore GeoIndex (Ref 189), for information on geology and topography, including historic borehole data;
- Published and unpublished literature (including a detailed review of reports for previous fieldwork carried out within close proximity to the Scoping Site Boundary);
- Available geotechnical data;
- Documentary, cartographic and other resources as deposited within the Local Archives and Local Studies Library; and
- Local Planning Authority plans, conservation area appraisals, guidance and lists.

Surveys

Walkover Surveys

10.7.14 A walkover survey of the Humberhead Sites and the Cable Route Corridor will be undertaken including a survey of known archaeological and built heritage assets identified within the Scheme boundary and the immediate vicinity to record their survival, extent, condition, setting and significance, and to identify any heritage assets that are not currently known.

10.7.15 A site visit will also be undertaken to the Study Area – as defined in Section 10.4 above – to assess the setting of designated and non-designated heritage assets which could potentially be affected by the Scheme. This visit will establish the key features of the asset's setting, alongside any intervisibility with the Scheme.

Additional Surveys

10.7.16 The desk-based research will be supported by a programme of archaeological evaluation surveys, the scope of which will be informed by the DBA, and agreed through consultation with the Archaeological Advisor to East Riding of Yorkshire Council.

10.7.17 As a result of early engagement with the Archaeological Advisor to East Riding of Yorkshire Council, the following additional surveys will be undertaken:

- Geophysical survey within the Humberhead Sites to identify the presence/absence of previously unrecorded archaeological remains. The WSI for geophysical survey has been provided to the Archaeological Advisor to East Riding of Yorkshire Council and the geophysical survey has been completed. The results of the geophysical survey will be incorporated into the DBA and the full report provided with the ES; and
- Targeted archaeological trial trench evaluation within the Humberhead Sites, to confirm the results of the geophysical survey, characterise the nature, extent and level of preservation of archaeological remains, in order to understand their heritage value, and to inform a suitable mitigation response.

10.7.18 In addition to the above surveys, a further stage of surveys is anticipated to be undertaken post-DCO approval and secured through a Requirement of the DCO, within the Cable Route Corridor. This is anticipated to comprise a targeted geophysical survey in the first instance, to identify the presence / absence of previously unrecorded archaeological remains.

Cumulative and In-Combination Effects

10.7.19 The assessment set out within the Cultural Heritage ES chapter will also consider cumulative effects which will consider the combined residual effect of the Scheme and another project or projects on a single receptor within the Study Area (refer to Section 10.4).

10.7.20 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects chapter of the ES. Receptors identified within the cultural heritage assessment will be assessed within in-combination effects assessment.

10.8 Assumptions, Limitations and Uncertainties

10.8.1 It is assumed that there will be access to all required land to undertake the walkover survey and any additional surveys that may be required to support the Cultural Heritage assessment. If access is not available, professional

judgement will be used, based on available research and data, and reasonable, realistic, worst-case assumptions, to assess the archaeological potential of the area and the potential impacts of the Scheme on heritage assets.

10.8.2 It is assumed that the data provided by third party external sources is accurate.

10.9 Summary of Elements Scoped In and Scoped Out

10.9.1 A summary of the elements scoped into and out of the assessment of Cultural Heritage is presented in **Table 10-3**. This will be reviewed at consultation stage when further design detail is available.

Table 10-3 Elements scoped in and out of the assessment of Cultural Heritage

Element	Scoped in / Scoped out	Rationale
Construction		
Designated heritage assets within 3 km Study Area; Non-designated built heritage assets within 1 km Study Area; Non-designated and previously unrecorded buried archaeological remains within 1 km Study Area; Historic Landscape	Scoped in	An assessment of impacts on designated heritage assets and non-designated heritage assets (including potential buried archaeological remains), including physical impacts and changes to their setting that may affect their value. An assessment of impacts on the character of the historic landscape.
Operation		
Designated heritage assets within 3 km Study Area; Non-designated built heritage assets within 1 km Study Area; Historic Landscape	Scoped in	An assessment of impacts on designated heritage assets and non-designated built heritage assets, including changes to their setting that may affect their value. An assessment of impacts on the character of the historic landscape.

Element	Scoped in / Scoped out	Rationale
Non-designated and previously unrecorded buried archaeological remains within 1 km Study Area	Scoped out	There is not expected to be any potential impacts to buried archaeological remains during the operational phase of the Scheme as any impacts will have occurred and been mitigated during the construction phase.
Decommissioning		
Designated heritage assets within 3 km Study Area; Non-designated built heritage assets within 1 km Study Area; Non-designated and previously unrecorded buried archaeological remains within 1 km Study Area; Historic Landscape	Scoped out	Potential impacts designated and non-designated built heritage assets as a result of changes to their setting during the decommissioning phase of the Scheme are not anticipated to be any greater than those assessed at construction and operation. There is not expected to be any potential physical impacts to buried archaeological remains during the decommissioning phase of the Scheme as any impacts will have occurred and been mitigated during the construction phase. Potential impacts on the character of the historic landscape are expected to be no worse than those assessed at construction and operation, with the land returned to its former use.

11 Transport and Access

11.1 Introduction

11.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA) with respect to Transport and Access associated with the Scheme throughout construction, operation and maintenance, and decommissioning. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Transport and Access. Matters that are proposed to be scoped in and out of the assessment are identified.

11.1.2 The nature of solar farms is such that there are few significant effects in Transport and Access terms during the Scheme's operational phase. During this period, there are anticipated to be minimal visits to the Scheme per month by vehicles for maintenance as well as vehicle movements associated with the replacement of panels and batteries. The focus of the Transport and Access Environmental Statement ('ES') Chapter will be on the effects during the temporary construction phase. The effects during the replacement of panels and batteries in the operation and maintenance phase and the temporary decommissioning phase will be less than, the construction phase. This will be demonstrated within the Transport and Access ES Chapter.

11.1.3 This chapter is supported by the following figures:

- **Figure 11-1-1** Study Area;
- **Figure 11-1-2** Study Area;
- **Figure 11-1-3** Study Area (together, '**Figure 11-1**');
- **Figure 11-2-1** Public Rights of Way;
- **Figure 11-2-2** Public Rights of Way; and
- **Figure 11-2-3** Public Rights of Way (together, '**Figure 11-2'**).

11.2 Legislation, Planning Policy Context and Guidance

11.2.1 The assessment will be undertaken in accordance with, and with reference to, the following planning policy and guidance, further details of which will be provided in the ES.

National Planning Policy

11.2.2 National Policy Statements ('NPSs') set out the policy basis for Nationally Significant Infrastructure Projects ('NSIPs') and form the basis for determination of decisions on Development Consent Order ('DCO')

applications by the Secretary of State. Relevant national planning and other policy and guidance includes:

- Overarching National Policy Statement ('NPS') for Energy (EN-1) (Ref 8)
  - Paragraph 5.14.5 of the NPS for Energy (EN-1) states that "*If a project is likely to have significant transport implications, the applicant's ES should include a vision for transport and an assessment of potential transport impacts.*"
  - Paragraph 5.14.5 also states that "*Applicants should consult National Highways and Highways Authorities on assessment and mitigation.*"
- NPS for Renewable Energy Infrastructure (EN-3) (Chapter 5.14) (Ref 9)
  - Paragraph 2.10.120 states that "*Modern solar farms are large sites that are mainly comprised of small structures that can be transported separately and constructed onsite, with developers designating a compound on-site for the delivery and assemblage of the necessary components.*"
  - Paragraph 2.10.123 states that "*Applicants should assess the various potential routes to the site for delivery of materials and components where the source of the materials is known at the time of the application, and select the route that is most appropriate.*"
  - Paragraph 2.10.124 states that "*Where the exact location of the source of construction materials, such as crushed stone or concrete is not known at the time of the application, applicants should assess the worst-case impact of additional vehicles on the likely potential routes.*"
  - Paragraph 2.10.125 states that *"Applicants should ensure all sections of roads and bridges on the proposed delivery route can accommodate the weight and volume of the loads and width of the vehicles. Although unlikely, where modifications to roads and/or bridges are required, these should be identified, and potential effects addressed in the ES."*; and
  - Paragraph 2.10.126 states that "*Where a cumulative impact is likely because multiple energy infrastructure developments are proposing to use a common port and/or access route and pass through the same towns and villages, applicants should include a cumulative transport assessment as part of the ES. This should consider the impacts of abnormal traffic movements relating to the project in question in combination with those from any other relevant development. Consultation with the relevant local highway authority is likely to be necessary.*"
- NPS for Electricity Networks Infrastructure (EN-5) (paragraphs 2.12.107 – 2.12.113) (Ref 10).

11.2.3 The NPS listed above came into effect in January 2026. These NPS set out the Government's energy policy for the delivery of nationally significant energy infrastructure, the need for new energy infrastructure, and guidance for the determination of an application for a Development Consent Order ('DCO').

11.2.4 The wider national and local planning policy documentation considered relevant to the Scheme and Transport and Access are identified below and will be considered as part of the Transport and Access ES Chapter:

- National Planning Policy Framework ('NPPF') (as amended February 2025) (Ref 11).
    - Paragraph 115 states *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*
    - Paragraph 116 states that *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios"*.
    - Paragraph 117 states *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*
    - Paragraph 118 states *that "All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored"*.

Local Planning Policy

11.2.5 Relevant local planning policy includes:

- East Riding of Yorkshire Local Transport Plan 2021-2039 (LTP) (Ref 220) Paragraph 5.1.2 states the five strategic objectives:
    - Objective 1: Improve the maintenance and management of the existing transport network
    - Objective 2: Support sustainable economic growth and regeneration
    - Objective 3: Reduce carbon emissions and encourage healthy lifestyles
    - Objective 4: Improve road safety
    - Objective 5: Improve access to key services
- East Riding Local Plan Update 2020-2039 (Ref 13). Paragraph 6.62 states that "*Increasing the amount of energy from renewable and low carbon*

technologies will help to ensure the UK has a secure energy supply as well as reduce greenhouse gas emissions to slow down climate change. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable."

Guidance

11.2.6 The Transport and Access ES chapter will be prepared with reference to guidance provided within the Institute of Sustainability and Environmental Professionals ('ISEP') Guidelines: Environmental Assessment of Traffic and Movement (Ref 221).

11.2.7 The ISEP Guidance sets out the following transport and access assessment topics:

- Severance;
- Driver Delay;
- Pedestrian Delay;
- Non-motorised User Amenity;
- Fear and Intimidation;
- Road Safety; and
- Hazardous and Large Loads.

11.2.8 These topics are explored further in Chapter 11.6: Potential Effects and Mitigation.

11.3 Consultation

11.3.1 Consultation has begun with East Riding of Yorkshire Council ('ERYC') and National Highways. An initial meeting with National Highways took place on the 14/05/26.

11.3.2 Consultation will also be undertaken with other statutory parties, including relevant landowners and other key stakeholders.

11.4 Study Area

11.4.1 The Study Area is shown in **Figure 11-1**: **Study Area**. A full overview of the Scheme in a transport context will be set out in the Transport and Access ES chapter. This will include a summary of highway, non-motorised and public transport infrastructure in the local area.

11.4.2 The Study Area for the assessment of the likely significant effects of the Scheme on transport and access will consist of all Public Rights of Way ('PRoW') within the Scoping Site Boundary and the roads that comprise the construction vehicle routes. These roads will include but not be limited to the following:

Strategic Road Network

- National Highways:
  - A63; and
  - M62;
- Local Highway Authority:
  - A15;
  - A163;
  - A164;
  - A614;
  - A1079; and
  - B1230;

Local Road Network

- Main Street;
- Back lane;
- Unnamed Road (outside Allerthorpe);
- Carr Lane (west of Hayton);
- Crudhall Lane;
- Unnamed Road (between Crudhall Lane and A1079);
- Station Road;
- Londesborough Avenue;
- Unnamed Road (between Londesborough and Burnby);
- Intake Hill;
- Dead Lane;
- Unnamed Road (between Laytham and Foggathorpe);
- Southfield Lane;
- Station Lane;
- Spen Lane;
- Cliffe Lane;
- Port Royal;
- Lock Lane;
- Skiff Lane;
- Drain Lane;
- Bursea Lane;
- Unnamed Road (between Bursea and Hasholme);
- Townend Lane;
- Cliffe Road; and
- Carr Lane (west of North Cave).

11.4.3 The strategic road network does not need to be covered in the same detail, as the existing levels of traffic and Heavy Goods Vehicle ('HGV') movement

are high and the network has greater capacity. Therefore, the effect of the proposed Scheme on the strategic road network is likely to be minimal.

11.4.4 The preliminary construction routes may also require the crossing of small sections of roads between the Humberhead Sites and access points along the Cable Route Search Corridor ('CRSC'). These will be included and added to the Study Area where required.

11.4.5 The indicative Transport and Access Study Area is shown in **Figure 11-1**. These are open to discussion with stakeholders and are subject to refinement and consideration of constraints.

11.4.6 Where required, swept-path analysis of the preliminary construction routes will be provided within the Transport Assessment and outline Construction Traffic Management Plan ('oCTMP') that will be submitted with the application for the DCO to demonstrate they can operate safely.

11.4.7 The Study Area captures the Humberhead Sites, CRSC and all the preliminary construction routes to Site. The Site is well suited to accommodate construction traffic, due to its proximity to the strategic road network. The Study Area is likely to also be amended as the Cable Route Corridor ('CRC') (within the CRSC) is refined, as guided by environmental assessment and engineering requirements.

11.5 Baseline Conditions

11.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to **Figure 11-1**.

Local Highway Network

A15

11.5.2 The A15 is a two-way, dual carriageway road routing from the A63 slip road to the north towards the Barnetby Interchange to the south.

11.5.3 On-site observations and traffic surveys indicate that the A15 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit.

11.5.4 There are no posted weight or height restrictions along the section of the A15 within the Study Area.

A63

11.5.5 The A63 is a two-way, dual carriageway road routing from the Southcoates Roundabout in Hull to the east before continuing as the M62 to the west at Junction 38.

11.5.6 On-site observations and traffic surveys indicate that the A63 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit.

11.5.7 There are no posted weight or height restrictions along the section of the A63 within the Study Area.

A163

11.5.8 The A163 is a two-way, single carriageway road routing from the A19 to the west towards the A614 to the east.

11.5.9 On-site observations and traffic surveys indicate that the A163 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit, which then reduces to 40 mph at Water End and then 30 mph at Holme Upon Spalding Moor.

11.5.10 There are no posted weight or height restrictions along the section of the A163 within the Study Area.

A164

11.5.11 The A164 is a two-way, single carriageway road routing from the Wingfield Roundabout to the south towards the Kelleythorpe Roundabout (A614) to the north.

11.5.12 On-site observations and traffic surveys indicate that the A164 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit, which also reduces to 40 and 50 mph on the approach to roundabouts.

11.5.13 The road comprises a dual carriageway between the A164/Ripplingham Road roundabout and the A164/Main Street/Harland Way Roundabout. After this roundabout it reduces to a single lane carriageway.

11.5.14 There are no posted weight or height restrictions along the section of the A164 within the Study Area.

A614

11.5.15 The A614 is a two-way, single carriageway road routing from the A63/A614 Roundabout to the southwest towards the A164/A165 roundabout to the northeast.

11.5.16 On-site observations and traffic surveys indicate that the A614 within the vicinity of the Study Area is already well used by HGVs. The A614 is subject to the national speed limit for a majority of its length. The speed limit reduces to 30 mph throughout the villages of Caville, Sand Hole, Moor End and Holme Upon Spalding Moor,

11.5.17 There are no posted weight or height restrictions along the section of the A614 within the Study Area.

A1079

11.5.18 The A1079 is a two-way, single carriageway road routing from York City Centre to the northwest to Hull City Centre to the southeast.

11.5.19 On-site observations and traffic surveys indicate that the A1079 within the vicinity of the Study Area is already well used by HGVs. The road is subject to the national speed limit, which reduces through residential areas.

11.5.20 The carriageway briefly forms into a dual lane between Hayton and Thorpe Le Street and when routing around Beverley.

11.5.21 There are no posted weight or height restrictions along the section of the A1079 within the Study Area.

B1230

11.5.22 The B1230 is a two-way, single carriageway road, subject to the national speed limit, which then reduces to 40 mph on the approach to North Cave.

11.5.23 On-site observations and traffic surveys indicate that the B1230, within the Study Area, is already well used by HGVs. There are no posted weight or height restrictions along the section of the B1230 within the Study Area.

M62

11.5.24 The M62 is a motorway subject to the national speed limit. The M62 routes from the M60 to the west to the A63 to the east.

Main Street

11.5.25 Main Street routes from the A1079/Main Street/Hodsow Lane Roundabout to the north east towards the village of Allerthorpe, merging into the Unnamed Road (outside Allerthorpe). It is a two-way single carriageway road, which is subject to the national speed limit, which then reduces to 30 mph through Allerthorpe. There are no posted weight or height restrictions along the section of Main Street within the Study Area.

Back Lane

11.5.26 Back Lane routes through the northern part of the Allerthorpe village, linking between Main Street at either end. It is a two-way single carriageway road, which is subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Back Lane within the Study Area.

Unnamed Road (outside Allerthorpe)

11.5.27 The Unnamed Road (outside Allerthorpe) routes from Main Street to the north east to the B1228 in the south west. It is a two-way single carriageway road, which is subject to the national speed limit. There are no posted weight or height restrictions along the section road within the Study Area.

Carr Lane (west of Hayton)

11.5.28 Carr Lane routes from the A1079/Carr Lane junction to the north east towards Crudhall Lane in the south west. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Carr Lane within the Study Area.

Crudhall Lane

11.5.29 Crudhall Lane routes from Carr Lane to the north towards the Crudhall Lane/Unnamed Road (between Crudhall Lane and the A1079) junction to the south. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Crudhall Lane within the Study Area.

Unnamed Road (between Crudhall Lane and the A1079)

11.5.30 The Unnamed Road (between Crudhall Lane and the A1079) routes from Crudhall Lane to the west towards the A1079 to the east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit, which then reduces to a 30 mph speed limit on the approach to the village of Hayton. There are no posted weight or height restrictions along the section of the Unnamed Road (between Crudhall Lane and the A1079) within the Study Area.

Station Road

11.5.31 Station Road routes from the A1079/Station Road junction to the south towards Londesborough Avenue to the north. It is a two-way single carriageway road, with no central markings. It is subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Station Road within the Study Area.

Londesborough Avenue

11.5.32 Londesborough Avenue routes from Station Road to the south towards Londesborough Hill to the north east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no

posted weight or height restrictions along the section of Londesborough Avenue within the Study Area.

Unnamed Road (between Londesborough and Burnby)

11.5.33 The Unnamed Road (between Londesborough and Burnby) routes from Londesborough Hill to the south east towards Long Hill to the north west. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit, which then reduces to a 30 mph speed limit through the village of Burnby. There are no posted weight or height restrictions along the section of the Unnamed Road (between Londesborough and Burnby) within the Study Area.

Intake Hill

11.5.34 Intake Hill routes from the Londesborough Avenue/Intake Hill junction to the north west towards the A614/Intake Hill/Londesborough Road roundabout to the south east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Intake Hill within the Study Area.

Dead Lane

11.5.35 Dead Lane routes from the A163 northbound as an access track to the surrounding fields. Dead Lane is a one-way single carriageway road with no formalised paving.

Unnamed Road (between Laytham and Foggathorpe)

11.5.36 The Unnamed Road (between Laytham and Foggathorpe) routes from the A163 to the south towards the B1228 to the north. It is a two-way single carriageway road, with no central markings. It is subject to a 40 mph speed limit, which then increases to the national speed limit heading northbound away from Foggathorpe. There is a 'Unsuitable for Heavy Goods Vehicle' sign posted at the junction with the A163.

Southfield Lane

11.5.37 Southfield Lane routes from the A163 to the south towards South End to the north east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There is a 'Unsuitable for Heavy Goods Vehicle' sign posted at the junction with the A163.

Station Lane

11.5.38 Station Lane routes from the A163 to the south towards Spen Lane to the north. It is a two-way single carriageway road, with no central markings. It is

subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Station Lane within the Study Area.

Spen Lane

11.5.39 Spen Lane routes from the west to Old Road to the east. It is a two-way single carriageway road, with no central markings. It is subject to a 30 mph speed limit, which then increases to the national speed limit as the carriageway routes further east from the residential area. There is a 7.5 Tonne 'Except for Access' sign posted at the formation of Spen Lane heading eastbound.

Cliffe Lane

11.5.40 Cliffe Lane routes from the A614 to the north towards Sand Lane to the south. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There is a 'Unsuitable for HGVs' sign posted at the junction with the A614.

Port Royal

11.5.41 Port Royal routes from the A614 to the west towards Lock Lane to the east. It is a two-way single carriageway road, with central line markings. It is subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Port Royal within the Study Area.

Lock Lane

11.5.42 Lock Lane routes from Port Royal to the west towards various agricultural accesses to the east. It is a two-way single carriageway road, with no central markings. It is subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Lock Lane within the Study Area.

Skiff Lane

11.5.43 Skiff Lane routes from Port Royal to the north towards Drain Lane to the south east. It is a two-way single carriageway road, with no central markings. It is subject to a 40 mph speed limit. There are no posted weight or height restrictions along the section of Skiff Lane within the Study Area.

Drain Lane

11.5.44 Drain Lane routes from Baileywood Lane to the west towards Skiff Lane to the east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Drain Lane within the Study Area.

Bursea Lane

11.5.45 Bursea Lane routes from the A614 to the north west towards the Unnamed Road (between Bursea and Hasholme) to the south east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Bursea Lane within the Study Area.

Unnamed Road (between Bursea and Hasholme)

11.5.46 The Unnamed Road (between Bursea and Hasholme) routes from Bursea Lane to the west towards Carr Lane to the east. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of the Unnamed Road (between Bursea and Hasholme) within the Study Area.

Townend Lane

11.5.47 Townened Lane routes from the B1230 to the south towards Cliffe Road to the north. It is a two-way single carriageway road, with central line markings. It is subject to a 30 mph speed limit. There are no posted weight or height restrictions along the section of Townend Lane within the Study Area.

Cliffe Road

11.5.48 Cliffe Road routes from Townend Lane to the south towards the A1079 to the north. It is a two-way single carriageway road, with central line markings. It is subject to a 30 mph speed limit, which then increases to the national speed limit heading northbound away from North Cave. There are no posted weight or height restrictions along the section of Cliffe Road within the Study Area.

Carr Lane (west of North Cave)

11.5.49 Carr Lane routes from Cliffe Road to the east towards a private farm to the west. It is a two-way single carriageway road, with no central markings. It is subject to the national speed limit. There are no posted weight or height restrictions along the section of Carr Lane within the Study Area.

Public Rights of Way

11.5.50 There are a number of PRoW that run through the Humberhead Sites. The locations of these PRoW are shown in **Figure 11-2** with routes described in further detail in **Table 11-1.** In addition, any PRoW that are crossed by the CRSC will also be included within the Transport and Access Chapter and are detailed in **Table 11-2**.

Table 11-1 Public Rights of Way: Humberhead Sites

Humberhead Sites	PRoW Type	PRoW	Route Description
Humberhead 1	Bridleway	EY | Allerthorpe | Bridleway No.4	Routes in a general north/south alignment between Pocklington Footpath No.7 and Bielby Bridleway No.7.
	Bridleway	EY| Bielby| Bridleway No.5	Routes in a general north/south alignment across Everingham Lane between an Unnamed Road and Everingham Bridleway No.9.
	Bridleway	EY| Everingham| Bridleway No.9	Routes in a general north/south alignment between Bielby Bridleway No.5 and an Unnamed Road west of Everingham.
Humberhead 2	Footpath	EY| Hayton| Footpath No.5	Routes in a general north/south alignment between the A1079 across fields to Mill Lane.
	Footpath	EY| Londesborough| Footpath No.2#1	Routes in a general north/south alignment between the A614 and Intake Hill.
Humberhead 3	Footpath	EY |Seaton Ross| Footpath No.9	Commences at the south end of Seaton Ross village at a point to the south of Rose Farm and leads south eastwards to join footpath 10 at Lady Well.
	Footpath	EY| Seaton Ross |Footpath No.8	Commences at the south end of Seaton Ross Village at a point to the south of Rose Farm and leads southwards to Seaton Old Hall Farm then eastwards to join path No.10 in Crack Tree Field.
	Footpath	EY| Seaton Ross| Footpath No.10	Commences at South End at a point south of the Black Horse public house and leads in a southerly direction via Lady Well to the bridge across the River Foulness at the Holme on Spalding Moor parish boundary.
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.28	Commences on the Dial House Access Road and leads east-north-easterly across an old railway line between Bridleway No.27 and Haswell Lane

Humberhead Sites	PRoW Type	PRoW	Route Description
	Footpath	EY| Holme on Spalding Moor| Footpath No.4	Routes in a general north/south alignment between an Unnamed Road and the Everingham parish boundary at Addle Cross.
Humberhead 4	Footpath	EY |Holme on Spalding Moor| Footpath No.10	Commences at the east side of Tollingham Farm and leads north-eastwards across Tollingham Warren to join path No. 13 on the west side of the canal.
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.15	Commences at the east side of Tollingham Farm and leads northeastwards across Tollingham Warren to join path No. 13 on the west side of the canal.
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.13	Commences at the east end of Lock Lane at Land of Nod and leads southwards along the west side of Market Weighton Canal for about 450 yards.
	Bridleway	EY |Holme on Spalding Moor| Bridleway No.17	Commences opposite Hasholme Hall on the Bursea - Halsholme Road and leads northwards to High Drain Lane. Known as New Lane.
	Bridleway	EY| Hotham| Bridleway No.3	Commences at the Holme upon Spalding Moor parish boundary and leads southwards along the east side of Market Weighton Canal to the Newport parish boundary. Canal Towpath.
	Bridleway	EY| Hotham| Bridleway No.6	Commences on Bridleway No. 3 on the eastern bank of the Market Weighton Canal and leads easterly for some 385 metres along the south side of Car Dike Drain then continues easterly for some 1200m and then south-easterly for some 980m to meet with Hotham Bridleway No. 4
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.16	Commences at the east side of Hasholme Grange and leads in a south easterly direction via Hasholme Garth to the Newport parish boundary.

Table 11-2 Public Rights of Way: Cable Route Search Corridor

Nearest Solar PV Site	PRoW Type	PRoW	Route Description
Humberhead 1	Footpath	EY| Bielby| Footpath No.6#2	Routes in a general north/south alignment between an Unnamed Road and Mill Lane, Bielby.
	Bridleway	EY| Bielby| Bridleway No.7	Routes in a general north/south alignment between Allerthorpe Bridleway No. 4 and Unnamed Road.
Humberhead 2	Footpath	EY| Londesborough| Footpath No.1	Routes in a general northwestern direction between Shiptonthorpe Footpath No.1 and Intake Hill.
Humberhead 3	Footpath	EY| Holme on Spalding Moor| Footpath No.6	Routes in a general north/south alignment between Carr Lane and Holme on Spalding Moor Footpath No.5
	Footpath	EY |Holme on Spalding Moor| Footpath No.5	Routes in a general north/south alignment between Holme on Spalding Moor Footpath No.6 and Old Road, crossing an old railway line.
Humberhead 4	Bridleway	EY| Everingham| Bridleway No.2	Commences at Brouncey Farm and leads in a south westerly direction along the west bank of the River Foulness to a point approximately 150 m north west of Harswell Bridge on Bull Lane.
	Footpath	EY |Everingham| Footpath No.4	Commences on Bull Lane, Harswell at Anthony's Hill and leads eastwards crossing Lowmath Lane then south-east across the railway to Shipton Lane at the Holme -on-Spalding-Moor parish boundary.
	Bridleway	EY| Everingham| Bridleway No.15	Commences at the eastern end of Holme on Spalding Moor Bridleway No. 29 and leads east-north-easterly to join the A614.
	Footpath	EY| Holme on Spalding Moor| Footpath No.12	Commences at the Market Weighton parish boundary south of River Head and leads southwards along the east bank of Market Weighton Canal to Cliffe Lane at Swing Bridge. Market Weighton Canal Towpath.
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.24	Commences at the South Cliffe parish boundary approximately 300 metres south of Land of Nod and leads

Nearest Solar PV Site	PRoW Type	PRoW	Route Description
			southwards along the western bank of Back Delfin Drain to Sodhouse Lock.
	Bridleway	EY| Holme on Spalding Moor| Bridleway No.14	Commences on Bridleway No.24 on the western bank of Back Delfin Drain and leads easterly for some 16 metres turns southerly for some 203 metres along the eastern bank of Back Delfin Drain then continues southerly along the eastern bank of the Market Weighton Canal to join Hotham Bridleway No.3.
	Footpath	EY| Holme on Spalding Moor| Footpath No.25	Commences on South Cliffe Footpath No.3 and leads westerly for some 330m and then southerly for some 170m then continues westerly along the drive to Wholsea Grange for some 342 metres to meet Bridleway No.14.

Cycle Routes

11.5.51 The Route 66 National Cycle Network ('NCN') is within the vicinity of the Scheme. Route 66 routes south east from Market Weighton towards Pocklington in the north west. This route is an on-road, unsegregated route. It includes the section of Intake Hill, Londesborough Hill and the Unnamed Road (between Londesborough and Burnby).

Construction Vehicle Access

11.5.52 During the operational and temporary construction phase, access points serving the Humberhead Sites and CRSC will be required. The proposed points of access will be taken from the proposed construction routes and are currently being identified. The proposed points of access are subject to change as the design develops and further detailed work is undertaken.

11.5.53 The proposed points of access will use existing access points where possible. Where the proposed access points utilise existing agricultural access points or tracks, they will be formalised and widened where necessary. Swept path analysis of the proposed access points will be included within the Transport Assessment and oCTMP that will be submitted with the application for the DCO to demonstrate they can operate safely.

Traffic Surveys

11.5.54 Automatic Traffic Count ('ATC') Surveys are being undertaken on all roads forming part of the preliminary construction routes and within the vicinity of

the proposed points of access to the Scheme. These surveys are being undertaken in Spring 2026. Two separate weeks of surveys are being undertaken in accordance with Department for Transport ('DfT') Transport Analysis Guidance ('TAG') (Ref 222). In addition, DfT data will be reviewed for the strategic road network.

11.5.55 Additional traffic surveys will be conducted as necessary along the CRSC where required. Further information on the cable route will be included once a preferred route has been identified.

11.5.56 The ATC locations will be identified in consultation with the East Riding of Yorkshire Council.

Other Baseline Data Sources

11.5.57 Other baseline data sources that will inform the Transport and Access ES Chapter are:

- Personal Injury Collision ('PIC') data;
- Highway boundary information;
- Land Ownership Plans;
- OS Mapping; and
- Topographical surveys.

11.6 Potential Effects and Mitigation

11.6.1 This section sets out the potential effects of the Scheme for the Transport and Access Chapter.

11.6.2 Transport and access impacts resulting from the Scheme will be restricted to the local highway network within the Study Area, as shown in **Figure 11-1**.

11.6.3 The ES Transport and Access Chapter will set out the effects of the scheme in relation to:

- Severance;
- Road Vehicle Driver and Passenger Delay;
- Non-motorised User Delay;
- Non-motorised User Amenity (including Fear and Intimidation);
- Accidents and Safety; and
- Hazardous Loads/Large Loads

11.6.4 Each of the above are assessed in relation to the relative change in HGV and general traffic flows.

Construction Phase Effects

11.6.5 Construction is anticipated to take approximately up to 24 months and will be associated with a number of HGV movements that could result in potentially

significant effects on the criteria set out above. Peak traffic flows for each part of the Site will be assessed to determine the worst-case scenario for transport effects. As the construction programme and phasing strategy are further refined, it is anticipated that traffic flows will also be able to be optimised and, where practicable, reduced. Any updated information on construction sequencing will be incorporated into the ES as the design develops.

Vehicle types

- HGVs: Most vehicle movements associated with the construction phase will be in the form of HGVs. These vehicles will mainly be used for the delivery of Solar PV equipment.
- Large Good Vehicles ('LGVs'): A small number of movements associated with the construction phase will be in the form of LGVs. These vehicles will mainly be used for construction worker traffic.
- Abnormal Indivisible Loads ('AILs'): A small number of abnormal load movements are associated with the construction phase. These vehicles will mainly be used for the transportation of the transformer and other movements associated with the Battery Energy Storage System ('BESS').

Trip Generation

11.6.6 All construction traffic will avoid the AM and PM peak hours. An oCTMP will set out the framework for the management of construction vehicle movements. The oCTMP will also provide a detailed breakdown of the total vehicle movements associated with the scheme. Further details will also be set out in the ES Chapter.

Operation and Maintenance Phase Effects

11.6.7 The operational phase of the Scheme is proposed to be 60 years.

11.6.8 The effects of general operational maintenance will be limited to routine visits by operational staff, which will be minimal and are unlikely to be significant. It is anticipated that operational maintenance traffic will not exceed the level associated with the Site's existing (predominantly agricultural) use. These visits will be distributed across the Site, with minimal overlap between areas. Maintenance activities will typically be undertaken using LGVs or four-wheel-drive vehicles for routine inspections and servicing of plant and equipment.

11.6.9 Occasional HGV access may be required for tasks such as ad-hoc replacement of solar panels or battery units. The ES will assess the replacement of solar panels once, and the batteries up to four times, during the operation of the Scheme. Permanent site access arrangements will be designed to accommodate HGVs safely, enabling vehicles to enter and leave in forward gear. Where HGVs are required during operation, routing will be planned to avoid sensitive receptors wherever practicable.

11.6.10 HGV movements (and their resultant effects on the criteria set out above) associated with maintenance and replacement activities are anticipated to be lesser than the construction phase and would be controlled and managed through the oCTMP and the outline Landscape and Ecological Management Plan ('oLEMP') and secured through the requirements of the DCO. The ES will include further details of the maintenance and replacement activities, and appropriate controls will be developed as part of the EIA process.

11.6.11 The transport and access effects of the Operation and Maintenance Phase are expected to be minimal and not significant. Therefore, a separate assessment of the Operation and Maintenance Phase is scoped out.

Decommissioning Phase Effects

11.6.12 Decommissioning is anticipated to take approximately 12 to 24 months. During this phase, all the solar infrastructure would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled whenever possible. All waste will be disposed of in accordance with the legislation at the time of decommissioning. This will be detailed further in the outline Decommissioning Environmental Management Plan ('oDEMP').

11.6.13 Decommissioning effects are anticipated to be similar to construction but of a lesser extent. Therefore, it is assumed the assessment of the Construction Phase would already present the worst-case in Transport and Access terms and capture all effects associated with the Decommissioning Phase. On that basis, a separate assessment of the Decommissioning Phase is scoped out.

Mitigation

11.6.14 An oCTMP will be prepared and submitted with the DCO application. The oCTMP will provide a framework for the management of construction vehicle movements to and from the Scheme. At decommissioning, an oDEMP will be prepared, that will follow the principles of the oCTMP. Detailed versions of both the oDEMP and oCTMP will be secured via DCO requirements. The characteristics of the operational phase will be set out in the Transport and Access ES Chapter.

11.6.15 A number of mitigation measures will be set out in the ES Chapter and secured in the oCTMP. These will typically include, but will not be limited to the following:

- A commitment to avoid network peak hours for deliveries;
- Signage to direct construction vehicles;
- The provision of Banksmen at the site access junctions to assist the safe movement of HGVs where required;

- Site Compounds will be set up within the Scheme. These will include an appropriate number of parking spaces. No vehicles used in the Scheme's construction and decommissioning phases will park on the local highway network;
- A booking system will be set up to manage arrivals and departures to the site. A log will be kept as part of the booking system;
- A requirement for engines to be switched off on-site when not in use;
- The provision of a wheel washing facilities;
- Spraying of areas with water as and when conditions dictate to prevent the spread of dust;
- Vehicles carrying waste material off-site to be sheeted;
- The contact details of the site manager to be provided on notice boards for the local communities; and
- The commitment to undertake a pre-construction and post-construction highway condition survey at agreed locations on the preliminary construction routes.

11.6.16 Construction vehicle access points will be designed to accord with guidance, as set out in the Design Manual for Roads and Bridges (Ref 223) or Manual for Streets where relevant (Ref 224).

11.6.17 An outline PRoW Management Plan ('oPRoWMP') will provide the framework for the management of PRoW throughout the Order Limits. The key aim is to ensure that PRoW remain accessible and safe at all times throughout the construction, operation and maintenance, and decommissioning phases. This will be submitted as part of the DCO application and a detailed version will be secured as a requirement of the DCO.

11.6.18 Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

11.7 Methodology

11.7.1 This section describes the methodology proposed for the assessment of effects on Transport and Access, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

11.7.2 In accordance with ISEP Guidelines for the Environment Assessment of Traffic and Movement The potential transport and access effects resulting from the construction and decommissioning phases of the Scheme that will be assessed within the ES Chapter comprise:

- Severance;
- Driver delay;
- Non-motorised user delay;

- Non-motorised user amenity
- Fear and Intimidation;
- Road User and Pedestrian Safety; and
- Hazardous loads.

11.7.3 The assessment methodology to be used to assess the likely significant effects from the construction, decommissioning and operational replacement phases of the Scheme on the environmental impact criteria above is set out below. Each of the identified links on the proposed construction routes will be assessed in accordance with this impact criteria.

Severance

11.7.4 The ISEP Guidelines define severance as '*the perceived division that can occur within a community when it becomes separated by a major traffic artery*' (paragraph 4.27) that '*separates people from places*', for example, difficulties crossing existing roads or the physical barrier of the road itself.

11.7.5 There are no predictive formulae which give simple relationships between traffic factors and levels of significance. Nevertheless, there are a range of indicators for determining the significance of the relief from severance. The ISEP Guidelines suggest that 'changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively' (paragraph 4.31). The guidance also suggests that '*marginal changes in traffic flows are, by themselves, unlikely to create or remove severance*'.

11.7.6 The nature of many of the roads within the Study Area is such that there is likely to be a relatively high level of severance in the baseline situation, and the Scheme is unlikely to have a material effect on this. This will however be assessed in accordance with the above criteria.

Driver Delay

11.7.7 The ISEP Guidelines state that '*delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system*' (paragraph 4.34). As such, the impact of a Scheme on driver delay is typically considered in relation to background traffic. In this context, it is unlikely that the Scheme would have any material effect on driver delay as the majority of its associated traffic flows would be expected to take place outside of typical network peak periods. This will however be confirmed and assessed further.

11.7.8 Junction assessment modelling can be used to estimate increased vehicle delays at junctions, if necessary.

Non-Motorised User Delay

11.7.9 The ISEP Guidelines state that '*changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site*' (paragraph 3.24). There are a range of local factors that affect non-motorised user delay, including the level of pedestrian (and all non-motorised users) activity, visibility and general physical conditions of the site. However, the ISEP Guidelines do not set out definitive thresholds for judging the significance of changes in levels of delay, and suggest that the assessor uses their judgement to determine whether pedestrian (and all non-motorised user) delay is a significant effect.

11.7.10 The nature of many of the roads within the Study Area is such that there is likely to be a relatively high level of non-motorised user delay in the baseline situation, and the Scheme is unlikely to have a material effect on this. This will however be assessed in accordance with the above criteria.

Non-Motorised User Amenity

11.7.11 Non-motorised user amenity is broadly described in the ISEP Guidelines as '*the relative pleasantness of a journey*' (paragraph 3.29) and can be affected by traffic flow, composition and pavement width/ separation from traffic. This definition includes pedestrian (and non-motorised user) fear and intimidation and can be considered a much broader category when considering the overall relationship between pedestrians (and other non-motorised users) and traffic. The ISEP Guidelines suggest that a threshold for judging this would be '*where the traffic flows (or its lorry component) is halved or doubled*' (paragraph 3.30). However, the ISEP Guidelines encourages full regard to specific local conditions for a better assessment.

11.7.12 The nature of many of the roads within the Study Area is such that the level of non-motorised user amenity in the baseline situation is likely to be fairly low, and the Scheme is unlikely to have a material effect on this. This will however be assessed in accordance with the above criteria.

Fear and Intimidation

11.7.13 A further environmental impact that affects people is the fear and intimidation created by all moving objects. The scope of fear and intimidation will consider its impact on all modes of transport including horses, cycles, pedestrians, mobility scooters, e-scooters and e-cycles, if appropriate. Conclusions on fear and intimidation will be informed by the weighting system set out in Tables 3.1 to 3.3 of the ISEP Guidelines for the Environment Assessment of Traffic and Movement.

11.7.14 The nature of many of the roads within the Study Area is such that there is likely to be a relatively high level of fear and intimidation in the baseline situation, and the Scheme is unlikely to have a material effect on this. This will however be assessed in accordance with the above criteria.

Road User and Pedestrian Safety

11.7.15 The ISEP Guidelines do not include any definition in relation to the assessment of effects on accidents and safety, advising that professional judgement should be used to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents. The effects on Road User and Pedestrian Safety will be assessed with reference to PIC records.

Hazardous Loads/Large Loads

11.7.16 The ISEP Guidelines state that '*some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any traffic and movement assessment*' (paragraph 3.49). With respect to Hazardous Loads, analysis of the road network within the Study Area indicates that there are no particular features, such as significant vertical drops immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. It is not expected that there would be any Harzardous Loads associated with the Scheme during construction, operation or decommissioning.

11.7.17 Some deliveries to the Scheme during the construction phase will be regarded as 'large loads'. An abnormal load is one where the vehicle exceeds 44 tonnes, the width is over 2.9 m or the length is more than 18.65 m. These include the deliveries of the transformers. All applicable regulations for the movement of large loads will be followed, and the appropriate documentation will be obtained. Any Large Loads required will be managed by National Highways, the local highway authority and the Police through the Electronic Service Delivery for Abnormal Loads ('ESDAL') system, meaning there will be a limited effect on the LRN or SRN, outside of the standard abnormal load permitting system.

11.7.18 An AIL Assessment will be prepared and included within the ES as part of the DCO application.

Prediction of Impact Magnitude

11.7.19 The ISEP Guidelines set out two rules which have been used as threshold impacts to define the scale and extent of this assessment, as follows:

- Rule 1: Include highway links where traffic flows will increase by more than 30% (or where the number of HGVs will increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

11.7.20 A specifically sensitive area is an area defined as having a 'High' sensitivity in accordance with the criteria set out in **Table 11-3**.

11.7.21 The ISEP Guidelines identify general thresholds for traffic flow increases of 10% and 30%. Where either (or both) of these rules are exceeded, then further detailed consideration of the associated impacts is undertaken in accordance with the methodologies and assessment criteria set out below. Where the predicted increase in traffic/HGV flow is lower than these thresholds, then the significance of the effects should be considered to be low or not significant and further detailed assessment is not required.

11.7.22 It is notable that, on roads where baseline traffic flows are low, any increase in traffic flow may result in a predicted increase that would be higher than the two rules set out in the ISEP Guidelines. Therefore, it is important to consider any overall increase in road traffic in relation to the capacity of the road.

11.7.23 The ISEP Guidelines state that "*For many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed up by data or quantified information wherever possible*", and "*those preparing the Environmental Statement will need to make it clear how they have defined whether a change is considered significant or not*" (paragraph 4.5).

11.7.24 In order to ensure a robust assessment of the increase in traffic flows in environmental terms, the following criteria defined in **Table 11-3** and **Table 11-4** will be used to determine receptor sensitivity and magnitude of impact respectively.

Receptors and Receptor Sensitivity

11.7.25 The ISEP Guidelines identifies the following groups and special interests, referred to as sensitive receptors, as susceptible to changes in traffic flow conditions:

- People at home;
- People at work;
- Children, elderly and disabled persons;
- Sensitive locations such as hospitals, churches, schools, historical buildings;
- Pedestrians;
- Cyclists;
- Equestrian users;
- Open recreational spaces;

- Sites of ecological/nature conservation value; and
- Sites of tourist/visitor attraction.

11.7.26 The sensitive receptors within the agreed Study Area will be assigned to the nearest highway link, and the relationship with the highway environment examined to understand the sensitivity of those receptors to change. For the purpose of this assessment, the traffic and transport environmental sensitivity of receptors ranging from negligible to high have been categorised as set out in **Table 11-3**.

Table 11-3 Sensitivity/Importance of Identified Receptor

Sensitivity	Definition
High	Receptors of greatest sensitivity to traffic flows, such as schools, hospitals, playgrounds/recreational spaces, accident blackspots, retirement/nursing homes. Includes areas with no footways/cycleways with high pedestrian footfall/cycle movements and congested areas.
Medium	Receptors with moderate sensitivity to traffic flow, such as conservation areas, historical buildings, tourist attractions, and residential areas.
Low	Receptors with low sensitivity to traffic flows, and those distant from affected roads.
Negligible	Receptors with no material sensitivity to traffic flows.

Magnitude of Impact

11.7.27 The magnitude of impact is the level of change caused by the Scheme. An overview of the different magnitudes of impact is set out in **Table 11-4**.

Table 11-4 Magnitude of Impact

Impact	Source	Neutral	Negligible	Low	Medium	High
Severance	ISEP Guidance	No Change	Change in total traffic or HGV flows of 10%-30%	Change in total traffic or HGV flows of 30% to 60%	Change in total traffic or HGV flows of 60% to 90%	Change in total traffic or HGV flows over 90%
Driver Delay	Professional judgement	No Change	Changes which are unlikely to be perceptible (based on a judgement).	Changes which are likely to be perceptible but not to the extent that it would materially	Changes which are likely to be perceptible and which would materially change conditions	Changes which are likely to be perceptible and which could change conditions which

Impact	Source	Neutral	Negligible	Low	Medium	High
Non-Motorised User Delay				change conditions which would otherwise prevail.	which would otherwise prevail to the extent that it may affect travel behaviour to measurable degree.	would otherwise prevail to the extent that it would significantly affect travel behaviour.
Non-Motorised User Amenity	Professional judgement	No Change	Magnitude of impact is based on professional judgement regarding the "pleasantness" of a journey and is affected by the composition, speed or volume of traffic introduced as a result of the Scheme. The ISEP Guidance suggests that assessors use their judgement to determine whether pedestrian amenity is a significant effect and as such, the magnitude of change for pedestrian amenity has been defined qualitatively based on professional judgement.			
Fear and Intimidation	ISEP Guidance	No Change	No Change in step changes	One step change in level, with • <400 vehicles increase in average 18 hr two-way all vehicle flow; and/or • <500 HV increase in total 18 hr HV flow	One step change in level, but with • >400 vehicles increase in average 18 hr two-way all vehicle flow; and/or • >500 HV increase in total 18 hr HV flow	Two step changes in level
Road User and Pedestrian Safety	Professional judgement	No Change	Magnitude of impact to be based on professional judgement following analysis detailed in the Transport Assessment on collision history and the nature of movements associated with the Scheme.			
Hazardous/ Large Loads	Professional judgement	No Change	Magnitude of impact to be based on professional judgement following the outcomes of the abnormal loads assessment which will be an appendix to the Transport Assessment, frequency and size of			

Impact	Source	Neutral	Negligible	Low	Medium	High
			abnormal loads and consideration of wider traffic effects.			

Categorising Likely Significant of Effect

11.7.28 Following the determination of sensitivity and the magnitude of impact, the likely significance of effect will be calculated using the matrix presented in **Table 11-5**.

Table 11-5 Significance of Impact

Sensitivity / Magnitude	High	Medium	Low	Negligible
High	Major	Major/Moderate	Moderate	Negligible
Medium	Major/Moderate	Moderate	Moderate/Minor	Negligible
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

11.7.29 The effects identified above that are typically considered significant are classified as "Major – Moderate" or above, but are subject to professional judgement. Where an effect is identified as "Minor – Moderate", the upper end of the impact will be assumed and classified as significant for a robust analysis of potential effects. However, where appropriate, professional judgement will further determine the significance of a "Minor – Moderate" effect as to whether it is categorised as "Not Significant" or "Significant".

Defining the Effect

11.7.30 The nature of the effects will be defined as either:

- **Beneficial** - effects that produce benefits in terms of transportation and access;
- **Adverse** - effects that produce a negative effect in terms of transportation and access;
  or
- **Neutral** - meaning that changes produce no benefits or disbenefits in terms of transport and access (such as no reduction/increase in traffic, travel time, patronage or no loss/provision of service or facility).

Effect Duration

11.7.31 The effects can be temporary or permanent and short, medium, or long term in duration. These will be assessed in conjunction with the proposed construction programme. The definitions of these will be as follows:

- A short-term effect – an effect that will be experienced for 0-5 years;

- A medium-term effect – an effect that will be experienced for 5-15 years; and
- A long-term effect – an effect that will be experienced for 15 years or longer.

11.7.32 For the purposes of the assessment, construction phase effects are effects that are anticipated to result from activities during site preparation and enabling works, construction, and commissioning activities. The construction effects are expected to take 24 months and will be temporary and short-term. The decommissioning phase is expected to take between 12 and 24 months and will also be temporary and short-term.

Cumulative and In-Combination Effects

11.7.33 A cumulative assessment will be undertaken for the temporary construction phase, assessing the effects of the Scheme in conjunction with other local developments. A cumulative assessment will be provided within the Transport and Access of the ES. To understand cumulative effects, the Chapter will review background traffic growth using growth rates obtained from TEMPro. Where identified cumulative developments are not included within TEMpro data, traffic data will be added manually from the relevant planning application documents.

11.7.34 Any transport effects in-combination with other effects and/or from combined phases of work on the Scheme will also be identified in the Transport and Access Chapter. Any in-combination will then be assessed within a separate chapter of the ES. Where there are no in-combination effects, will also be stated in the Transport and Access Chapter.

11.7.35 The Zone of Influence ('ZoI') is the Study Area shown in **Figure 11-1**.

11.8 Assumptions, Limitations and Uncertainties

11.8.1 A number of assumptions will be made when forecasting the traffic generation of the Scheme, both during construction and operation. However, these forecasts will be developed by the Applicant and their consultants using a first principles approach based on professional judgement, experience of other developments similar in scale and nature to the Scheme and quantities of materials and infrastructure required. Therefore, they will represent a realistic estimation of traffic generation.

11.9 Conclusions on Scoping

Construction Phase

11.9.1 Construction elements such as Severance, driver delay, Non-Motorised Users ('NMU') delay, NMU amenity, fear and intimidation, road user and pedestrian

safety will be scoped in. This is due to the temporary increase in traffic, which could generate potentially significant effects.

11.9.2 Traffic movements associated with construction will generate the greatest number of vehicle movements. The ES will assess HGV, LGV and AIL trip generation and associated impacts. The ES will also assess the proposed construction routes.

11.9.3 The impacts of construction on PRoW's will be assessed in the ES. The ES will assess temporary disruption, diversions and any other safety concerns for PRoW users.

Operational Phase

11.9.4 As outlined above, it is considered that the significance of the environmental effects during the Operational Phase of the Scheme would be negligible and not significant in EIA terms with respect to Transport and Access and therefore a detailed assessment of the Operational Phase of the Scheme is proposed to be scoped out of the ES.

11.9.5 There are no significant effects predicted due to low vehicle numbers required once operational. It is assumed that any operational movements would fall within the ISEP guidance thresholds of less than a 30% change in total vehicle flows or 10% change in daily HGV flows and would therefore not be significant in EIA terms and not require further assessment.

Decommissioning Phase

11.9.6 As outlined above, it is assumed that the assessment of the Construction Phase would already present the worst-case in Transport and Access terms and capture all effects associated with the Decommissioning Phase. The oDEMP will mitigate the effects during the Decommissioning Phase. On that basis a separate assessment of the Decommissioning Phase is scoped out.

Hazardous and Large Loads

11.9.7 Significant effects associated with Hazardous Loads / Large Loads are not anticipated and will not be considered in the assessment. An Abnormal Load Assessment will be submitted as part of the DCO application which will identify the routing and road space requirements of Abnormal Indivisible Loads associated with the Scheme.

11.9.8 No likely significant effects in EIA terms are anticipated, and it is therefore proposed to scope Hazardous and Large Loads out of the ES.

Alternative Mode of Construction Access (Excluding Road)

11.9.9 There are no viable alternative modes of transport to the Site for construction materials, such as a means of rail or river access. As such, only access by road for construction vehicles will be considered within the assessment.

11.10 Summary of Scope

11.10.1 **Table 11-6** sets out the elements Scoped in and Scoped Out of the EIA in respect of Transport and Access.

Table 11-6 Summary of Elements Scoped in and Scoped Out

Element	Scoped in /Scoped Out	Rationale
Construction		
Severance	Scoped in	Due to the temporary increase in traffic, which could generate potentially significant effects.
Driver Delay	Scoped in	
Non-Motorised User Delay	Scoped in	
Non-Motorised User Amenity	Scoped in	
Fear and Intimidation	Scoped in	
Road Safety	Scoped in	
Hazardous and Large Loads	Scoped out	No likely significant effects in EIA terms are anticipated, and an Abnormal Load Assessment will be submitted as part of the DCO application.
Operation		
Severance	Scoped out	There are no significant effects predicted due to low vehicle numbers required once operational. It is assumed that any operational movements would fall within the ISEP guidance thresholds of less than a 30% change in total vehicle flows or 10% change in daily HGV flows and would therefore not be significant in EIA terms and not require further assessment. It is also expected to be a lower impact than the Construction Phase. Operational traffic flows will be provided to demonstrate this.
Driver Delay	Scoped out	
Non-Motorised User Delay	Scoped out	
Non-Motorised User Amenity	Scoped out	
Fear and Intimidation	Scoped out	
Road Safety	Scoped out	
Hazardous and Large Loads	Scoped out	No hazardous and large loads are expected in the Operational Phase.
Decommissioning		
Severance	Scoped out	It is assumed that the assessment of the Construction Phase would already present the
Driver Delay	Scoped out	

Element	Scoped in /Scoped Out	Rationale
Non-Motorised User Delay	Scoped out	worst-case in Transport and Access terms and capture all effects associated with the Decommissioning Phase. The oDEMP will mitigate the effects during the Decommissioning Phase. On that basis a separate assessment of the Decommissioning Phase is scoped out.
Non-Motorised User Amenity	Scoped out	
Fear and Intimidation	Scoped out	
Road Safety	Scoped out	
Hazardous and Large Loads	Scoped out	

12 Noise and Vibration

12.1 Introduction

12.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to noise and vibration effects on human receptors. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to noise and vibration. Matters that are proposed to be scoped in and out of the assessment are identified.

12.1.2 The proposed scope for assessing noise and vibration on heritage receptors are covered in **Chapter 10: Cultural Heritage**. The proposed scope for assessing impacts of noise and vibration on ecological receptors are covered in **Chapter 8: Biodiversity**.

12.2 Legislation, Planning Policy Context and Guidance

12.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

12.2.2 Relevant legislation includes:

- Control of Pollution Act ('CoPA') 1974 (Ref 225) – requires that Best Practicable Means ('BPM') (as defined in Section 72 of CoPA) are adopted to control construction noise on any given site as far as reasonably practicable; and
- Environmental Protection Act 1990 (Ref 165) – prescribes noise and vibration emitted from premises (including land) so as to be prejudicial to health or a nuisance as a statutory nuisance.

National Planning Policy and Guidance

12.2.3 Relevant national planning policy includes:

- Overarching National Policy Statement ('NPS') for Energy (EN-1) 2025 (designated January 2026) (Ref 8) sets out national policy for energy. Reference will be made to Section 5.12 and Paragraphs 5.12.6 to 5.12.12;
- NPS for Renewable Energy Infrastructure (EN-3) 2025 (designated January 2026) (Ref 9) with reference to Paragraphs 2.5.2, 2.10.112 – 2.10.118 and 2.10.153 - 2.10.154;
- NPS for Electricity Networks Infrastructure (EN-5) 2025 (designated January 2026) (Ref 10) with reference to paragraphs 2.9.27 - 2.9.44;

- The Noise Policy Statement for England ('NPSE') (2010) (Ref 227) sets out how noise policy should be applied to ensure the effective management of noise associated with development. The NPSE sets definitions for 'significant adverse effects' and 'adverse effects'; and
- Planning Practice Guidance for Noise (Ref 228) provides further guidelines that are designed to assist with the implementation of the noise requirements set out in the NPSE.

Local Planning Policy

12.2.4 Relevant local planning policy includes:

- East Riding of Yorkshire Local Plan Update (2020-2039) (adopted 2025) (Ref 13) with reference to Policy EC5: Supporting the renewable and low carbon energy sector, which identifies that noise from new energy developments should be acceptable and local impacts should be considered.

12.3 Consultation

12.3.1 Consultation will be undertaken with statutory parties, including the Environmental Health Officer at East Riding of Yorkshire Council ('ERYC'). Initial consultation will cover the noise and vibration Study Area, sensitive receptors and noise monitoring locations. Further consultation will cover the assessment methodology, assessment results and mitigation.

12.4 Study Area

12.4.1 Study Areas have been defined to include construction and operational noise and vibration receptors likely to be at risk from possible direct and indirect impacts that might arise from the Scheme.

12.4.2 The Scoping Site Boundary consists of the Humberhead Sites and the Cable Route Search Corridor ('CRSC'). Both construction and operational noise effects will occur from the Humberhead Sites. As such, the Humberhead Sites Study Area is dictated by operational noise, which has more widespread effects than construction noise. As there are no operational noise effects from the CRSC, the Study Area is dictated by construction noise.

12.4.3 The Study Areas for the Scheme are illustrated in **Figure 12-1: Noise and Vibration Study Areas, Sensitive Receptors and Noise Monitoring Locations**.

Construction Noise Study Area

12.4.4 For construction noise effects from the Scheme, the area in which impacts are expected is defined as 300 m. This is based on guidance in BS 5228-1 (Ref

229), which states construction noise predictions are generally reliable up to 300 m. As such, the construction noise Study Area is set at a distance of 300 m from the Humberhead Sites and CRSC.

Construction Vibration Study Area

12.4.5 BS 5228-2 (Ref 230) does not contain any information on distances that construction vibration should be assessed up to. As such, reference is made to Design Manual for Roads and Bridges ('DMRB') LA 111 (Ref 231), which identifies a distance of 100 m as sufficient to encompass vibration sensitive receptors. As such, the construction vibration study area is set at a distance of 100 m from the Humberhead Sites and the CRSC.

Operational Noise Study Area

12.4.6 The Study Area for operational Battery Energy Storage System ('BESS') and On-site Substations (both 132 kV and 400 kV) is set at 1 km, which is based on the distance which the International Organisation for Standardisation ('ISO') 9613-2 (Ref 232) calculation methodology is valid to. This is combined with a distance of 500 m from the Humberhead Sites, which is based on experience of Conversion Units (the main noise source associated with Solar Panels) noise propagation distances from previous solar farm projects[6].

Construction Traffic Noise Study Area

12.4.7 A Study Area of 50 m either side of construction traffic routes has been defined based on guidance in the DMRB LA111. As such, the construction traffic noise study area is set at a distance of 50 m from the construction traffic routes, which will be identified as part of the outline Construction Traffic Management Plan ('oCTMP').

12.5 Baseline Conditions

12.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to noise and vibration.

12.5.2 The existing land uses around the Scheme are primarily agricultural. There are individual and clusters of residential properties located adjacent to the Site.

12.5.3 The main source of existing noise contributing to the ambient sound level in the vicinity of the Scheme originates from local road traffic, specifically traffic on the M62, A163, A1079 and A614. The majority of the Site is made up of farmland, so seasonal agricultural activities contribute to ambient sound

[6] This approach has been applied in consented solar farm projects, the most relevant being East Yorkshire Solar Farm - https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010143-000277-6.1%20Chapter%2011%20Noise%20and%20Vibration.pdf

conditions. Additionally, industrial sites are located around the Site and will generate noise in their locality. The most notable of these sites are North Cave Quarry and Holme Industrial Estate.

12.5.4 Sensitive receptors have been identified using Ordinance Survey Addressbase+ data. Sensitive receptors will be confirmed in the Environmental Statement through site visits and consultation with ERYC.

12.5.5 Baseline sound monitoring will be undertaken at selected locations (subject to land access) to define representative baseline data at noise-sensitive receptors in the Study Areas. The monitoring procedures will follow guidance from BS 7445 (Ref 233) and BS 4142 (Ref 234).

12.5.6 Unattended monitoring for a minimum period of one-week will be undertaken to define baseline sound conditions at sensitive receptors within the operational noise Study Area. For sensitive receptors within the construction noise Study Area that will be affected by noise during core work hours, attended monitoring will be undertaken to define representative baseline sound conditions.

12.5.7 Sensitive receptors and unattended monitoring locations are illustrated in **Figure 12-1: Noise and Vibration Study Areas, Sensitive Receptors and Noise Monitoring Locations**.

12.5.8 A weather station will also be installed for the duration of the sound surveys so any periods of adverse weather conditions can be identified and omitted from noise data.

12.5.9 Prior to undertaking the baseline sound survey, a detailed methodology will be prepared and consulted on with ERYC.

12.6 Potential Effects and Mitigation

12.6.1 This section sets out the potential effects of the Scheme on noise and vibration.

Construction and Decommissioning

12.6.2 Potential noise and vibration effects during the construction and decommissioning stages are likely to include works activities typical of major infrastructure installation, such as:

- Use of mechanical plant such as excavators, tracked dozers, telehandlers, cranes, concreting plant and piling rigs for equipment bases, and trenching equipment for cable installation;
- Temporary construction compounds, welfare cabins, generators and storage areas that may also contribute intermittent noise during the working day;

- Construction traffic will include deliveries of Solar Panels, Mounting Structures, Conversion Units, BESS Enclosures and other materials via Heavy Good Vehicles ('HGVs'). These movements have the potential to cause perceptible noise increases, particularly where access routes pass close to residential properties or sensitive community receptors; and
- Trenchless cable installation, which may include Horizontal Directional Drilling ('HDD') machinery outside of core hours due to the nature of the activity requiring continuous drilling over the working period of any given drill.

12.6.3 Construction traffic movements on public roads have the potential to cause temporary disturbance. It is therefore important that the routing and timing of vehicle movements is carefully managed. However, any increases in road traffic noise levels during works will be temporary, short-term, and dependent on the actual number of traffic movements.

12.6.4 Road traffic can also cause vibration; however, DMRB LA 111 states: "*operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effects*". Whilst this quote relates to the assessment of a highway scheme, it is relevant as it provides information that significant vibration effects would only be generated by traffic movements on a road with an irregular surface. It is assumed that ERYC maintain good quality conditions (i.e. free from potholes) for highways used to access the Scheme. Therefore, no significant construction traffic vibration effects are expected, and an assessment of construction traffic vibration has therefore been scoped out.

12.6.5 Measures to control noise as defined in Annex B of BS 5228-1:2009+A1:2014 and measures to control vibration as defined in Section 8 of BS 5228-2:2009+A1:2014 will be adopted where reasonably practicable. These measures represent 'Best Practicable Means' ('BPM') (as defined by Section 72 of CoPA1974) to manage noise and vibration emission from construction activities. Examples of BPM that may be implemented during construction works are presented below:

- Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use;
- Appropriate routing of construction traffic on public roads and along access tracks;
- Drop heights of materials will be minimised;
- Plant and vehicles will be sequentially started up rather than all together;
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas.

Where possible, loading and unloading will also be carried out away from such areas; and
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications.

12.6.6 Embedded measures relevant to the construction phase will be described within the outline Construction Environmental Management Plan ('oCEMP') and in the outline Decommissioning Environmental Management Plan ('oDEMP') for the decommissioning phase.

Operation and Maintenance

12.6.7 The potential noise effects during operation of the Scheme are likely to include noise from plant located in the Humberhead Sites,such as:

- Conversion units associated with the Scheme, which can produce tonal hum, fan noise and low frequency components, particularly during periods of high electrical load;
- Substations (both 132kV and 400kV) and sub-distribution switch rooms, housing electrical equipment such as main transformers, that operate continuously and may generate tonal or broadband noise, especially under peak generation or cooling cycles;
- BESS components including the BESS units, conversion units (including cooling fans) and switchgear which typically operate both day and night to manage charging, discharging and thermal regulation of the BESS units;
- Fixed PV solar panels do not generate noise during operation, however there may be some occasional low-level mechanical noise from motors for the tracking PV module mounting structure (both Fixed and Tracking Panels will be assessed).

12.6.8 As no on-site staff will be required, operation traffic flows will be minimal and would not have a material effect on baseline road traffic noise levels. As such, operational traffic noise has been scoped out of the assessment.

12.6.9 Maintenance activities would include the replacement of equipment such as Solar Panels and BESS when required. These works may include use of plant that would generate temporary noise and vibration that may be perceptible off-site along with associated traffic on local roads. Construction plant and traffic associated with Operational Replacement activities will be no greater than construction-phase.

12.6.10 As cables in the Cable Route Corridor ('CRC') would be buried, noise would not be perceptible at the surface. As such, the assessment of operational noise covers only proposed infrastructure in the Humberhead Sites.

12.6.11 Plant items such as Solar Arrays, Solar Mounting Structures, and cabling (both on-site and via the cable route) will not produce any operational noise emissions.

12.6.12 Moving parts in identified plant are restricted to cooling fans, which generate low levels of vibration that would not be perceptible off-site. As such, there will be no associated operational vibration effects and operational vibration is scoped out of any further assessment.

12.6.13 As part of the Scheme design, the location of noise generating plant will be informed by noise survey results and optimised to minimise noise at receptors, including locating the Conversion Units and BESS Area in areas away from large concentrations of receptors, such that noise emissions are less impactful.

12.6.14 As the Scheme design is progressed, the selection and specification of plant and equipment with low noise emission and properly attenuated supply and extract terminations will help to minimise noise emissions. The use of acoustic enclosures, localised screening, silencers will be considered as appropriate. Any required mitigation measures will be identified through the ES and secured in the Operational Environmental Management Plan ('OEMP') which will be secured via a requirement of the DCO.

12.7 Methodology

12.7.1 This section describes the methodology proposed for the assessment of noise and vibration effects.

12.7.2 All noise effects are assumed to be local within the defined Study Area, only affecting nearby sensitive receptors, and are direct in nature; however, defining a likely effect and whether it is significant or not depends on the nature of a noise source.

12.7.3 Likely effects have been defined based on guidance set out in national policy. The NPSE sets definitions for 'significant adverse effects' and 'adverse effects' using the concepts:

5) Lowest Observed Adverse Effect Level ('LOAEL') – the level above which, as an average response, adverse effects on health and quality of life can be detected; and

6) Significant Observed Adverse Effect Level ('SOAEL') – the average response level above which, as an average response, significant adverse effects on health and quality of life occur.

12.7.4 A new source of noise is assessed through the absolute noise level it generates at sensitive receptors. Where an exceedance of the defined SOAEL for each noise source occurs, it is an indication of a likely significant effect. However, where an existing noise source is changed (i.e. construction traffic

changing road traffic noise levels), the assessment of the effect level due to the change in noise refers to guidance within IEMA Guidelines for environmental noise impact assessment (Ref 235).

12.7.5 The NPSE is based on community exposure response relationships and noise insulation of a typical dwelling. Consequently, an assessment based on LOAELs and SOAELs cannot be applied to non-residential sensitive receptors (such as places of worship and Public Rights of Way). As such, the approach to the assessment of non-residential receptors differs from that adopted for residential receptors. Non-residential receptors are considered on a case-by-case basis by considering the applicable design criteria for good internal noise levels.

Construction and Decommissioning Noise and Vibration

12.7.6 Noise and vibration levels associated with construction and decommissioning works will be assessed at chosen sensitive receptors. Annex E of BS 5228-1 provides example methods for the assessment of the significance of construction noise effects. With reference to the NPSE, the LOAEL, and SOAEL thresholds have been set in **Table 12-1** below.

Table 12-1 Thresholds of potential effects of construction and decommissioning noise at residential buildings

Time Period	Threshold Value (LAeq, T dB)	
	LOAEL	SOAEL
Day (07:00 – 19:00) Saturday (07:00 – 13:00)	65	75
Evening (19:00 – 23:00) Weekend (13:00 – 23:00 Saturdays and 07:00 - 23:00 Sundays)	55	65
Night (23:00 – 07:00)	45	55

12.7.7 **Table 12-2** details Peak Particle Velocity ('PPV') levels (a standard measure of vibration effects) and their potential effect on humans based on guidance from BS 5228-2.

12.7.8 At receptors where noise levels above the SOAEL are predicted, further consideration of whether an effect is significant is undertaken using professional judgement, taking account of the duration and frequency of the effect, as well as the time of day that the effect would be experienced.

12.7.9 In addition to human annoyance, building structures may be damaged by high levels of vibration. The levels of vibration that may cause building damage (as set out in Annex B of BS 5228-2 are far in excess of those that may cause annoyance. Consequently, if vibration levels are controlled to

those specified by annoyance, then it is highly unlikely that buildings will be damaged by demolition and construction vibration.

Table 12-2 Thresholds of potential effects of construction and decommissioning vibration (human response)

Effect Level	PPV Vibration Level	BS 5228-2 Description of Impact
LOAEL	0.3 mm/s	Vibration might be just perceptible in residential environments.
SOAEL	1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but it can be tolerated if prior warning and explanation has been given to residents.

12.7.10 The temporary changes in road traffic noise levels along the local road network due to construction traffic will be assessed based on guidance from the IEMA Guidelines for environmental noise impact assessment. Assessment criteria are presented in **Table 12-3**.

Table 12-3 Construction traffic noise assessment criteria

Effect Level	Magnitude Criteria
Negligible	≥ 0 dB and < 1 dB
Minor	≥ 1 dB and < 3 dB
Moderate	≥ 3 dB and < 5 dB
Major	≥ 5 dB

Operational Noise

12.7.11 The impact of the proposed operational plant such as noise from the conversion units, Sub-distribution Switch Rooms, Substations, BESS equipment and solar panel tracking motors, will be assessed following guidance from BS 4142. Reference is also made to the Association of Noise Consultants ('ANC') Guide to BS 4142 (Ref 236) and BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (Ref 237) when defining minimum values for LOAEL and SOAEL.

12.7.12 The assessment criteria for noise from fixed plant installations are summarised in **Table 12-4**. The assessment will be based on available information on the operating conditions and the levels of noise generated by plant. Typical background noise levels used to define assessment criteria will be determined based on guidance within BS 4142.

Table 12-4 Operational noise assessment criteria

Effect Level	Rating Level (External) at Receptor, $L_{Ar, Tr}$	
	Daytime (07:00-19:00) and Evening (19:00-23:00)	**Night-time (23:00-07:00)**
LOAEL	Less than or equal to the typical background level ($L_{A90,T}$) – minimum of 35 dB $L_{Ar,Tr}$	Less than or equal to the typical background level ($L_{A90,T}$) – minimum of 30 dB $L_{Ar,Tr}$
SOAEL	Greater than 10 dB above the typical background noise level – minimum of 45 dB $L_{Ar,Tr}$	Greater than 10 dB above the typical background noise level – minimum of 40 dB $L_{Ar,Tr}$

Maintenance Noise and Vibration

12.7.13 Temporary noise and vibration effects may occur due to maintenance activities, which are comparable to effects during the construction and decommissioning phases. As such, assessment criteria from **Table 12-1** is applied for maintenance noise and criteria from **Table 12-2** is applied for maintenance vibration.

Cumulative and In-Combination Effects

12.7.14 The assessment will consider the potential for cumulative and in-combination noise and vibration effects arising from the Scheme together with other reasonably foreseeable developments located within the noise and vibration Zone of Influence ('ZoI'). The ZoI will be defined by the combined noise and vibration Study Areas.

12.7.15 Where sufficient information is available from cumulative development planning submissions, cumulative effects will be assessed quantitatively. Where information is limited, a qualitative assessment will be undertaken on a reasonable worst-case basis.

12.7.16 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects Chapter of the ES. Receptors identified within the noise assessment will be assessed within in-combination effects assessment.

12.8 Assumptions, Limitations and Uncertainties

12.8.1 Any measurement of existing ambient or background sound levels will be subject to a degree of uncertainty. Environmental sound levels vary between days, weeks, and throughout the year due to variations in source levels and conditions, meteorological effects on sound propagation, and other factors. Hence, any measurement survey can only provide a sample of the ambient levels, and a small degree of uncertainty will always remain in the values

taken from such a measurement survey. The proposed unattended period of a minimum of seven days is considered appropriate for reducing uncertainties that may occur due to variations in diurnal noise levels.

12.8.2 Every effort will be made to ensure that measurements are undertaken in such a way as to provide a representative sample of conditions, such as avoiding periods of adverse weather conditions, and school holiday periods (which are often considered to result in atypical sound levels). Consequently, the level of uncertainty in measurements will be reduced as far as reasonably practicable.

12.8.3 Noise and vibration effects during the decommissioning phase of the Scheme will be similar to or less than noise and vibration effects during the construction phase. The noise assessment presented for the construction phase will therefore be considered representative, or an overestimate, of the decommissioning phase. As such a separate assessment for noise from the decommissioning phase is not required.

12.8.4 Construction works noise levels will be predicted following guidance from BS 5228-1 which provides a realistic estimate of sound propagation from construction plant. The predictions will use representative noise levels, sourced from industry standard guidance documents such as BS 5228-1, for typical items of plant that are used in such developments.

12.8.5 Construction phase vibration will be assessed based on historic vibration measurement data from relevant guidance documents including BS 5228-2 and Transport Research Laboratory ('TRL') Report 429 (Ref 238).

12.8.6 Predictions of operational plant and activities sound pressure levels will be undertaken following guidance from the ISO 9613-2:2024 'Attenuation of sound during propagation outdoors' (Ref 239), which are based on an assumption of moderate downwind propagation, and hence could be considered as a worst-case calculation. However, the standard also indicates an estimated accuracy of ±3 dB(A) in predicted levels.

12.9 Summary of Elements Scoped In and Scoped Out

12.9.1 A summary of the elements scoped into and out of the assessment of noise and vibration is presented in **Table 10-3**.

Table 12-5 Elements scoped in and out of the assessment of noise and vibration

Element	Scoped in / Scoped out	Rationale
Construction		
Noise and vibration levels associated with construction works	Scoped in	Temporary noise and vibration emissions from construction works may adversely impact on sensitive receptors.

Element	Scoped in / Scoped out	Rationale
Construction traffic noise	Scoped in	Temporary noise from construction traffic movements may adversely affect receptors near public roads that are part of construction traffic routes.
Construction traffic vibration	Scoped out	It is assumed that ERYC will maintain good quality conditions (i.e. free of potholes) for highways used to access the Scheme
Operation		
Operational noise	Scoped in	Permanent noise emissions from noise generating Scheme components may adversely affect nearby sensitive receptors.
Operational traffic noise	Scoped out	Operational traffic flows (limited primarily to occasional maintenance visits and periods of replacement of equipment), would be minimal and not sufficient to result in a material 1 dB increase in noise, which would require a 25% increase in traffic.
Vibration from the operation of the Scheme	Scoped out	No plant that would generate perceptible levels of vibration are part of the Scheme and, as such, there will be no associated operational vibration effects. It is proposed that operational ground-borne vibration is scoped out of any further assessment.
Noise and vibration levels associated with replacement activities	Scoped in	Temporary noise and vibration emissions from maintenance works (including noise from traffic on the local road network) may adversely impact on sensitive receptors.
Decommissioning		
Noise and vibration levels associated with decommissioning works	Scoped in	Temporary noise and vibration emissions from decommissioning works may adversely impact on sensitive receptors.
Decommissioning traffic noise	Scoped in	Temporary noise from construction traffic movements may adversely affect receptors near public roads that are part of construction traffic routes.
Decommissioning traffic vibration	Scoped out	For the same reasons outlined in the row above, an assessment of decommissioning traffic vibration has been scoped out.

13 Socio-Economics

13.1 Introduction

13.1.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to socio-economics. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to socio-economics. Matters that are proposed to be scoped in and out of the assessment are identified.

13.2 Legislation, Planning Policy Context and Guidance

13.2.1 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance. Further details of which will be provided in the socio-economics chapter of the Environmental Statement ('ES').

Legislation

13.2.2 There is no applicable legislation specific to the assessment of socio-economics.

National Planning Policy

13.2.3 Relevant national planning policy includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') 2025 (designated January 2026) (Ref 8), with particular reference to section 5.13 in relation to socio-economics; and
- NPS for Renewable Energy Infrastructure ('EN-3') 2025 (designated January 2026) (Ref 9), where applicable includes the additional consideration of socio-economic impacts associated specifically with solar photovoltaic generation schemes. In particular, this relates to the socio-economic benefits of retaining site infrastructure after its operational life.

Local Planning Policy

13.2.4 Relevant local planning policy includes:

- East Riding of Yorkshire Local Plan Update (2020-2039) (adopted 2025) (Ref 13). Relevant policies for the assessment of socio-economics includes Policy EC1, which seeks to supporting the growth and diversification of the East Riding economy and Policy EC2, which relates to the visitor economy; and
- East Riding of Yorkshire and Kingston Upon Hull Joint Minerals Local Plan 2016 – 2033 (Ref 15) (adopted 2019), which provides mineral planning

policies and allocations to meet the need and safeguard existing resources for mineral development during the plan period.

Guidance

13.2.5 Relevant industry guidance includes:

- Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland (Ref 241);
- National Economic Development Policy (Ref 242) with particular reference to the Government's Industrial Strategy White Paper which outlines ambitions to increase productivity and drive growth, one way this is highlighted is through Clean Growth; to lead the world in the development, manufacture and use of low carbon technologies; and
- Yorkshire and the Humber Climate Action Plan (2024) (Ref 243), with particular reference to Proposed Actions G3 (support the greatly accelerated decarbonisation of energy supply), and G6 (promote significant expansions in community energy).

13.3 Consultation

13.3.1 Information gathered during consultation will be used as appropriate to help inform the scope of the assessment. Consultation will be ongoing and throughout the project as necessary. Specific engagement with East Riding of Yorkshire Council ('ERYC') will be undertaken to discuss the scope building on this.

13.4 Study Area

13.4.1 The potential economic and employment impacts of the Scheme, both temporary and permanent, will be considered in relation to a key economic area, defined by Local Planning Authority boundary, typical travel time from the site, and relevant demographic and economic data.

13.4.2 The Study Area for socio-economic receptors (residential properties, local businesses, visitor attractions relevant for tourism, farming businesses, community facilities, open space, recreational assets and development land) reflects receptors that could be directly or indirectly affected by the Scheme. The Study Area for direct effects is the area within the Scoping Site Boundary, comprising the Humberhead Sites and Cable Route Search Corridor ('CRSC'), including the extent of receptors beyond this boundary where they are contiguous. The CRSC will be reduced in extent following surveys and consultation and will be refined to exclude any residential or business properties. The Study Area for indirect effects will be defined at a later stage (ahead of production of the ES chapter) capturing the area (and relevant

receptors) that could potentially be adversely impacted by the Scheme from a socio-economic perspective.

13.5 Baseline Conditions

13.5.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to socio-economics.

13.5.2 The potential impacts arising from the Scheme will be assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. The key indicators and measures of the Study Areas will be established for:

- Population and deprivation;
- An overview of the local economies;
- The local labour markets; and
- Land use (excluding agricultural land quality).

13.5.3 A high-level summary of baseline conditions has been presented in the following paragraphs, based upon review of the following documents:

- Office for National Statistics ('ONS'), 2011 Census (Ref 244) and 2021 Census data (Ref 36);
- Ministry of Housing, Communities and Local Government, (2025); English indices of deprivation (Ref 245);
- ONS, (2025); Business Register and Employment Survey (2024) (Ref 246);
- ONS, (2025); Gross Value Added (Balanced Approach) 2023 (Ref 247);
- ONS (2026); Claimant Count by sex and age (January 2026) (Ref 248);
- ONS (2025); Annual Population Survey (January 2024 to December 2024) and (October 2024 to September 2025) (Ref 249);
- ONS (2024); Mid-Year Population Estimates (Ref 250); and
- ONS (2022); Population projections – local authority based by single year of age (Ref 251).

13.5.4 The Scheme is located within the area administered by ERYC. This section will therefore establish the baseline conditions relative to this area in comparison to the wider Yorkshire and the Humber region, and England and Wales.

Population and Deprivation

13.5.5 Based on Census data, the usual resident population of East Riding of Yorkshire has grown from 334,179 in 2011 to 342,215 in 2021 representing an increase of 2.4%. This increase is lower than that exhibited in Yorkshire and the Humber (3.7%) and England and Wales as a whole (6.3%).

13.5.6 In terms of deprivation, East Riding of Yorkshire is ranked 203rd out of England's 296 local authority areas, where 1st is most deprived. Of all Lower

layer Super Output Areas ('LSOAs')[7] in East Riding of Yorkshire, 10.3% are ranked amongst the 20% most deprived LSOAs nationally, while 42.7% of LSOAs in East Riding of Yorkshire are ranked amongst the 30% least deprived.

Local Economy and Labour Market

13.5.7 According to the Office for National Statistics, Gross Value Added ('GVA') per head in 2023 is lower in East Riding of Yorkshire (£26,777 per head of population at current basic prices) than in Yorkshire and the Humber (£29,285) and across England as a whole (£36,632).

13.5.8 In 2023, the GVA of the construction industry in England was approximately £133.2 billion with GVA per head for workers being approximately £102,649. In 2023, the GVA of the construction industry in East Riding of Yorkshire was approximately £0.55 billion with GVA per head for workers being approximately £76,142.

13.5.9 In 2024, the Annual Population Survey showed that 41.4% of usual residents aged 16 to 64 in East Riding of Yorkshire hold degree-level qualifications (Regulated Qualifications Framework ('RQF') Level 4 or above), which is higher than the rate recorded in Yorkshire and the Humber (39.3%), but lower than the rate in England and Wales (46.6%). In East Riding of Yorkshire, 5.1% of the population hold no qualifications, compared with 7.8% in Yorkshire and the Humber and 6.7% across England and Wales.

13.5.10 The Annual Population Survey recorded that, between October 2024 to September 2025, the number of people of employment age (16- to 64-year-olds) was 193,900 in East Riding of Yorkshire. The economic activity rate (defined as the proportion of the population aged 16 to 64 who are economically active) was 82.6% in East Riding of Yorkshire, higher than the rates across Yorkshire and the Humber (76.4%) and England and Wales (79.2%).

13.5.11 The Annual Population Survey recorded the unemployment rate for working-age residents (16- to 64-year-olds) as 4.1% in East Riding of Yorkshire, slightly lower than the average rates across Yorkshire and the Humber (4.3%) and England and Wales (4.4%). The claimant count (as a proportion of residents aged 16 to 64 years), recorded in January 2026, was 2.4% in East Riding of Yorkshire, lower than the rates across Yorkshire and the Humber (4.0%) and England and Wales (3.9%).

[7] LSOAs are a statistical measure for small areas comprising between 400 and 1,200 households and have a usual resident population of between 1,000 and 3,000 persons.

Employment

13.5.12 In 2024, the Business Register Employment Survey showed that the broad industrial groups that employ the most people in East Riding of Yorkshire are the Manufacturing and Health sectors (both 13.7%). The manufacturing sector in East Riding of Yorkshire represents a larger proportion of employment than in Yorkshire and the Humber (10.4%) and England and Wales (7.3%). However, the health sector in East Riding of Yorkshire represents a lower proportion of employment than in Yorkshire and the Humber (14.7%) and across England and Wales (13.9%).

13.5.13 The mining, quarrying and utilities broad industrial group (which includes employment from the generation of energy) represents 1.9% of employment by number of jobs in the East Riding of Yorkshire, which is higher than in Yorkshire and the Humber and across England and Wales (both 1.2%).

13.5.14 Employment in the construction industry is 6.1% in the East Riding of Yorkshire, higher than the regional (5.4%) and national averages (4.9%).

Land use Receptors including farming businesses

13.5.15 The area within the Scoping Site Boundary is mostly used for agricultural purposes, being characterised by large scale regular-shaped fields across a number of agricultural landholdings. Businesses farming the Humberhead Sites land total 23 businesses all engaged in arable farming.

13.5.16 In respect of recreational routes, there is a network of Public Rights of Way ('PRoW') which are found in and around the Scheme and provide pedestrian connectivity between adjacent settlements. There are also several PRoW which could be impacted by the CRSC. More information on PRoWs is provided in **Chapter 11: Transport and Access**.

Residential Properties

13.5.17 No residential receptors are located within the Humberhead Sites.

13.5.18 There are a number of isolated farms and rural properties within the CRSC; however, these will all be excluded from the refined Cable Route Corridor ('CRC') boundary. There are also several settlements within 2 km of the CRSC including the villages of Thornton and Bielby.

13.5.19 Nearby residential receptors within the Study Area include (but are not limited to) isolated farms and rural properties as well as a number of settlements including the towns of Market Weighton and Pocklington both within 2 km from the Scheme. There are also a number of small villages and hamlets within 2 km including the villages of Holme-on-Spalding-Moor, Shiptonthorpe, Londesborough, Allerthorpe and Seaton Ross.

Community Facilities

13.5.20 There are no community facilities within the Scoping Site Boundary.

13.5.21 The closest schools to the Scoping Site Boundary and within 2 km are Allerthorpe School (0.4 km) in the village of Allerthorpe, Holme-on-Spalding-Moor Primary School (0.8 km) in the village of Holme-on-Spalding-Moor, and Pocklington School (1.7 km) in the town of Pocklington.

13.5.22 The closest primary healthcare facilities to the boundary are Holme-on Spalding-Moor Surgery (1.1 km) in the village of Holme-on-Spalding-Moor and Pocklington Group Practice (1.5 km) in the town of Pocklington.

Business Premises

13.5.23 Other than farm premises consisting of small scale farm buildings such as barns and sheds, there are no business premises within the Humberhead Sites.

13.5.24 The business premises located within the CRSC include the following, however these will all be excluded from the CRSC once refined into the CRC:

- Business premises located in the Holme Industrial Estate comprising of car dealerships and repair services, an office furniture shop, an engineer, an agricultural service, and a pottery class studio; and
- Other business premises located within the CRSC comprising warehouses, an energy supplier, a training centre, a landscape gardener, an e-commerce service and a water sports park.

13.5.25 The business premises located within 2 km of the Scoping Site Boundary include those located:

- In and around the village of Holme-on-Spalding-Moor comprising of a carpenter, a gun shop, a butchers, a pharmacy, a nail salon, a driving school, a vehicle repair shop, a building firm, a business management consultant and a bakery;
- In and around the town of Pocklington comprising a pet groomer, an electrician, a beauty salon, a massage therapist, coffee shop, physiotherapist and a café; and
- In the Broadhelm Business Park comprising a petrol station, a concrete supplier, a tyre manufacturer, a home improvement shop, vehicle repair shops, a fertiliser supplier, a truck supplier, a double-glazing installer, a commercial printer and a gym.

Development Land

13.5.26 Most of the Humberhead Sites lie entirely or partly within a mineral safeguarding area set out by the East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033.

13.5.27 There are no other development land allocations within the Scoping Site Boundary. This includes no other mineral safeguarding areas, no mineral consultation areas, waste safeguarding areas or transport safeguarding areas.

Visitor Accommodation

13.5.28 The only visitor accommodation located within the Scoping Site Boundary is at Allerthorpe Lakeland Park Campsite which will be excluded from the refined CRC. There are a number of accommodation facilities within 2 km of the Scoping Site Boundary including:

- Ye Olde Red Lion Hotel, Holme-on-Spalding-Moor;
- Twelve Oaks Campsite, Holme-on-Spalding-Moor;
- The Old Gravel Pit Lodges, Pocklington;
- South Lea Caravan Park, Pocklington;
- Allerthorpe Golf & Country Park (Holiday Park), Allerthorpe;
- Holly Tree Farm Guest House, Hayton;
- Robeanne House Holiday Accommodation, Shiptonthorpe; and
- House Martins Camping, Shiptonthorpe.

Tourism and recreation

13.5.29 As noted in the East Riding of Yorkshire Local Plan, the tourism offer includes the local area's Market Towns, diverse coastline, wildlife, rural landscapes and waterways. There are no visitor attractions or recreational resources within the Humberhead Sites Boundaries. The only such receptors within the CRSC are the historic locks along the Pocklington Canal (Silburn Lock, Giles Lock, Sandhill Lock and Coates Lock and Bridge) and the Market Weighton Canal Trail.

13.5.30 Notable visitor attractions and recreational resources within 2 km from the Scoping Site Boundary include Everingham War Memorial, Everingham Hall & Park, Ellerker House Gardens, Allerthorpe Golf & Country Park, Yorkshire Wolds Way hiking area, North, Londesborough Park and garden.

13.5.31 The proposed Yorkshire Wolds Area of Outstanding Natural Beauty, currently under consideration by Natural England for designation as a National Landscape, lies within 2 km of the Scoping Site Boundary and includes the Yorkshire Wolds Way National Trail.

Future Baseline

13.5.32 It is anticipated that the construction phase would take place over 24 months, and operational phase of the Scheme is proposed to be 60 years.

13.5.33 The population projections for local authorities based by single year of age forecast will be used in the ES to estimate the population of the East Riding of Yorkshire.

13.5.34 There is a high level of uncertainty with respect to the future baseline of existing local land uses, other than where future planned uses are known (such as future developments, where planning applications, permissions and local plan allocations have been considered). Therefore, for the purposes of this assessment, the future baseline with respect to local land uses (including residential properties, local businesses, farming businesses, open space, community facilities, visitor attractions, and development land) is expected to be in line with the existing baseline conditions set out above. This assumption is true for decommissioning which is expected 60 years after commencing operation and is anticipated to take approximately 12 to 24 months.

13.6 Potential Effects and Mitigation

13.6.1 This section sets out the potential effects of the Scheme on socio-economics. Mitigation measures relevant to socio-economics are included in **Appendix 1-A: Commitments Register** of this Scoping Report.

13.6.2 The Scheme may generate a range of socio-economic effects, some of which would be temporary, whilst others would be permanent. Where appropriate, evaluation of job creation associated with the Scheme will include information related to the sustainability of the jobs created including the extent to which they will help develop the skills needed for the UK's transition to Net Zero. For the purposes of the ES, due consideration will be given to the following effects for each phase of the Scheme:

Construction and Decommissioning

13.6.3 The potential socio-economic effects under consideration during the construction and decommissioning phases are as follows:

- Temporary employment and training during the construction and decommissioning phases;
- Gross Value Added during the construction and decommissioning phases;
- Effects on the tourism industry and on recreation in the local area, considering the effect on visitor attractions and recreational walking and cycling routes;
- Potential temporary and/or permanent adverse land take impacts on residential properties, local businesses, farming businesses, PRoW or recreational routes, or development land; and
- Potential temporary and/or permanent adverse changes to accessibility including severance of access to residential properties, local businesses, farming businesses, visitor attractions, community facilities, open space, PRoW or recreational routes, or development land.

Operation and Maintenance

13.6.4 The potential socio-economic effects under consideration during the operation and maintenance phase are as follows:

- Creation of long-term employment opportunities in respect of ongoing operation and maintenance, including periodic employment associated with the replacement of solar panels and batteries, as required, once the Scheme is operational;
- Effects on the tourism industry and on recreation in the local area, considering the effect on visitor attractions and recreational walking and cycling routes;
- Potential temporary and/or permanent adverse land take impacts on residential properties, local businesses, farming businesses, PRoW or recreational routes, or development land; and
- Potential temporary and/or permanent adverse changes to accessibility including severance of access to residential properties, local businesses, farming businesses, visitor attractions, community facilities, open space, PRoW or recreational routes, or development land.

Mitigation

13.6.5 Embedded mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on socio-economic resources and receptors. In relation to amenity effects on private assets, further details of specific measures will be set out in relevant chapters of the ES, including: **Chapter 7: Landscape and Visual**, **Chapter 11: Transport and Access**, **Chapter 12: Noise and Vibration**, **Chapter 14: Other Environmental Matters (Air Quality).**

13.6.6 Dust emissions, transport-related noise, and noise emissions relating to design and selection of plant, and visual intrusion would be managed through the implementation of an outline Construction Environmental Management Plan ('oCEMP'), outline Operation Environmental Management Plan ('oOEMP') and an outline Decommissioning Environmental Management Plan ('oDEMP').

13.6.7 To manage the impacts of construction traffic on the highway network, a Construction Traffic Management Plan ('CTMP') will be in place (in accordance with the outline CTMP ('oCTMP) which will be submitted with the DCO Application). It will set out management measures for traffic routing, timing and access to the Scheme. It is expected that any temporary diversions of PRoWs during the construction phase put in place will be monitored to ensure that they are suitable and well-maintained for use. The creation of permissive paths within the Order limits proposed as part of the Scheme

design will contribute to the wider network of footpaths in the area and facilitate greater public access.

13.6.8 An outline PRoW Management Plan ('oPRoWMP') will be produced, setting out measures for minimising impacts on the PRoW network (including existing and Claimed PRoW) during construction) as well as any enhancement from the provision of permissive paths. All diversions would be sign-posted accordingly and advertised in advance.

13.6.9 Detailed versions of the management plans set out above will be secured as a requirement of the DCO. Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

13.7 Methodology

13.7.1 This section describes the methodology proposed for the assessment of effects on socio-economics, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

Baseline

13.7.2 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the Scheme. This will include policy set out in Section 13.2 including the East Riding of Yorkshire Local Plan Update, the East Riding of Yorkshire and Kingston Upon Hull Joint Minerals Local Plan any relevant Supplementary Planning Guidance, NPS EN-1 and EN-3, and NPPF measures.

13.7.3 A baseline assessment will be undertaken using a range of sources to provide a description of the socio-economic conditions within the local area and at local authority level, including employment and the economy. This will be done using established statistical sources as presented in Section 13.5 above. Relevant land use receptors will be identified in relation to all potential impacts.

Assessment of Effects (Including Significance)

13.7.4 An assessment of effects will be undertaken to consider the impact of the Scheme on the baseline socio-economic conditions. The methodology will entail:

- Assessment of the likely scale, permanence and significance of effects associated with socio-economic receptors; and
- An assessment of the potential cumulative effects with other schemes within the surrounding area.

13.7.5 The assessment of potential socio-economic effects will use policy thresholds and expert judgment to assess the scale and nature of the effects of the Scheme against baseline conditions. For socio-economics there is no accepted definition of what constitutes a significant (or not significant) socio-economic effect. It is however recognised that effects are categorised based on the relationship between the scale (or magnitude) of effect and the sensitivity (or value) of the affected resource or receptor.

13.7.6 As such, the socio-economic effects will be assessed based on:

- Consideration of sensitivity to effects: the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate);
- Magnitude of impact: this entails consideration of the size of the impact on people or business within the context of the area in which the impacts would be experienced; and
- Scope for adjustment or mitigation: the socio-economic study is concerned in part with economies. These adjust themselves continually to changes in supply and demand, and the scope for the changes brought about by the Scheme to be accommodated by market adjustment will therefore be a criterion in assessing significance.

13.7.7 As part of the chapter in the ES, the likely effects on land-use that could result from the construction, operation and maintenance, and the decommissioning of the Scheme will be considered.

13.7.8 The assessment aims to be objective and quantifies effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are defined as follows:

- Beneficial classifications of effect indicate an advantageous or beneficial effect on an area, which may be minor, moderate, or major in effect;
- Negligible classifications of effect indicate imperceptible effects on an area;
- Adverse classifications of effect indicate a disadvantageous or adverse effect on an area, which may be minor, moderate or major in effect; and
- No effect classifications indicate that there are no effects on an area.

13.7.9 Based on consideration of the above, where an effect is assessed as being beneficial or adverse, the scale of the effect has been assigned using the following criteria:

- Minor: a small number of receptors are beneficially or adversely affected. The effect will make a small measurable positive or negative difference on receptors at the relevant area(s) of effect;

- Moderate: a noticeable number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect; and
- Major: all or a large number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.

13.7.10 Socio-economic effects reflect the relationship between the sensitivity of the affected receptor and the magnitude of the impact, as set out in **Table 13-1**.

Table 13-1 Impact Assessment and Effect Significance

Magnitude of Impact	**Sensitivity of Receptor**			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

13.7.11 Those effects which are found to be moderate or major are considered to be 'significant' and those which are minor or negligible are 'not significant'.

13.7.12 Duration of effect is also considered, with more weight given to reversible long-term or permanent changes than to temporary ones. Temporary effects are considered to be those associated with the construction works. Long-term reversible effects are generally those associated with the completed and operational development. For the purposes of this assessment, short term effects are considered to be of one year or less, medium term effects of one to four years, and long-term effects of five or more years.

13.7.13 Employment and GVA effects will consider the temporary and permanent impact on a principal economic area defined based on consideration of local authority area boundaries and a typical travel time from the Scheme. The Ministry of Housing, Communities and Local Government ('MHCLG') Appraisal Guide will be applied to assess direct, indirect and induced impacts (Ref 252).

13.7.14 The assessment of effects on recreational facilities, and community facilities will consider direct impacts arising from any closures and loss of and/or diversions. Effects on development land will consider direct (land-take) and indirect (access) impacts on any of the delivery of development proposals or allocations both within and adjacent to the Site.

Cumulative and In-Combination Effects

13.7.15 Cumulative effects with other development in the surrounding area are likely to be important for the assessment of socio-economics. To understand cumulative and in-combination effects, the assessment will evaluate on both a qualitative and quantitative basis, using data published by the ONS. Data from other developments will be obtained from relevant planning application documents. Cumulative effects of the Scheme relevant to socio-economics will be assessed within the Socio-economics chapter of the ES.

13.7.16 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the ES. Receptors identified within the socio-economics assessment will be assessed within the in-combination effects assessment.

13.8 Assumptions, Limitations and Uncertainties

13.8.1 Information on current land use from landowners on the CRC will be required to determine all existing employment generated within the existing Scoping Site Boundary. In the absence of this information, good practice guidance and professional judgment will be applied.

13.9 Summary of Elements Scoped In and Scoped Out

13.9.1 A summary of the elements scoped into and out of the assessment of socio-economics is presented in **Table 10-3**.

Table 13-2 Elements scoped in and out of the assessment of Socio-economics

Element	Scoped in / Scoped out	Rationale
Construction		
Employment, economic growth and training	Scoped out	There is potential for the creation of jobs as well as associated economic growth (Gross Value Added), training and apprenticeship opportunities for local residents. As much of this labour demand is expected to be met by the relocation of existing workforces as specialised workforce typically move from project to project, overall there would be no significant effects in respect of employment from construction activities, and consequently no significant effects in respect of economic growth and training related to this. An outline Skills, Supply Chain and Employment Plan ('oSSCEP') will be prepared as part of the DCO application to identify opportunities to maximise the creation of local jobs.

Element	Scoped in / Scoped out	Rationale
Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
Development land including mineral safeguarding	Scoped out	As there are no development sites and allocated sites within the Site, no significant effects on development land would arise. Any mineral sterilisation would not be permanent, and so resources would be available for exploitation after the lifetime of the Scheme. It will be demonstrated in the DCO application that the Minerals Planning Authority has been consulted in respect of the proposals and that the Scheme does not impact on future ambitions for minerals extraction within the region.
Accommodation	Scoped in	The requirement for workers for temporary construction activities could impact upon availability of rooms within the visitor accommodation sector locally, both in terms of supply during busier months and increasing occupancy levels during quieter months. This effect is unlikely to be significant based on other solar NSIPs but has been scoped in for robustness.
Tourism and recreation	Scoped in	There are some visitor attractions and recreational resources within proximity of the Scheme and therefore the tourism economy and its receptors have the potential to experience significant effects when left unmitigated. This includes the Yorkshire Wolds Way hiking path. Potential health-related effects pertaining to open space, leisure and play are addressed in **Chapter 5: Health**.
PRoWs	Scoped out	Potential effects on PRoW are addressed in **Chapter 5: Health**.
Farming businesses	Scoped out	Farming businesses will experience temporary/short-term loss of use of land when the works to lay cables are ongoing with business use being unchanged from baseline after construction with any effects therefore being not significant.
Operation		
Employment, economic growth and training	Scoped out	There would be limited operational employment and therefore limited economic growth training opportunities associated with this such that any beneficial effects would be not significant.
Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be

Element	Scoped in / Scoped out	Rationale
		no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
Development land including mineral safeguarding	Scoped out	As per construction.
Accommodation	Scoped out	The limited requirement for workers for operation and maintenance activities would have no impact upon availability of rooms within the visitor accommodation sector locally
Tourism and recreation	Scoped in	As per construction.
PRoWs	Scoped out	Potential effects on PRoW are addressed in **Chapter 5: Health**.
Farming businesses	Scoped out	Businesses will be using the renting of their land on the Humberhead Sites to support diversification of their businesses and provide affected farmers with an alternative source of income during operation such that there would be no significant adverse effects.
Decommissioning		
Employment, economic growth and training	Scoped out	As per construction.
Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
Development land including mineral safeguarding	Scoped out	As per construction.
Accommodation	Scoped in	As per construction.
Tourism and recreation	Scoped in	As per construction.
Farming businesses	Scoped out	Farming businesses will experience temporary/short-term loss of use of land when decommissioning activities are ongoing with business use being unchanged from baseline after construction with any effects therefore being not significant.

14 Other Environmental Matters

14.1.1 The aim of the scoping stage is to focus the Environmental Impact Assessment ('EIA') on those environmental topics where significant effects may be generated by the Scheme. The following sections provide a summary of environmental topics other than those as detailed in **Chapter 5** to **13** which have been considered during the preparation of this Scoping Report.

14.1.2 This Chapter of the Scoping Report provides a provides a summary of environmental topics which have been considered during the preparation of this report, but for which standalone chapters are not expected to be required in the Environmental Statement ('ES'). For these topics, from previous experience undertaking environmental assessments of NSIP solar farms it is considered that the demonstration of no likely significant effects can be established without the need for detailed information on legislation and policy and baseline conditions. Therefore, as detailed in the sections below, technical appendices will be provided for these topics as appropriate, with a short summary in a single chapter of the ES. In the unlikely event that a likely significant effect is identified for a particular topic, a standalone chapter will be produced in accordance with the chapter structure set out in **Chapter 2: Methodology**.

14.1.3 The methodology set out in **Chapter 2: Methodology** of this Scoping Report may not apply to the Other Environmental Matters chapter of the ES. It may not be necessary, for example, to outline an assessment methodology or baseline conditions if a preliminary or screening assessment identifies that the impacts would be none or negligible.

14.1.4 For clarity, the topics covered in sections below are not scoped out of the EIA. Rather, they will be addressed proportionately within the ES in relation to the likelihood for significant effects based on the scoping work undertaken to date. The potential for cumulative effects with other development will also be assessed in the ES, in line with the methodology presented in **Chapter 2: Methodology** of this Scoping Report.

14.1 Air Quality

Introduction

14.1.1 This section sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to Air Quality. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Air Quality. Matters that are proposed to be scoped in and out of the assessment are identified.

Legislation, Planning Policy Context and Guidance

14.1.2 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

14.1.3 Relevant legislation includes:

- The Planning Act 2008 (Ref 1);
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 2);
- The Environmental Protection Act 1990 (Ref 165);
- National Air Quality Legislation originating from the European Union ('EU') (Ref 253), including the Air Quality Standards Regulations 2010 (Ref 254) (as amended in 2016) (Ref 255);
- The Air Quality (England) Regulations 2000 (Ref 256) (as amended 2002) (Ref 257);
- The Environment Act (1995) (Ref 258);
- The Environment Act (2021) (Ref 79); and
- The Environmental Targets (Fine Particulate Matter) (England) Regulations (2023) (Ref 259).

National Planning Policy

14.1.4 Relevant national planning includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') 2025, (designated December 2025) (Ref 8). Reference will be made to Section 5.2 with respect to air quality and emissions particularly in relation to the scope of the assessment;
- Overarching NPS for Renewable Energy Infrastructure ('EN-3'), 2025 (designated December 2025) (Ref 9). Sections 2.7.41 to 2.7.43 summarises how emissions to air should be assessed and aligns with the more extensive guidance in EN-1; and
- National Planning Policy Framework ('NPPF'), designated December 2024 (Ref 11). Reference will be made to paragraphs 198 to 201 with respect to air pollution.

Local Planning Policy

14.1.5 Relevant local planning policy includes:

- East Riding Local Plan Update 2020 – 2039 (Adopted 2025) (Ref 13) with reference to Policy EC5: Supporting the renewable and low carbon energy

sector. This confirms that the effects of development should be made acceptable, which includes impacts on air quality.

Guidance

14.1.6 Relevant guidance includes:

- Air Quality Strategy (2023) (Ref 260);
- Clean Air Strategy (2019) (Ref 261);
- National Planning Practice Guidance ('NPPG') for Air Quality (Ref 262) and Renewable and Low Carbon Energy (Ref 263);
- Environmental Improvement Plan (2023) (Ref 264);
- Institute for Air Quality Management ('IAQM') Land-Use Planning and Development Control: Planning for Air Quality (Ref 265);
- IAQM Guidance on assessment of dust from demolition and construction (Ref 266);
- IAQM Guidance on the assessment of air quality impacts on designated nature conservation sites (Ref 267); and
- Department of Food and Rural Affairs ('DEFRA') Local Air Quality Management Technical Guidance 2026 ('LAQM.TG22') (Ref 268).

Consultation

14.1.7 Consultation as part of the EIA process will be undertaken following submission of this Scoping Report with statutory parties, including East Riding of Yorkshire Council ('ERYC').

Study Area

14.1.8 For the assessment of air quality impacts, the methodological approach to defining the spatial extent of that Study Area will be informed by IAQM guidance documents. These guidance documents provide a means by which the extent and detail of an assessment can be defined, based on set screening criteria.

14.1.9 The Study Area for the Scoping Site Boundary construction phase fugitive dust emissions impacts have adopted the distance criteria set out in IAQM guidance, and are defined as:

- Human health and amenity sensitive receptors located within 250 m of the Scoping Site Boundary and/or 50 m of a public road used by construction traffic up to 250 m from the site access points; and
- Ecology sensitive habitat receptors located within 50 m of the Scoping Site Boundary and/or 50 m of a public road used by construction traffic up to 250 m from the site access points.

14.1.10 The Study Area for construction and operational phase road traffic emission impacts has adopted the distance criteria set out in IAQM guidance, and will include human health sensitive receptors located within 200 m of a road that experiences:

- An increase in daily average two-way Light Duty Vehicles of 500 movements or more, due to the Scheme; and/or
- An increase in daily average two-way Heavy Duty Vehicles of 100 movements or more, due to the Scheme.

14.1.11 For air quality sensitive ecology impacts from road traffic emissions, the screening criteria set out in IAQM ecology guidance has been adopted, which states that designated habitat should be considered where they are located within 200 m of a road that experiences:

- An increase in daily average two-way Light Duty Vehicles of 1000 movements (including in-combination movements) or more, due to the Scheme; and/or
- An increase in daily average two-way Heavy-Duty Vehicles of 200 movements (including in-combination movements) or more, due to the Scheme.

14.1.12 As the design and consultation process is progressing, the Scheme is being refined and final traffic data is not yet available, the exact geographical scope of the Study Area for air quality impacts cannot be defined at this time. To overcome this, the Scoping Site Boundary has been used initially to define the Study Area, to account for any uncertainty in design. Once the alignment has been more precisely defined and traffic data made available, the Study Area will be refined to focus on the assessment of effects within the distances listed above.

14.1.13 **Figure 14-1-1: Air Quality Study Area** shows the 250 m and 50 m Study Area for Scoping Site Boundary impacts, and all elements of the Scheme which will be used to inform the spatial area of the air quality assessment. The extent of the Study Area considers traffic emissions impacts on road links that will align with routes to be identified in the Transport and Access ES chapter and the outline Construction Traffic Management Plan ('oCTMP').

Baseline Conditions

Existing Baseline

Existing Pollutant Concentrations

14.1.14 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Air Quality.

14.1.15 ERYC (Ref 269) undertakes routine monitoring of ambient air quality as part of their Local Air Quality Management ('LAQM') responsibilities under Part IV of the Environment Act 1995, as amended by the Environment Act 2021 at 50 locations (as shown in **Figure 14-1-2: Air Quality Monitoring Locations under the Responsibility of the Local Authority**). The local authority's air quality measurements have confirmed that air quality within their administrative area is not at risk of exceeding the air quality objective values.

14.1.16 There is no Air Quality Management Area ('AQMA') within the administrative area of ERYC.

14.1.17 The local authority's measurement network does not include any locations within the Study Area for this assessment. None of the measurement locations reported by the Council are considered representative of conditions within the Study Area, as the Council has focused on locations with greater levels of emissions such as congested roads. Pollutant concentration data has been sourced from DEFRA's projected background concentrations instead.

14.1.18 Background data for the relevant 1 km x 1 km grid squares (related to the Study Area) was sourced from DEFRA's 2021-based Background Maps for the baseline year of 2025 (Ref 270) which is the latest year that we have data for; these data are presented in **Table 14-1**. The modelled background concentrations for Nitrogen Dioxide ('NO_2'), Particulate Matter where particles are less than 10 micrometres in diameter ('PM_{10}') and Particulate matter where particles are less than 2.5 micrometres in diameter ('$PM_{2.5}$') in 2025 are well below the relevant objective values for each pollutant.

Table 14-1 Projected annual mean background concentrations in 2025

Year	Annual Mean Background Concentration (µg/m³)		
2025	NO_2	PM_{10}	$PM_{2.5}$
	3.8 – 6.0	9.6 – 13.4	4.9 – 6.5
Air Quality Objective Value	40	40	20

Dust Climate

14.1.19 A background level of dust exists in all urban and rural locations in the UK. Dust can be generated on a local scale from vehicle movements and from the action of wind on exposed soils and surfaces. Dust levels can be affected by long range transport of dust from distant sources into the local vicinity.

14.1.20 This baseline rate of soiling is considered normal and varies dependent on prevailing climatic conditions. The tolerance of individuals to deposited dust is therefore shaped by their experience of baseline conditions.

14.1.21 Existing local sources of particulate matter include wind-blown dust from agricultural activities, exhaust emissions from energy plant and road vehicles, brake and tyre wear from road vehicles and the long-range transport of material from outside the Study Area.

14.1.22 The Scheme is located amidst agricultural fields which are worked by farmers. Activities may include tiling and ploughing, harvesting, baling hay or straw, grain handling and driving on unpaved roads. These activities have the potential to create airborne dust, especially in dry weather. Individuals living near the Scheme may be therefore accustomed to notable deposited dust.

Potential Effects and Mitigation

14.1.23 This section sets out the potential effects of the Scheme on the Air Quality.

Construction and Decommissioning

14.1.24 During construction and to a lesser extent, decommissioning, the potential air quality impacts of the Scheme are considered to be:

- Impacts of dust arising during the construction and decommissioning phases of the Scheme; and
- Impacts of vehicle and plant emissions during the construction and decommissioning of the Scheme.

14.1.25 Following construction, the Scheme is expected to result in minimal alteration to the baseline situation in respect of air quality.

Operation and Maintenance

14.1.26 During operation, no effects are anticipated due to the low number of vehicle movements expected to be required for maintenance. Due to the nature of the Scheme emissions of local air quality pollutants from any on-site infrastructure would be infrequent and small in magnitude. NPS EN-3 paragraph 2.10.153 states that:

"Once solar farms are in operation, traffic movements to and from the site are generally very light, in some instances as little as a few visits each month by a light commercial vehicle or car. Should there be a need to replace machine components, this may generate heavier commercial vehicle movements, but these are likely to be infrequent."

14.1.27 The Scheme provides a clean and renewable source of energy in its day to day running, which does not contain any sources of air quality emissions, ancillary combustion process or combustion-based power generation.

14.1.28 Therefore, further assessment of air quality impacts during operation of the Scheme, including road traffic emissions and auxiliary emergency generators is proposed to be scoped out of the EIA.

14.1.29 The activities required for operational replacement, as described in Section 4.6 of **Chapter 4: Scheme Description**, will be no greater than construction-phase but have similar potential to generate dust emissions as construction and decommissioning works and control measures set out in the outline Construction Environmental Management Plan ('oCEMP') will be carried into the outline Operation Environmental Management Plan ('oOEMP') to ensure receptors continue to be protected during replacement activities.

14.1.30 The Battery Energy Storage System ('BESS') will be designed, built and operated in accordance with relevant Fire Regulations and Health and Safety Executive guidance, to be set out in an outline Battery Safety Management Plan ('oBSMP'), and a detailed BSMP will be secured as a requirement of the DCO. Due to the chemical nature of the BESS, there is the potential for local air quality to be negatively impacted in the highly unlikely event of a BESS fire. The Development Consent Order ('DCO') application will be accompanied by a fire safety assessment examining the area of potential air quality effects in the event of a fire at the BESS. This will include an initial fire plume appraisal of the impact of potential emissions from a BESS fire using an appropriate dispersion model.

Mitigation

14.1.31 Implementation of mitigation including a CEMP and CTMP (substantially in accordance with the submitted oCEMP and oCTMP) will ensure that construction vehicle management and good construction practice are carried out to minimise potential impacts to the environment in terms of changes to air quality and the generation of dust.

14.1.32 The IAQM guidance sets out several mitigation measures for reducing dust impacts. The level of mitigation is dependent on the site activity and its associated risk rating.

14.1.33 Implementation of the CEMP and CTMP will ensure that air emissions are controlled and minimised and that any potential effects are negligible. Implementation of the CEMP and CTMP will also ensure that the Scheme's contribution to any cumulative effects will also be negligible. Detailed versions of these management plans will be secured as a requirement of the DCO.

14.1.34 The operational phase of the Scheme will not result in the introduction of any new air pollutant or dust emission sources into the area. Therefore, the impact is deemed to be imperceptible and any effects (including cumulative effects) will be negligible.

14.1.35 Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

Methodology

14.1.36 This section describes the methodology proposed for the assessment of effects on Air Quality, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

Potential Receptors

14.1.37 Receptors potentially affected by the Scheme comprise residents living with the defined Study Area as well as commercial units such as farm buildings. In addition, there are also statutory and non-statutory ecological sites in the locality which may be susceptible to direct exposure to air pollutants emitted from the Scheme and through indirect effects associated with nitrogen and acid deposition.

Construction and Decommissioning Phase Dust Emissions

14.1.38 Construction and decommissioning activities associated with the Scheme would include the construction of the Humberhead Sites and Cable Route Corridor ('CRC'). More detail on specific construction activities is available in **Chapter 4: Scheme Description**.

14.1.39 IAQM guidance on the assessment of dust from demolition and construction provides definitions for potentially sensitive receptors that are within the distance criteria detailed in the Study Area section of this chapter.

14.1.40 **Figure 14-1-1: Study Area** shows a 250 m buffer from the edge of the Scoping Site Boundary in which human receptors may be impacted by construction activities. The Scheme is located in a predominantly rural area, however, there are some isolated residential properties and commercial units such as farm buildings within 250 m of the Scoping Site Boundary.

14.1.41 There are also a number of statutory and non-statutory ecological sites within 50 m of the Scoping Site Boundary:

- White Carr Meadow Site of Special Scientific Interest ('SSSI') is located within the Cable Route Search Corridor ('CRSC');
- Pocklington Canal SSSI is located within the CRSC and adjacent to the Scoping Site Boundary;
- South Cliffe Common SSSI is adjacent to the Scoping Site Boundary; and
- A small area of the Lower Derwent Valley National Nature Reserve ('NNR') is located within the CRSC.

Operational Phase Dust Emissions

14.1.42 It is considered that operational replacement activities would have a reduced potential to generate dust compared to construction phase activities. The

replacement of panels would involve deliveries of new modules, and removal of existing panels, undertaken by workers on site. It is not anticipated that any additional construction works would be required, such as the creation of new tracks, piling or foundation works, construction of BESS units, substations or cable works.

14.1.43 In the event that activities with the potential to generate dust are required during the operational phase, these activities would be expected to present a similar or lower risk of fugitive dust emissions compared to construction activities. Such emissions would be effectively controlled through the use of the dust control measures established in the CEMP for construction activities (and secured in the oOEMP), without the need for additional phase specific assessment of effects.

Construction Phase Road Traffic Emissions

14.1.44 It is considered unlikely that the impact of construction phase road traffic emissions would contribute to a significant effect on local air quality, due to the existing good standard of air quality in the Study Area. To confirm whether this is the case, a screening assessment of construction phase road traffic emissions will be undertaken.

14.1.45 The results of the screening assessment will be used to represent all air quality sensitive receptors located within the Study Area, including residential properties and air quality sensitive ecology sites located within 200 m of a construction traffic access routes.

Operational Phase Road Traffic Emissions

14.1.46 It is considered unlikely that the impact of operational phase road traffic emissions would contribute to a significant effect on local air quality, due to the existing good standard of air quality in the Study Area and the very low number of light and heavy duty vehicle movements required.

Assessment Methodology

Construction Dust Assessment

14.1.47 The activities required for the construction and decommissioning are well understood and good practice control measures have been established which demonstrate the ability to effectively control emissions to air from these works to ensure that there are no significant effects at sensitive receptors. Good practice control measures will be selected using a risk based approach with reference to the IAQM guidance, based on consideration of presence of sensitive receptors and proposed methods of working. The IAQM guidance provides examples of good practice control measures that should be

considered depending on the risk from construction activities to sensitive receptors.

14.1.48 A construction dust risk assessment will be undertaken as part of the oCEMP and outline Decommissioning Environmental Management Plan ('oDEMP') to identify appropriate control measures to ensure no significant effects at sensitive receptors. The identified measures will be secured in the oCEMP and oDEMP.

Construction Road Traffic Emissions Assessment

14.1.49 At the time of submitting this Scoping Report, specific information about construction vehicle movements is not available. Based on professional judgement and experience of similar solar farm infrastructure projects and in line with consented solar NSIPs, it is considered unlikely that such impacts would contribute to a significant effect. Therefore, a detailed air quality assessment of construction phase road traffic emissions is not considered to be required. Instead, a screening assessment of construction phase road traffic emissions impacts is considered more proportionate and will be undertaken.

14.1.50 The screening assessment will review the anticipated increase in traffic movements on the public road network due to the construction of the Scheme. That traffic impact will be compared against the relevant screening criteria as detail in the Study Area section and adopted from criteria set by IAQM. The purpose of the screening criteria is to determine whether or not a detailed assessment of road traffic emissions impact is required. In this instance, it will be used to confirm that there is no potential for a significant effect to occur.

14.1.51 Should the predicted construction traffic flows be below the criteria, they would not be expected to adversely affect air quality. It is therefore proposed that the impact of construction traffic emissions on air quality is scoped in to enable the screening assessment to be completed at the ES stage. This assessment of traffic flow data against screening criteria will be reported within the Other Environmental Matters chapter of the ES.

Non-Road Mobile Machinery Emissions Assessment

14.1.52 Construction and decommissioning related plant emissions are anticipated to represent a small source of emissions relative to ambient local conditions in the vicinity of the site. This is based on the scale of work that would occur and the number of plant vehicles that would be required. However, suitable good practice measures to minimise emissions from plant and motorised equipment will be recommended based on advice prescribed in the IAQM guidance and incorporated into the oCEMP and oDEMP. It is proposed that the impact of Non-Road Mobile Machinery ('NRMM') emissions on air quality

is scoped out of the EIA as the need for effective dust management measures can be incorporated in the oCEMP.

In-Combination and Cumulative Effects

14.1.53 Cumulative and In-Combination effects at human and ecological receptors can occur where construction or operational periods overlap. For the Scheme, there is potential for cumulative or in-combination effects on air quality during the construction period, particularly from construction traffic and construction activities. However, operational phase traffic flows are likely to be too low to give rise to significant cumulative or in-combination effects on air quality.

In-Combination Effects

14.1.54 A separate chapter will be presented within the ES which will provide a summary of effect interactions between topics (in-combination effects), setting out the inter-relationship arising as a result of direct effects from other environmental topics. If an Air Quality ES chapter is required to be scoped into the EIA, the effects concluded will be considered in the preparation of this chapter, determining whether there are multiple effects from different topics on a shared receptor and which will explain what mitigation measures are proposed, and how such mitigation may have an in-combination effect across multiple topics.

Cumulative Effects

14.1.55 There is the potential for Air Quality effects as a result of the Scheme to be experienced cumulatively with effects from other nearby developments during the construction phase. A full list of nearby developments that have the potential for in-combination effects with the Scheme during the construction phase will be presented in the ES and assessed as relevant, when detailed information regarding traffic flows is available.

14.1.56 The Zone of Influence ('ZoI') for the assessment of cumulative air quality and dust impacts on amenity will comprise sensitive receptors within 250 m of the Scoping Site Boundary and another cumulative development site. For road traffic emission impacts on human health or ecological sites, the ZoI will incorporate any road links within 200 m of a sensitive receptor that a combined change in traffic flow that exceed the threshold described in paragraphs 14.1.10 and 14.1.11.

Assumptions, Limitations and Uncertainties

14.1.57 The dust risk assessment will be undertaken on a whole-site basis, assuming works can be undertaken at any point within the Scoping Site Boundary. This

provides a worst-case assessment, ensuring that if works are undertaken in a different location than anticipated, the assessment has covered this potential.

Summary of Elements Scoped In and Scoped Out

14.1.58 A summary of the elements scoped into and out of the assessment of air quality is presented in **Table 10-3**. Consideration of construction phase road traffic emissions are scoped in so that a screening type assessment can be completed at the assessment stage when the required information on levels of activity becomes available. During the operational phase, it is considered that the number of additional road traffic movements would but unlikely to give rise to any significant effects, and more detail assessment is scoped out.

14.1.59 The activities required for the construction and operational replacement of solar/BESS schemes are well understood and established good practice control measures are available to effectively control emissions to air from these works. Such measures will be adopted as embedded mitigation for the Scheme and will be secured by the oCEMP. On this basis, the assessment of effects relating to Construction dust emissions, Operational Replacement, and emissions NRMM are scoped out.

Table 14-2 Elements scoped in and out of the assessment of air quality

Element	Scoped in / Scoped out	Rationale
Construction		
Construction Dust Emissions	Scoped Out	Embedded measures in oCEMP would prevent significant effects.
Road Traffic Emissions	Scoped In	Embedded measures in CTMP and oCEMP are anticipated to avoid significant effects associated with construction traffic on affected road links. Requires comparison of predicted flows against screening criteria at ES stage, to confirm no assessment necessary. Assessment of traffic flow data against screening criteria will be reported within the Other Environmental Matters chapter of the ES.
Non-Road Mobile Machinery (NRMM) Emissions	Scoped Out	Embedded mitigation in oCEMP would avoid significant effects.
Operational Phase		
Replacement Activity Dust Emissions	Scoped Out	Embedded mitigation in oCEMP would avoid significant effects.
Road Traffic Emissions	Scoped Out	Flows would be below IAQM screening criteria on all road links.

Element	Scoped in / Scoped out	Rationale
Decommissioning Phase		
Decommissioning Dust Emissions	Scoped Out	Embedded mitigation in oDEMP would avoid significant effects
Road Traffic Emissions	Scoped Out	Flows would be below IAQM screening criteria on all road links.

14.2 Soils and Agriculture

Introduction

14.2.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to soils and agriculture. It includes a summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Soils and Agriculture. Matters that are proposed to be scoped in and out of the assessment are identified.

14.2.2 This chapter is supported by the following Figures:

- **Figure 14-2-1: Predictive Agricultural Land Classifications**; and
- **Figure 14-2-2: Soil Associations**.

14.2.3 Effects of the Scheme on agricultural businesses are considered in **Chapter 13: Socio-economics**.

Legislation, Planning Policy Context and Guidance

14.2.4 This section presents the legislation, policy and guidance relevant to the Soils and Agriculture assessment. There is no legislation directly relevant to the assessment of soils and agriculture.

National Planning Policy

14.2.5 Relevant national planning policy and guidance includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') 2025, (designated January 2026) (Ref 8) with reference to paragraphs 4.6.13, 4.7.2, 5.11.4, 5.11.13 - 5.11.15 and 5.11.23;
- NPS for Renewable Energy Infrastructure ('EN-3') 2025, (designated January 2026) (Ref 9) Section 2.10 requires solar PV projects to minimise soil disturbance and protect soil health throughout their lifecycle, including: paragraph 2.10.26 (impacts on soils mitigation), paragraph 2.10.25 (ALC surveys), and paragraph 2.10.73 (minimising soil disturbance), paragraph 2.10.148 (developments on peat soils); and
- Paragraph 2.10.21 of EN-3 states that land type should not be a predominating factor in determining the suitability of site location, but

that, where possible, brownfield or highlights that poorer quality agricultural land should be prioritised over the BMV land, avoiding Agricultural Land Classification ('ALC') Grades 1, 2 and 3a where possible.
- NPS for Electricity Networks Infrastructure ('EN-5') 2025, (designated January 2026) (Ref 10) with reference to paragraph 2.9.26.

Local Planning Policy

14.2.6 East Riding Local Plan Update 2020 – 2039 (Ref 13) includes local policies relevant to the Scheme. These include EC5: Supporting the renewable and low carbon energy sector, EC1: Supporting the growth and diversification of the East Riding economy and A6: Vale of York sub area.

Relevant Guidance

14.2.7 Relevant industry guidance includes:

- Chapter 1, Section 3 of the 25 Year Plan to Improve the Environment (Ref 113) includes policy to improve the soil health and fertility for farming and agriculture by preserving optimal soil structure, hence increasing crop yields and mitigating the risk of environmental damage;
- The Land Use Framework for England (Ref 272) was presented to Parliament in March 2026. It identifies that the scale of land use change to deliver its vision, including solar energy generation can be achieved without compromising domestic food production. It adds that there are opportunities to continue farming alongside solar generation, including through continued livestock grazing and agrivoltaics;
- The Guidelines for grading the quality of agricultural land JP069 DEFRA (2025) (Ref 273) outlines the current framework for grading agricultural land quality in England and Wales. It identifies land based on how its physical or chemical characteristics impose long-term constraints on agricultural use;
- Natural England's Guide to Assessing Development Proposals on Agricultural Land 2021 (Ref 274) sets out policies and legislation for developments affecting agricultural land and when to consult Natural England. It explains the ALC, points to ALC resources, and states when new detailed surveys are required. It also summarises the survey methodology, referencing Natural England's Technical Information Note 049 (Ref 275);
- The DEFRA Construction Code (2009) (Ref 271) provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources;
- The Framework supports the Government's Clean Power 2030 Action Plan (2025) (Ref 55) sets out how solar farms can be delivered sustainably though projects such as rewetting lowland peat soils beneath the solar

panels. This leads to multifunctionality, delivering greater benefits for a number of uses on the same land;

- Planning Policy Guidance ('PPG') for the Natural Environment (Ref 276) supports the NPPF by explaining how planning should protect and enhance environmental assets, including agricultural land and soils. Aimed primarily at local plan-making and development management decisions;
- The Guidance Document 3 of the British Society of Soil Science ('BSSS') (2022) (Ref 277) assists planners and developers in protecting soil during development. It highlights the need for early soil management in planning and advocates for the preservation of biologically rich soils for future greenspaces;
- The Institute of Quarrying ('IoQ') (2021) (Ref 278) proposes the Good Practice Guide for Handling Soils in Mineral Workings, applicable to agricultural land, having succeeded DEFRA's 'Good Practice for Handling Soils'. It outlines best practices for soil handling, including stripping, storage, and management, with specific advice on stockpile design based on soil texture and structure;
- The Institute of Sustainability and Environmental Professionals ('ISEP', formerly the Institute of Environmental Management and Assessment ('IEMA')): A New Perspective on Land and Soil in EIA (2022) (Ref 279): Provides practical advice to assess soil functions, biodiversity, soil health, ecosystem services, and natural capital, with emphasis on mitigation, post-consent monitoring, and construction environmental management. It does not prescribe a fixed method but gives examples to develop an appropriate methodology; and
- The ISEP guidance for Solar PV on Agricultural Land (2025) (Ref 280): Applicant checklist to assess solar PV impacts; prioritises protecting Best and Most Versatile ('BMV') land and ensuring reversibility. Encourages use of lower-quality land and independent soil audits post-decommissioning to verify restoration.

Consultation

14.2.8 As part of the assessment process, it is proposed to undertake consultation with Natural England and ERYC regarding the soils and agricultural considerations. Further consultees may be identified.

Study Area

14.2.9 The Study Area for the Soils and Agricultural Land assessment is the Scoping Site Boundary as shown in **Figure 1-1**. No buffer is applied when describing the Study Area as the impacts to soils and agricultural land only occur on the land that is directly impacted by Scheme.

14.2.10 It is noted that through the iterative design process, the Study Area may be refined over time, particularly in respect of the alignment of the Cable Route Corridor ('CRC') which will be further refined and, therefore, reduce the Study Area. The Study Area described in this scoping report reflects the maximum extent of land for the Scheme.

14.2.11 It is noted that to provide additional context to the discussion of agricultural land within the ES, the impacts (to BMV agricultural land within the site) will also be considered in the wider (Regional) context of the administrative boundaries of East Riding of Yorkshire Council.

Baseline Conditions

14.2.12 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Agriculture and Soils.

14.2.13 The current land use within the Site and the local area consists predominately of agricultural fields mainly under arable production.

Following sources of published information will be used to establish the baseline environment for soils and ALC.

- Agricultural Land Classification Grades - Post 1988 (England) (Ref 281, Ref 282, Ref 283, Ref 284);
- Cranfield University (2015) 'Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report' (Ref 285);
- Cranfield University (2026) LandIS - Soilscapes viewer (Ref 286);
- JP069 – Agricultural Land Classification of England and Wales (2025);
- Met Office (1989) Climatological Data for ALC (Ref 287);
- Predictive ALC Map 1:250, 000 for England that includes the subdivision grade 3 land according to current ALC guidelines (Ref 288); and
- Soil Survey of England and Wales (1984). Soils and their Use in Northern England and accompanying 1:250,000 map Sheet 1 (Ref 289).

Agricultural Land Classification ('ALC')

14.2.14 The ALC grade is the standard method for classifying the quality of agricultural land in England and Wales. Land is assessed according to its versatility, productivity, and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5). Grades 1, 2 and 3a are classified as BMV land.

14.2.15 The Predictive ALC Map, provides an indication of land quality, including the extent and distribution of BMV agricultural land (Grades 1, 2 and 3a) within the Study Area.

14.2.16 **Table 14-3** provides a summary of ALC grade with the Site according to the Predictive ALC Map. **Table 14-4** presents the total division of agricultural land by ALC grade within the Humberhead Sites with areas expressed in hectares ('ha') based on Predictive ALC Map. It excludes the Cable Route Search Corridor ('CRSC') (1,793 ha) which is located on predominately ALC Grade 3 (see **Figure 14-2-1**). **Table 14-5** shows preliminary survey results based on field survey undertaken in early 2026, but which are subject to further analysis and have the potential to change slightly as the Scheme design progresses. Note there are differences in total areas and number of decimal places used in the data as a result of how the ALC grade areas are mapped, which will be clarified within the Environmental Impact Assessment and reported in the ES.

14.2.17 The Predictive ALC Map (refer to **Figure 14-2-1, Table 14-3, Table 14-4**) identifies that the Study Area includes 36.13 ha classified as Grade 1 within Humberhead 4-4 and 2.1. However, preliminary soil survey data displays 129.3 ha of Grade 1 land (see **Table 14-5**). Organic soils are present within Humberhead Site 4-4 (refer to the next section). The broad spatial correlation between the organic soils and Grade 1 and Grade 2 land highlights the overlap between higher quality agricultural land and sensitive soil resources. Where available, post-1988 ALC survey data indicates that Subgrade 3a is more prevalent than Subgrade 3b within the Site.

14.2.18 The predictive ALC grade data indicates that the CRSC is situated predominantly within Grade 2 land but include small areas classified as Grade 3b land.

Table 14-3 ALC Grades determined by the predictive ALC model within the Humberhead Sites

ALC Grade	Area (ha)
Grade 1	36.13
Grade 2	1017.83
Grade 3a	24.01
Grade 3b	501.79
Grade 4	0.00
Grade 5	0.00
Non-Agricultural	13.35
Urban	1.18
Total	1594.28

Table 14-4 Area per Humberhead Site of agricultural land according to the predictive ALC model

Sub Site Number	ALC Grade	Area (ha)
1-1	3b	56.66
1-2	2	66.04
	3b	8.06
	Non-Agricultural	0.01
1-3	2	22.01
	3b	2.17
	Non-Agricultural	0.87
1-4	2	4.72
	3b	24.46
	Non-Agricultural	0.69
2-1	1	12.98
	3b	212.54
	Non-Agricultural	5.14
2-2	3b	33.13
	Non-Agricultural	0.09
2-3	3b	33.69
	Non-Agricultural	0.01
3-1	2	7.78
	3b	111.83
3-2	2	33.16
	3a	3.01
	3b	0.50
	Urban	0.01

Sub Site Number	ALC Grade	Area (ha)
3-3	2	42.77
	3b	1.68
3-4	3b	8.28
3-5	3b	5.32
4-1	2	173.77
	Non-Agricultural	2.61
4-2	2	74.48
	Non-Agricultural	0.26
4-3	2	285.75
	Non-Agricultural	1.07
	Urban	1.17
4-4	1	23.14
	2	8.76
4-5	2	21.33
	Non-Agricultural	0.50
4-6	2	43.05
	3b	3.47
	Non-Agricultural	0.37
4-7	2	143.54
	Non-Agricultural	1.42
4-8	2	90.68
	3a	21.00
	Non-Agricultural	0.30
Total		1594.28

Table 14-5 Preliminary ALC survey results (2026)

Survey ALC Grade	Area (ha)
Grade 1	129.3
Grade 2	435.8
Grade 3a	447.4
Grade 3b	564.7
Non-Agricultural	9.5
Total	**1586.7**

Soil Resource

14.2.19 The published soils data for the Study Area is taken from Soil Survey of England and Wales 1:250,000 mapping. The soils data, represented by soil associations, is presented in **Figure 14-2-2**.

14.2.20 The soils within the Study Area can be further characterised by Soilscape, with Soilscapes 5, 8, 15 and 20 present within the Site. In this area, the primary type of Soilscape is 15, which is "*Naturally wet, very acid sandy and loamy soils*." Although it is not stony and is ideal for cereals, roots, potatoes, and vegetables, the soil is low in fertility for a variety of crops because it drains readily. It is also droughty and requires irrigation, and fertilizers and lime leach quickly. Soil disturbance, such as root harvesting in the winter, will weaken the soil structure and cause compaction.

14.2.21 The Site comprises 13 different soil types (see **Table 14-6**), with Holme Moor the most frequent soil association. These soils are naturally very acidic, fine sandy, and stoneless, with a bleached subsurface horizon. They are influenced by groundwater conditions, which are generally managed through a network of ditches and pumps.

14.2.22 **Figure 14-2-2** shows Soil Associations for the Site, which supports a diverse range of clayey, loamy, sandy, calcareous mineral and organic soils. **Table 14-6** describes these variations of soils within the Site presenting the local geology and hydrological conditions. Soil associations such as Holme moor, Sessay, Dunnington heath, Frome, and Fladbury 3 cover 661 ha of the Site. These soils are seasonally waterlogged or influenced by groundwater, indicating restricted drainage characteristics. This pattern is typical of the low-lying landscape, where water levels are actively managed through drainage to maintain agricultural productivity.

14.2.23 **Table 14-6** also identifies organic soils areas of peat and peaty soils, notably Adventurers' 1 (deep peat soils) with 38 ha and Isleham 2 (deep permeable sandy and peaty soils influenced by groundwater) with 153 ha, for total of 191

ha within Humberhead 4. A further 42.4 ha of Adventurers' 1 and 38.9 ha of Isleham 2 is identified within the CRSC. Most of these soils are now utilised for agricultural purposes.

14.2.24 The peat and peaty or organic soils, represent a sensitive soil resource. In accordance with national policy, including the England Peat Action Plan (Ref 290) and the NPPF, these areas should be given careful consideration, with a strong emphasis on avoiding soil disturbance wherever possible. Adventurers' 1 deep peat soils present within the Site is particularly sensitive to disturbance.

Table 14-6 Soil associations within the Site

Soil Association	Description	Site	Humberhead Site Area (ha)	CRSC (ha)
Adventurer' 1	Deep peat soils. Organic soil.	4-1; 4-4;	38.4	42.41
Denchworth	Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils.	2-1; 2-2; 2-3;	229.85	16.27
Dunnington heath	Reddish coarse and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.	4-3;	28.92	2.47
Everingham	Deep stoneless permeable fine sandy soils some with bleached subsurface horizon.	1-3; 1-4; 3-2; 3-2; 4-1; 4-2; 4-3; 4-4; 4-8	238.96	481.19
Fladbury 3	Stoneless clayey, fine silty and fine loamy soils affected by groundwater.	1-1; 1-2; 1-3; 1-4; 3-3; 4-6;	65.45	223.27
Foggathorpe 2	Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils.	3-1; 3-1; 3-4; 3-5;	133.21	20.33
Frome	Shallow calcareous and non-calcareous loamy soils over flint gravel affected by groundwater.	2-1; 2-2;	58.06	27.15
Holme moor	Deep stoneless, naturally very acid, fine sandy soils, with a bleached	3-3; 4-1; 4-3; 4-5; 4-6; 4-7;	477.81	499.57

Soil Association	Description	Site	Humberhead Site Area (ha)	CRSC (ha)
	subsurface horizon, affected by groundwater. Where cultivated groundwater is controlled by ditches.			
Isleham 2	Deep permeable sandy and peaty soils affected by groundwater.	4-7; 4-8;	153.02	38.86
Kexby	Deep stoneless fine sandy soils affected by groundwater. Associated with similar well drained soils. Risk of wind erosion.		0	56.52
Lake	Lake or water body	4-2; 4-2; 4-3; 4-7;	0.31	2.33
Landbeach	Permeable calcareous coarse loamy soils affected by groundwater over chalky gravel.	1-1; 1-2; 1-3; 2-1; 2-2;	118.4	180.89
Newchurch 2	Deep stoneless mainly calcareous clayey soils.	4-8;	20.46	0
Sessay	Fine and coarse loamy often stoneless, permeable soils affected by groundwater.	3-2; 3-2; 4-6;	30.78	202.32
Total			1593.6	1793.6

Potential Effects and Mitigation

14.2.25 There is potential for the Scheme to result in effects for following receptors within the Study Area:

- The quality of agricultural land and the potential for temporary loss of BMV land; and
- The quality of soil resources in terms of potential for disturbance/damage or improvement through changes in land management.

14.2.26 The Scheme is unlikely to materially affect crop selection or food production within the scope of assessment. The DEFRA UK Food Security Report 2024 (Ref 291) discusses food security and identifies that:

"It is plausible that with continued growth in output and conducive market conditions, that food production levels could be maintained or moderately

increased alongside the land use change required to meet our Net Zero and Environment Act targets and commitments."

14.2.27 Solar Energy UK (Ref 292) identifies that solar farms currently occupy less than 0.1% of the UK's land. Extrapolating to assume 90 GW of solar by 2050 would require 60 GW more ground mounted solar (Solar Energy UK estimates). Under this scenario, 1% of the 9 million hectares total utilised agricultural area would be used for solar in 2050

14.2.28 Farming output fluctuates annually due to the weather and introduction of crop varietal productivity improvements. These annual fluctuations are greater than 1% per year. It follows that, food production levels can be maintained or increased alongside land use change and is not included within the scope of Soils and Agriculture.

14.2.29 The DEFRA Land Use Framework for England 2026 also recognises the importance of building a renewable energy system. Regarding the development of solar farms, it states that the change of use from agriculture to solar farms is small in percentage terms, taken at a national level. It adds that there are opportunities to continue farming alongside solar generation, including through continued livestock grazing.

Construction

14.2.30 Potential effects to soils and agricultural land realised during the construction phase, with the potential to continue on through the operation phase. Where this is the case, it is proposed that these are only covered in construction to avoid double counting. These related to the disturbance and loss of soil resources and agricultural land due to the construction of the Scheme. This includes the installation of the Solar Array areas, BESS, On-site Substations, cables and temporary infrastructure to support construction including Temporary Construction Compounds.

14.2.31 The soils underlying the Scheme do not support protected features within a UK designated site. The soils underlying the Site are mineral except where organic soils are present in Humberhead 4. Soil carbon will be addressed in relation to soil resources.

14.2.32 Effects on soil resources and agricultural land are expected to be temporary as soils and land will be reinstated to the current baseline.

14.2.33 At the BESS and On-site Substation locations, topsoil in areas of BMV land will be stripped and retained on site as part of the landscaping, to protect the soil quality for reinstatement once the infrastructure has been removed at decommissioning.

14.2.34 The majority of soils underlying the Scheme are of the Holme Moor soil type, with Grade 1 and 2 ALC, with sensitive peat soils present within the Site (refer to **Figure 14-2-2**). Soil types and sensitivities will be further considered from

analysis of the field survey of land and soils. Activities including vegetation removal and the excavation, stockpiling and re-instatement of soils require sensitive handling to be specified in an outline Soil Management Plan ('oSMP') which will accompany the DCO application.

14.2.35 Good practice soil resource management will be delivered through the detailed SMP, secured through DCO requirement, which will be a key document for maintaining land quality and soil resource quantity and quality. With the implementation of the SMP, construction effects to soil resources are unlikely to be significant but it is proposed to scope both land quality and soil resources into the EIA.

Operation and Maintenance

14.2.36 During the operational phase of the Scheme (60 years), there would be no further development of built infrastructure and therefore no likely impacts on the soil resources or ALC of the land resulting from those identified during the construction activities. Potential effects on agricultural land holdings are addressed in **Chapter 13: Socio-economics**.

14.2.37 On-site activities would mainly be limited to routine servicing and maintenance, including vegetation management which would have no significant impact on soil resources or ALC.

14.2.38 It is estimated that the Solar Panels could require replacement once, and the BESS batteries up to four times, during the operation of the Scheme. Vehicle movements will be required to replace on-site equipment. Approaches to protect soils and avoid localised soil compaction and reduced soil infiltration and drainage capacity will be implemented. The effects of operational replacement activities are anticipated to be lesser than the construction phase and would be controlled and managed through a framework of measures set out in the outline Operational Environmental Management Plan ('oOEMP') which will accompany the DCO application, with the detailed OEMP and secured through the requirements of the DCO.

14.2.39 Solar panels and associated mounting systems are designed to withstand site-specific wind loading and severe weather conditions. Nevertheless, there remains a low-probability and likely "rare" risk of localised soil contamination from accidental damage to Solar Panels during severe weather events or exceptionally high winds. Any damaged components and affected soils would be removed and appropriate managed, with mitigation measures secured through the oOEMP.

14.2.40 The operational phase would allow the land to recover from intensive agricultural use, and the soil condition and structure to improve. The use of soils for grassland under solar panels would result in increases in soil organic matter, biological activity compared to continued arable cultivation. The

management of the landscape and ecological features will be undertaken in accordance with the outline Landscape and Ecological Management Plan ('oLEMP'), with a detailed LEMP secured by a requirement of the DCO, and this will include measures to improve the biodiversity of the land under and around the panels. It is therefore anticipated that the operation of the Scheme will improve soil biodiversity. Vegetation management during operation may include grazing or hay/silage production; however, for EIA scoping purposes, management using machinery has been assumed.

14.2.41 It is proposed to scope out operational effects on agricultural land and soil resources.

Decommissioning and Reinstatement

14.2.42 Decommissioning is anticipated to take approximately 12 to 24 months. During the decommissioning phase, all the solar infrastructure including Solar Panels, Solar Panel Mounting Structures, above ground cabling, Conversion Units, Sub-distribution Switch Rooms, fencing, BESS and On-site Substations would be removed and the land would be restored to the baseline conditions. The effects on soil resources during the decommissioning phase would be temporary and relate to activities as per the construction phase (identified from paragraph 14.2.30). The effects of the Scheme on agricultural soil resources are anticipated to be similar to or lesser than those identified during the construction phase.

14.2.43 The construction and operation of BESS and On-Site Substation may involve sealing soil under hardstanding or similar. As part of the development of Scheme design, this infrastructure will be located outside of BMV land where practicable and balanced with other engineering and environmental considerations. In addition, as stated above, this infrastructure will be removed at the end of the operational life of the Scheme and the land would be restored to the baseline conditions where practicable. The effect on ALC grade for the areas impacted by the BESS and On-Site Substation has the potential to be permanent (as a worst case scenario) for BMV land and will be considered as such in the assessment reported in the ES. In the solar array areas, the decommissioning phase would fully return the agricultural land to production at its current baseline.

14.2.44 The land within the Scheme would be returned to its original use, as far as practicable, following decommissioning. However, depending on the ecological value of habitats established over the operational lifetime, there is potential for certain areas within the Humberhead Sites to be retained as a beneficial legacy, where they provide demonstrable biodiversity value and do not conflict with the resumption of agricultural use. Any such retention would be considered in the context of the ecological mitigation hierarchy and relevant environmental legislation and policy in force at that time, recognising

that post-decommissioning land management would ultimately remain at the discretion of the landowner.

14.2.45 Whilst the above may provide benefits in respect of soil resources and associated ecosystem services (including landscape and biodiversity functions), it could result in a localised reduction in the extent of agricultural land during the operational phase. Where BMV land is present, the design of the Scheme, including the landscaping proposals, will seek to avoid or minimise permanent land take. Any residual areas of BMV affected are expected to be limited and are not anticipated to result in significant or material losses at a regional or national scale. This will be considered in the assessment reported in the ES.

14.2.46 An outline Decommissioning Environmental Management Plan ('oDEMP') will accompany the DCO application and describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed DEMP implemented during the Scheme decommissioning. This will be secured via a requirement of the DCO.

14.2.47 However, given the sensitivity of peat soils and areas of BMV within the Site, it is proposed to scope in decommissioning effects on agricultural land and soil resources.

Methodology

14.2.48 This section describes the methodology proposed for the assessment of effects on Soils and Agriculture, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

14.2.49 The impacts on soils and agricultural land would be assessed for the construction, operation and maintenance, and decommissioning phases of the development. The sensitivity of the Site is determined by the ALC grade, with ALC grades 1 and 2 recognised as very high sensitivity.

14.2.50 Additional ALC and soil surveys have been undertaken, following standard methodology (refer to paragraphs 14.2.5), for the Humberhead Sites. Only a preliminary presentation of the data is presented in this Scoping Report and further analysis will be undertaken to inform the assessment reported in the ES.

14.2.51 The ISEP guidelines provide threshold areas for the permanent sealing of land or land quality downgrading. Long-term temporary development, such as that of the Scheme, presents a low impact magnitude, following the ISEP guidance.

14.2.52 The assessment will be undertaken in consideration of ISEP's guidance document 'A New Perspective on Land and Soil in Environmental Impact Assessment', with reference to Section 9: Assessing Impacts on Land and Soil.

Significance Criteria

Agricultural Land Classification

14.2.53 Sensitivity and magnitude criteria will be adapted from ISEP guidance for both soil resources and soil functions, with agricultural land quality captured under the soil function of biomass production (i.e. the cultivation of food, fibre and fuel) see **Table 14-7** and **Table 14-8**.

Table 14-7 Sensitivity of receptor: agricultural land resource

Sensitivity / Value of Receptor	ISEP Criteria
High	ALC Grades 1, 2 and 3a
Medium	ALC Grade 3b
Low	ALC Grades 4 and 5
Very Low	Land of ALC Grades 4 and 5 with only indirect links.

Table 14-8 Magnitude of change: agricultural land resource

Magnitude of Change	ISEP Criteria
High	Permanent Loss of over 50 ha
Medium	Permanent Loss of 20 to 50 ha
Low	Permanent Loss of less than 20 ha
Very Low	No Discernible Loss of Agricultural Land

Soil Resources

14.2.54 Sensitivity and magnitude criteria will use ISEP guidance. See **Table 14-9** and **Table 14-10.**

Table 14-9 Sensitivity of receptor: soil resources

Sensitive/Value of Receptor	Example Criteria
High	Disturbing heavy textured soil in plastic condition Disturbing deep peat (>1 m), carbon-rich or priority peatland
Medium	Disturbing medium textured soil in plastic condition Disturbing shallow peat / organo-mineral peat soils

Sensitive/Value of Receptor	Example Criteria
Low	Disturbing heavy to medium textured soil in friable condition Disturbing heavily degraded peat or peat-derived soils
Very Low	Disturbing light textured soil in friable condition Disturbing residual or remnant peat soils extensively oxidised and mineralised and no longer no longer functioning as a carbon store or hydrological unit.

Table 14-10 Magnitude of change criteria: soil resources

Magnitude of Change	Example Criteria
High	Disposal of topsoil or loss of productive functional capacity e.g. land contamination (Adverse). Permanent improvement in productive functional capacity over greater than 50 ha (Beneficial) Permanent loss of peat, excavation, drainage-induced oxidation long-term lowering of water table and export of peat off-site.
Medium	Loss of topsoil for agricultural production but retained for beneficial reuse, or degradation of productive capacity e.g. puddled topsoil (Adverse). Permanent improvement in productive functional capacity in the range 20 to 50 ha (Beneficial). Partial peat disturbance; compaction, temporary drainage with long recovery and localised peat instability
Low	Loss of subsoil for agricultural production but retained for beneficial reuse (Adverse). Permanent improvement in productive functional capacity less than 20 ha (Beneficial) Minor peat compression or disturbance with rapid recovery and full hydrological restoration.
Very Low	Marginal loss of soil material e.g. light erosion from construction easement (Adverse). No direct disturbance: peat fully avoided and soil hydrology maintained

Cumulative and In-Combination Effects

14.2.55 There is the potential for Agriculture and Soils effects as a result of the Scheme to be experienced cumulatively with other nearby developments. A full list of nearby developments that have the potential for in-combination effects with the Scheme will be presented in the ES and assessed where relevant. The BMV land within the site will be considered within the wider (regional) context of the administrative boundaries of East Riding of Yorkshire Council.

14.2.56 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the Cumulative and In-Combination Effects chapter of the ES. Receptors identified within the soils and agriculture assessment will be assessed within in-combination effects assessment.

Assumptions, Limitations and Uncertainties

14.2.57 Soil surveys have been undertaken across the Humberhead Sites. Preliminary findings are included but the results have not been fully analysed for this Scoping report. The ALC baseline is primarily derived from the ALC predictive model.

14.2.58 The construction and operation of ground mounted Solar Panels will not lead to the long-term degradation or loss of soils. Instead, these will give intensively farmed land the opportunity to recover and improve, and for carbon to be stored over the operational life of the Scheme.

Summary of Elements Scoped In and Scoped Out

14.2.59 A summary of the elements scoped into and out of the assessment of Soils and Agriculture is presented in **Table 10-3**.

Table 14-11 Elements scoped in and out of the assessment of Soils and Agriculture

Element	Scoped in / Scoped out	Rationale
Construction		
BMV land	Scoped in	BMV land will be affected by the Scheme. However, impacts of construction are expected to be temporary (2 years) and reversible. Restoration will immediately follow construction for the CRC and following decommissioning for the Sites.
Soil resources	Scoped in	Soil resources within the Humberhead Sites will be surveyed to develop an appropriate SMP to inform the construction of the Scheme and protect the soil quality for reinstatement. Potential for significant effects on

Element	Scoped in / Scoped out	Rationale
		agricultural land or soil resources are to be managed but scoped in.
Food production (realised in construction but continued on to decommissioning)	Scoped out	DEFRA recognises that nationally food production levels could be maintained or moderately increased alongside land use change for solar developments.
Operation		
BMV land	Scoped out	During operation there would be no further development of built infrastructure and therefore no further impacts on BMV land will result from operation. Management and monitoring of soils are to be addressed in the oOEMP.
Soil resources	Scoped out	During operation the land would recover from intensive use, allowing the soil condition and structure to improve during the operational lifetime of the development. Management and monitoring of soils are to be addressed in the oOEMP.
Decommissioning		
BMV Land and soil resources	Scoped in	During the decommissioning phase, all the solar infrastructure would be removed and soil resources restored to return the scheme to baseline conditions. Effects are likely to be less than that of construction and oDEMP will include measures to support the protection of soil resources during reinstatement However, given the sensitivity of peat soils and areas of BMV within the Site, it is proposed to scope in decommissioning effects.

14.3 Materials and Waste

Introduction

14.3.1 This chapter sets out the proposed scope and methodology of the Environmental Impact Assessment ('EIA') with respect to materials and waste. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to materials and waste. Matters that are proposed to be scoped in and out of the assessment are identified. This chapter follows the methodology and checklist for action set out in the Institute of Environmental Management and Assessment ('IEMA') (now known as the Institute of Sustainability and Environmental Professionals ('ISEP') guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (2020) (referred to from herein as the 'IEMA Guidance') (Ref 293).

14.3.2 This chapter does not have any supporting technical figures or appendices.

14.3.3 This Scoping Report considers:

- Consumption of materials (key construction materials only);
- Generation and management of waste against landfill void capacity; and
- Allocated / safeguarded mineral (e.g., quarries, wharves, depots) and waste sites.

14.3.4 Effects on the availability of materials during construction, operation and decommissioning are scoped out of further assessment as outlined in **Table 14-24**.

14.3.5 There are no allocated/safeguarded mineral or waste sites within the Site.

Materials

14.3.6 Materials are defined in the IEMA Guidance as:

"physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel."

14.3.7 Safeguarded mineral and waste sites are considered as part of the material and waste assessment as set out in paragraph 14.3.31 below.

14.3.8 Impacts on Mineral Safeguarding Areas ('MSAs') are not assessed in a materials and waste assessment in accordance with the IEMA Guidance. MSAs are defined on a policy level by in the National Planning Policy Framework ('NPPF') (Ref 11) as:

"as an area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development".

14.3.9 **Chapter 13: Socio-economics** has considered socio-economic impacts to MSAs. MSA are also considered within **Chapter 14: Other Environmental Matters (Ground Conditions).**

Waste

14.3.10 Waste is defined as per the European Waste Framework Directive (Ref 294) as:

"any substance or object which the holder discards or intends or is required to discard"

Legislation, Planning Policy Context and Guidance

14.3.11 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

14.3.12 Relevant legislation includes:

- The Environmental Protection Act 1990 (Ref 165);
- The Environment Act 2021 (Ref 79);
- European Waste Framework Directive (2008/98/EC);
- The Hazardous Waste (England and Wales) Regulations 2005 (as amended) (Ref 295);
- The Waste (England and Wales) Regulations 2011 (as amended) (Ref 296);
- The Waste Electrical and Electronic Equipment ('WEEE') Regulations 2013 (Ref 297);
- The Waste Batteries and Accumulators Regulations 2009 (Ref 298); and
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (Ref 169).

National Planning Policy and Guidance

14.3.13 Relevant national planning policy includes:

- Overarching National Policy Statement ('NPS') for Energy (EN-1) 2025 (designated January 2026) (Ref 8). Reference will be made to Section 5.15 with respect to resource and waste management;
- National Planning Practice Guidance ('NPPG') for Minerals (2014) (Ref 299);
- NPPG for Waste (2015) (Ref 300);

- The Waste Management Plan for England (2021) (Ref 301);
- A Green Future: Our 25 Year Plan to Improve the Environment (2018) (Ref 113);
- Our Waste, Our Resources, A Strategy for England (Resources and Waste Strategy for England) (2018) (Ref 302); and
- The Waste Prevention Programme for England: Maximising Resources, Minimising Waste (2023) (Ref 303).

Local Planning Policy

14.3.14 Relevant local planning policy includes:

- East Riding of Yorkshire and Kingston upon Hull Joint Minerals Plan (2019) (Ref 15) with respect to safeguarded mineral sites (Heritage Quarries, Rail Facilities, Area of Search/ Preferred Area of Search of Sand and Gravel or Crushed Rock);
- East Riding of Yorkshire and Kingston upon Hull Joint Waste Plan (2004) (Ref 16) with respect to the management of waste; and
- East Riding of Yorkshire Local Plan Update 2020-2039 (2025) (Ref 13) with respect to Policy ENV1 and the management of waste.

Relevant Industry Guidance

14.3.15 Relevant industry guidance includes:

- IEMA Guidance (2020);
- Contaminated Land: Applications in Real Environments ('CL:AIRE') Definition of Waste: Development Industry Code of Practice ('DoWCoP'), v2 (2011) (Ref 304); and
- Waste and Resources Action Programme ('WRAP') Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 305).

Consultation

14.3.16 Consultation will be undertaken at a later date with statutory consultees as required.

Study Area

14.3.17 There are two Study Areas for the assessment of impacts related to materials and waste are defined in line with the IEMA Guidance: a Scheme Study Area and an expansive Study Area.

Scheme Study Area

14.3.18 The Scheme Study Area is the area in which construction materials would be used and waste generated and any location of any safeguarded mineral and

waste sites that could be impacted during construction, operation and maintenance, and decommissioning of the Scheme and comprises the Scoping Site Boundary (**Figure 1-1**) (also termed the Zone of Influence ('ZoI')).

14.3.19 Impacts on safeguarded waste sites are not included in the IEMA Guidance, however, they are included in this assessment for completeness.

14.3.20 This Study Area is considered to include the footprint of the works, which includes a ground mounted solar photovoltaic ('PV') electricity generating station, associated development including a Battery Energy Storage System ('BESS'), electrical and grid connection infrastructure and landscaping and biodiversity enhancements. This includes temporary offices, compounds and storage areas.

Expansive Study Area

14.3.21 The Expansive Study Area for waste management is defined based on professional judgement and informed by consideration of the proximity principle (waste to be dealt with as close as possible to where it is produced).

14.3.22 The Expansive Study Area for non-hazardous and inert waste management is Yorkshire and the Humber (as defined by the Environment Agency). This is the region in which the Scheme is located. The Expansive Study Area includes the following sub-regions as outlined in the Environment Agency's 2025 Waste Summary Tables for England – Version 1 (Ref 306):

- Former Humberside;
- North Yorkshire;
- South Yorkshire; and
- West Yorkshire.

14.3.23 The Expansive Study Area for hazardous waste management is England.

14.3.24 The proximity principle for hazardous waste in England is outlined in Principle 2 – Infrastructure Provision in the Strategy for Hazardous Waste Management in England (Ref 312):

"We look to the market for the development of hazardous waste infrastructure, which implements the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self-sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met."

14.3.25 Planning for hazardous waste management is also undertaken at the England level.

14.3.26 The Expansive Study Area for availability of aggregates, asphalt and concrete is the Yorkshire & the Humber region. The expansive Study Area for steel is the United Kingdom ('UK').

Baseline Conditions

14.3.27 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to materials and waste.

Availability of Key Construction Materials

14.3.28 UK regional data has been used to establish a quantitative baseline of the availability for key construction materials (requirement and production are used as a proxy for availability). **Table 14-12** summarises regional production in 2024 for aggregates, asphalt and concrete (Ref 307) and the UK requirement in 2024 for steel (Ref 308) (the most recent years for which data is available), which are the key construction materials expected to be used during the construction of the Scheme.

14.3.29 It is assumed the majority of key construction materials would be sourced locally, taking into account the proximity principle.

Table 14-12 Consumption and demand for key construction materials

Materials	Regional availability (million tonnes, year)	National availability (million tonnes, year)	10% of regional availability* (tonnes)	10% of national availability* (tonnes)	Baseline Data Year	Data Description
Steel	No regional data available	16	Not applicable.	1,600,000	2024	UK Steel (2025), Steel requirement
Total aggregates (crushed rock and sand and gravel)	13.4	Not applicable assessed at a regional level	1,340,000	Not applicable	2024	Regional Mineral Product Profile Yorkshire & the Humber- Mineral Product Association 2025, material production
Asphalt	1.8	Not applicable assessed at a regional level	180,000	Not applicable	2024	
Ready-mixed concrete (regional data converted to million	1.3	Not applicable assessed at a regional level	130,000	Not applicable	2024	

Materials	Regional availability (million tonnes, year)	National availability (million tonnes, year)	10% of regional availability* (tonnes)	10% of national availability* (tonnes)	Baseline Data Year	Data Description
tonnes from m^3 using a density of 2.4 t/m^3)						
Concrete products (pre-cast concrete)	No regional data available.	22.4	Not applicable.	2,240,000	2023	
*10% of availability noted as the point of significance for materials based on a sensitivity of low.						

14.3.30 Potential recycled contents for the main construction materials are outlined in **Table 14-13**. These "good practice" rates are derived from the WRAP Designing Out Waste Tool for Civil Engineering.

Table 14-13 Potential recycled content

Material Type	Potential Recycled Content (% by weight)
Concrete	16
Asphalt	25
Aggregates	50
Steel reinforcement	100
Structural steel	60

Safeguarded Mineral and Waste Sites

14.3.31 There are no safeguarded mineral sites within the Humberhead Sites, including no Heritage Quarries, Rail Facilities, Oil & Gas Licences, Area of Search/ Preferred Area of Search of Sand and Gravel or Crushed Rock as defined by the East Riding of Yorkshire Joint Minerals Plan.

14.3.32 There are no safeguarded waste sites within the Site as defined by the East Riding of Yorkshire Joint Waste Plan.

14.3.33 There are two permitted waste sites associated with built assets within the Cable Route Search Corridor ('CRSC'):

- Jo Rotherham Masonry, Ian Drummond and Mr Daniel Chrispin & Mr Adam Chrispin (cluster of three); and
- Lincoln Proteins Limited.

14.3.34 The CRSC represents the area of search for the Cable Route Corridor ('CRC') to connect the Humberhead Sites to each other and to and the National Grid Thornton Substation. The search area will be refined as the design of the Scheme is developed and technical and environmental surveys are undertaken in addition to landowner negotiations and consultation input. Since these waste sites are associated with existing built assets and permitted activities, they are will not be to be impacted by the Scheme and will be avoided by CRC as the project progresses.

14.3.35 Businesses with waste exemptions are also present within the CRSC, however, as waste exemptions are associated with existing built assets and the associated activities of dredging of inland waters, storing and spreading material on farmland, end of life vehicle use, burning waste, and aerobic composting, they are unlikely to be impacted by the Scheme.

Landfill Capacity

14.3.36 Baseline information consists of current landfill capacity in Yorkshire and the Humber for non-hazardous waste and England for hazardous waste, as outlined in the Environment Agency's 2025 Waste Summary Tables for England – Version 1 and presented in **Table 14-14**.

14.3.37 Hazardous restricted sites are not included since that capacity may not be available to the Scheme. Restricted landfills only accept waste from a restricted set of sources and producers, commonly the site operator e.g. a manufacturing site.

Table 14-14 Landfill capacity in Yorkshire & the Humber region (2025)

Landfill Type	Yorkshire & the Humber Landfill Capacity (000s m^3)	England Landfill Capacity (000s m^3)
Hazardous merchant	Not applicable, hazardous waste assessed at the England level	9,167
Non-hazardous with Stable Non-reactive Hazardous Waste ('SNRHW') cell	1,243	Not applicable, non-hazardous and inert waste assessed at the regional level
Non-hazardous	37,631	
Inert	14,387	
Total	53,712	

Historic and Permitted Landfills

14.3.38 There are no authorised landfills recorded within the Scoping Site Boundary, as outlined in the Environment Agency's Permitted Waste Sites – Authorised Landfill Site Boundaries (Ref 309).

14.3.39 There are no historic landfill sites located within the Scoping Site Boundary, as outlined in the Environment Agency's Permitted Waste Sites – Historic Landfill Site Boundaries (Ref 310).

Future Baseline

14.3.40 There is no publicly available information on any potential changes to UK or regional material availability by the anticipated time of the construction of the Scheme. Construction material demand, including ready mixed concrete, is closely aligned to both the quantity of construction taking place and the general economy. It is deemed inappropriate to forecast future material availability as the demand is unlikely to be linear and it is not possible to set a future baseline for materials. As such, future material availability is assumed to remain the same as the current baseline as outlined in **Table 14-12**.

14.3.41 There is no publicly available information regarding any potential changes to landfill capacity by the anticipated time of the Scheme's construction, operation and decommissioning.

14.3.42 Due to the cyclic nature of inert and hazardous landfill capacity (e.g. landfill capacity decreasing, and then new sites or landfill cells being opened with landfill capacity increasing), it is not realistic to forecast future landfill capacity. Therefore, inert and hazardous landfill capacity is assumed to remain the same as the current baseline as outlined in **Table 14-14**.

14.3.43 For non-hazardous waste, using the current rate of decline of landfill capacity and future forecasting would lead to the conclusion there would be no void space remaining. However, this is not a credible scenario as if there is still a need for landfill, then the Waste Planning Authority ('WPA') will need to consent new landfill capacity to replace that which has been used up. Therefore, non-hazardous landfill capacity is assumed to remain the same as the current baseline, as outlined in **Table 14-14**.

Targets

14.3.44 The UK target for recovery of construction and demolition waste is 70% by weight, as set out in the European Waste Framework Directive and the Waste Management Plan for England. The target specifically excludes naturally occurring materials with European Waste Catalogue ('EWC') Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling and other recovery (e.g. energy recovery).

14.3.45 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the IEMA Guidance. In 2022, England generated 63.0 million tonnes of non-hazardous construction & demolition ('C&D') waste, of which 59.4 million tonnes was recovered. This represents a recovery rate of 94.3% (Ref 311).

14.3.46 Standard, good and best practice recovery rates by material are provided by WRAP. Recovery rates for key construction wastes relevant to the Scheme are provided in **Table 14-15**.

Table 14-15 Standard, Good and Best Practice Recovery rates by material

Material	Standard Practice Recovery (%)	Good Practice Recovery (%)	Best Practice Recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste e.g. asbestos must be landfilled.	

Potential Effects and Mitigation

14.3.47 Mitigation measures being incorporated in the design and construction of the Scheme are set out below. Prior to mitigation implementation, the Scheme has the potential to affect Materials and Waste, during construction, operation and decommissioning, in the following ways:

- Changes in availability of materials; and
- Changes in available landfill void capacity.

14.3.48 The Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy, illustrated in **Plate 14-1**.

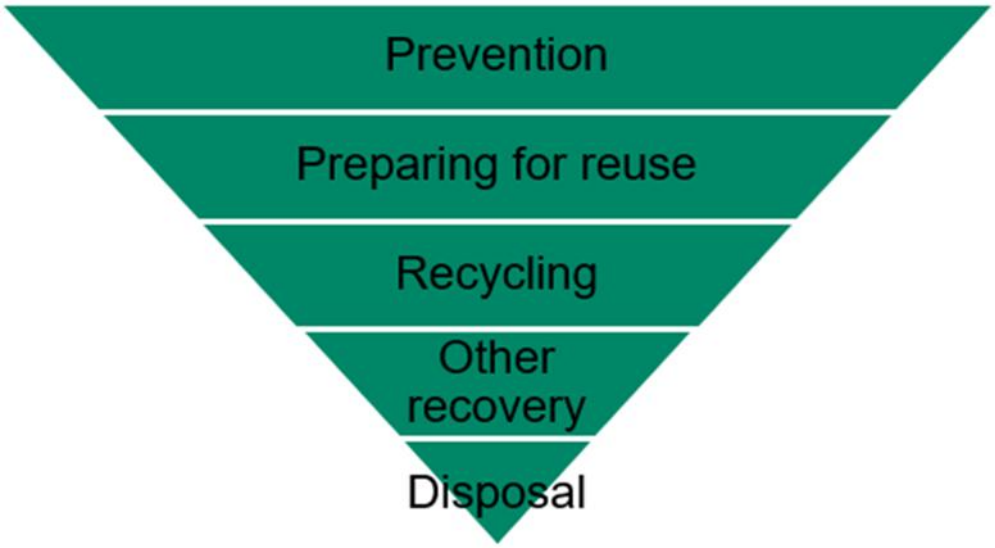


Plate 14-1 The Waste Hierarchy, from Defra's Guidance on Applying the Waste Hierarchy, recreated by AECOM

14.3.49 All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste carriers to waste management sites holding the necessary regulatory authorisation and/or permits for those wastes consigned to them.

Construction

14.3.50 The construction of the Scheme will be subject to measures and procedures defined within an outline Construction Environmental Management Plan ('oCEMP'), which will ultimately be taken forward to a CEMP implemented during construction, and an outline Site Waste Management Plan ('oSWMP').

14.3.51 The CEMP and SWMP will be secured by Requirements in the DCO, including the implementation of industry standard practice and control measures for environmental impacts arising during construction, including the approach for material and waste management on-site. These measures will be set out in the oCEMP and oSWMP submitted with the DCO Application. The construction contractor will use the oCEMP and oSWMP to produce their detailed CEMP and SWMP respectively, prior to on-site works commencing.

Operation and Maintenance

14.3.52 The operation of the Scheme will be subject to measures and procedures defined within an outline Operational Environmental Management Plan ('oOEMP') secured by a Requirement in the DCO. This will be submitted as part of the DCO application, which will include the approach for material and

waste management and mitigation on-site. The Applicant will use the oOEMP to produce its detailed OEMP prior to operation. The detailed OEMP will include an Operational Waste Management Plan ('OWMP').

Decommissioning

14.3.53 The decommissioning of the Scheme will be subject to best practice following relevant legislation at the time of decommissioning and following the waste hierarchy. This will be defined within an outline Decommissioning Environmental Management Plan ('oDEMP') secured by a Requirement in the DCO. This will be submitted as part of the DCO application, which will include the approach for material and waste management and mitigation on-site. The decommissioning contractor will use the oDEMP to produce their detailed DEMP prior to decommissioning. The detailed DEMP will include a Decommissioning Waste Management Plan ('DWMP').

Solar Scheme Specific Wastes

14.3.54 Solar panels that will be used in the Scheme are primarily composed of glass, aluminium frames, silicon cells, copper wiring and polymers/plastics. The majority of these materials can typically be recycled and recovered at end of life.

14.3.55 Recycling routes are generally available for solar scheme specific waste at present via specialist UK solar panel recyclers, and it is likely that there will be even greater opportunities for recycling in the future, not least because the recycling market will have expanded to meet demand as solar installations increase.

14.3.56 It is likely that the solar panels and battery waste generated by the Scheme, during construction, operation and maintenance and decommissioning phases, would be managed by specialist regional or national facilities; these facilities would be developed over the operation and maintenance phase of the Scheme in response to demand generated by the UK-wide solar energy industry. The capacity of such facilities is not expected to be influenced by other non-solar farm projects in the surrounding area; this is because the facilities will only be managing specific solar panel waste.

14.3.57 In addition, private sector waste companies will develop these facilities to respond to market demands. At present, solar PV panel waste generation is low, therefore there is a limited demand for facilities and their associated limited available capacity. It is therefore expected that the facilities which reuse, recycle, or recover end of-life solar panels will be developed as the quantities of this waste stream increase.

14.3.58 The WEEE Regulations 2013 and The Waste Batteries and Accumulators Regulations 2009 place obligations on companies who place solar panels and

batteries on the market to finance the costs of collection, treatment, recovery and environmentally sound disposal; and the landfill tax strongly incentivise reuse, recycling and recovery.

14.3.59 The Applicant is a signatory to the Solar Stewardship Initiative and is committed to designing and operating solar schemes in a manner that minimises environmental impacts, including through the reuse, recycling and recovery of materials and waste where practicable. At the end of the Scheme's operational life, decommissioning activities would seek to maximise material and waste recycling and recovery and minimise disposal to landfill through the use of specialist waste management contractors.

Methodology

14.3.60 This section outlines the methodology for assessing the likely significant effects associated with materials and waste. The IEMA Guidance offers two methods for the assessment of waste.

- W1 – void capacity - has been selected as this is a more detailed methodology, appropriate for larger and more complex projects and recommended for statutory EIA.
- W2 – Landfill Diversion is a simpler approach, which is less robust than W1 and more appropriate for smaller and less-complex development and non-statutory EIA.

14.3.61 The sensitive receptors for the assessment of the construction, operational and decommissioning phase materials and waste impacts are:

- Materials, UK and regional availability of key construction materials – as outlined in the IEMA Guidance:

  "Materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long-term availability; this results in the depletion of natural resources and adversely impacts the environment"; and

- Landfill void capacity in the Expansive Study Area of the Yorkshire and the Humber region (non-hazardous and inert landfill void capacity) – as defined in the IEMA Guidance as:

  "Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities, this requires the depletion of natural and other resources which, in turn, adversely impacts the environment."

14.3.62 Potential recycled content for the main construction materials is outlined in **Table 14-13**.

14.3.63 As stated in the IEMA Guidance:

"due to uncertainties relating to future technologies and infrastructure, this first edition of the guidance does not incorporate a proposed methodology to assess impacts and effects during decommissioning or end of first life."

14.3.64 However, the criteria in the IEMA Guidance will be applied to decommissioning for the Scheme.

14.3.65 The assessment of materials and waste considers the following:

- Waste producers have a legal duty of care to manage their waste in accordance with regulations and to make sure any waste leaving the site where it is generated is transferred to a suitably licensed facility for further treatment or disposal;
- Facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a license, and impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for these facilities themselves;
- As part of their planning function, WPAs are required to ensure that sufficient land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA's area, or through export to suitable facilities in other areas; and
- Minerals Planning Authorities ('MPAs') are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national (England) and regional supply policies, and local development needs.

Methodology for Determining Construction, Operational, and Decommissioning Effects

Materials

14.3.66 Effects upon materials during construction, operation and decommissioning of the Scheme are assessed by:

- Establishing the baseline for UK (steel only) and regional availability of key construction materials by weight;
- Assessing the sensitivity of materials as related to the availability and types of materials to be consumed by the Scheme in construction, operation and decommissioning;
- Establishing the quantities of key construction materials required for the construction of the Scheme; and
- Comparing the total quantities of key construction materials with the most recent UK and regional availability (utilising a percentage approach).

Waste

14.3.67 Effects upon waste during construction, operation and decommissioning of the Scheme is assessed by:

- Establishing the baseline landfill void capacity in the expansive Study Areas;
- Assessing the sensitivity of landfill void capacity;
- Establishing the quantities of construction, operation and decommissioning waste to be generated during the construction, operation and decommissioning of the Scheme; and
- Comparing the total waste arising from the construction, operation and decommissioning of the Scheme against the landfill void capacity (using a percentage approach).

Assessment Criteria

Sensitivity

14.3.68 The sensitivity of materials relates to the availability and type of construction material to be consumed by the Scheme. The IEMA Guidance criteria described within **Table 14-16** is used to determine the sensitivity of materials.

Table 14-16 Material receptor sensitivity

Sensitivity	Criteria for Materials Receptor Sensitivity
Negligible	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock. And/or are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*.
Low	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. And/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock. And/or are available comprising some sustainable features and benefits compared to industry-standard materials.
High	On balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock. And/or

Sensitivity	Criteria for Materials Receptor Sensitivity
	Comprise little or no sustainable features and benefits compared to industry-standard materials.
Very High	On balance, the key materials required for the construction of the Scheme are forecast are known to be insufficient in terms of production, supply and/or stock. And/or Comprise no sustainable features and benefits compared to industry-standard materials.
** Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.*	

14.3.69 The sensitivity of waste relates to availability of landfill capacity in the absence of the Scheme. As outlined in the IEMA Guidance *"landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste"*. The sensitivity of landfill capacity is assessed based on a review of historic landfill void capacity trends where available and information from relevant policy documents.

14.3.70 The criteria described within **Table 14-17** and **Table 14-18** is used to determine the sensitivity of landfill capacity.

Table 14-17 Inert and non-hazardous landfill capacity sensitivity

Sensitivity	Criteria for Inert and Non-hazardous Landfill Capacity Sensitivity
Negligible	Across construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Across construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected to reduce minimally by <1%.
Medium	Across construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected to reduce noticeably by 1-5%.
High	Across construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity is expected to reduce considerably by 6-10%.
Very High	Across construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional inert and non-hazardous landfill capacity: • Is expected to reduce very considerably (by >10%);

Sensitivity	Criteria for Inert and Non-hazardous Landfill Capacity Sensitivity
	• Is expected to end during construction or operation; • Is already known to be unavailable; or • Would require new capacity or infrastructure to be put in place to meet forecast demand.

Table 14-18 Hazardous landfill capacity sensitivity

Sensitivity	Criteria for Hazardous Landfill Capacity Sensitivity
Negligible	Across the construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Across the construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce minimally by <0.1%.
Medium	Across the construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce noticeably by 0.1-0.5%.
High	Across the construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce considerably by 0.5-1%.
Very High	Across the construction and/or operation phases, the baseline/ future baseline (i.e. without the Scheme) of regional (or where justified, national) hazardous landfill capacity: • Is expected to reduce very considerably (by >1%); • Is expected to end during construction or operation; • Is already known to be unavailable; or • Would require new capacity or infrastructure to be put in place to meet forecast demand.

Magnitude

14.3.71 The magnitude of impact describes the degree of variation from the baseline conditions as result of the Scheme. The methodology for assessing the magnitude of impact on materials comprises a percentage-based approach that determines the influence of construction materials use on the baseline demand from the construction of the Scheme. The criteria used to assess the magnitude of impact for materials are provided within **Table 14-19**.

Table 14-19 Materials magnitude of impact

Magnitude of Impact	Criteria for Materials Magnitude of Impacts
No change	Consumption of no materials is required.

Magnitude of Impact	Criteria for Materials Magnitude of Impacts
Negligible	Consumption of no individual material type is equal to or greater than 1% by volume of the baseline availability.
Minor	Consumption of one or more materials is between 1-5% by volume of the baseline availability.
Moderate	Consumption of one or more materials is between 6-10% by volume of the baseline availability.
Major	Consumption of one or more materials is >10% by volume of the baseline availability.

14.3.72 The methodology for assessing the magnitude of impact for waste comprises a percentage-based approach that determines the influence of waste generation from the construction, operation and decommissioning of the Scheme on the baseline landfill capacity. The criteria used to assess the magnitude of impact for resources and waste are provided within **Table 14-20** and **Table 14-21**.

Table 14-20 Inert and non-hazardous waste magnitude of impact

Magnitude of Impact	Criteria for Inert and Non-hazardous Waste Magnitude of Impacts
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by <1%
Minor	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by 1-5%
Moderate	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by 6-10%.
Major	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by >10%.

Table 14-21 Hazardous waste management magnitude of impact

Magnitude of Impact	Criteria for Hazardous Waste Magnitude of Impacts
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by <0.1%
Minor	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by <0.1-0.-5%
Moderate	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by <0.5-1%.
Major	Waste generated by the development will reduce expansive Study Area landfill capacity baseline by >1%.

Significance

14.3.73 **Table 14-22**describes the effect thresholds used in determining the effects; and **Table 14-23** shows the significance of the effect.

Table 14-22 Effect thresholds

		Magnitude of Change				
		No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Sensitivity of receptors	**Very High**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Table 14-23 Significance of effect

Magnitude of Impact	Materials	Waste
Neutral	Not significant	Not significant
Slight		
Moderate	Significant	Significant
Large		
Very Large		

Approach to Materials

14.3.74 Based on construction materials estimates of three similar sized (500 MW) projects already assessed by IGP (East Pye Solar (EN0110014), The Droves Solar Farm (EN0110013) and Lime Down Solar Project (EN010168)) it is anticipated construction material quantities for Humberhead would be the below the point of significance.

14.3.75 A 'low' sensitivity (refer to **Table 14-16**) for construction material has been selected because on balance, the key materials required for the construction of the Scheme are forecast (through trend analysis and other information, refer to paragraphs 14.3.28 and 14.3.40) to be generally free from known issues regarding supply and stock and/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.

14.3.76 The point of significance based for 'low' sensitivity materials is 10% of national (for steel) and regional (aggregates, asphalt and ready mixed concrete) availability, i.e. a major magnitude of impact set out in **Table 14-19**. The UK and regional availability of these materials are outlined in **Table 14-12**.

14.3.77 The construction material estimates ranges for the three similar sized 500 MW projects already assessed by IGP are set out below. It is assumed that the Scheme will require similar quantities of materials to construct and therefore the top end of the ranges been considered in this Scoping Report as a worst-case scenario.

- Steel 16,700 – 22,100 tonnes, the top end of the range is 0.14% of UK steel availability.
- Aggregates 123, 676 – 157,000 tonnes, the top end of the range is 1.17% of regional aggregate availability.
- Asphalt, no estimate is provided because minimal asphalt (less than concrete and aggregates) is required in solar schemes, therefore it is assumed asphalt used on the project would be less than 10% of the regional asphalt availability.
- Concrete 1,570 - 86,500 tonnes the top end of the range is 6.7% of regional ready mixed concrete availability. This is considered a worst case since some of the total concrete is likely to be pre-cast concrete. There is no regional baseline for pre-cast concrete. When the top end of the range is compared to the UK pre-cast concrete availability this is 0.4%.

14.3.78 Therefore, with reference to **Table 14-19** the magnitude of impact is anticipated to be negligible (for steel), minor (for aggregates) and moderate (for concrete if in a worst case all concrete is ready mixed concrete). Overall, for construction, this would result in a slight effect (refer to **Table 14-22**), which is not significant.

14.3.79 **Chapter 4: Scheme Description** sets out the proposed activities during the operation and decommissioning phases. The activities carried out the operation (general maintenance and operational replacement of components) and decommissioning phases will require much lower quantities of materials compared to the construction phase. Therefore, no significant effects associates with material use are anticipated for these phases.

14.3.80 Therefore, it is proposed that material use be scoped out of the environmental impact assessment.

Cumulative and In-Combination Effects

14.3.81 A cumulative assessment following the same approach as the assessment of the Scheme presented above will be included in the ES. The cumulative assessment will consider the waste generated from other solar schemes in the

East Ridings of Yorkshire (ZoI for the cumulative assessment). This ZoI is selected since East Ridings of Yorkshire is the Waste Planning Authority in which the Scheme sits.

14.3.82 For the purposes of the cumulative assessment, planning applications for solar schemes in the last five years will be assessed; this is due to the assumption that scheme applications in the last five years will be eventually decommissioned within a similar 5-year period. It will be assumed as worst case that all applications will be constructed.

14.3.83 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the ES. Receptors identified within the waste assessment will be assessed within in-combination effects assessment.

Assumptions, Limitations and Uncertainties

14.3.84 The material and waste scoping has been undertaken based on information available at the time of writing. Any assumptions made for scoping and the limitations this presents are reported including:

- The future baseline is assumed to be same as the current baseline as outlined in **Table 14-14**; and
- Construction material estimates at this stage are based on other similar Solar Nationally Significant Infrastructure Project ('NSIP') schemes.

Summary of Elements Scoped In and Scoped Out

14.3.85 A summary of the elements scoped into and out of the materials and waste assessment is presented in **Table 14-24**. The conclusion as to whether each element is scoped in or out is relevant to the Construction, Operation, and Decommissioning phases.

Table 14-24 Elements scoped in and out of the materials and waste assessment

Element	Scoped in / Scoped out	Rationale
Changes in available landfill void capacity	Scoped in	Due to the limitation on design information available at this stage (waste quantities), and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, waste generation during the construction, operation and decommissioning (changes in available landfill void capacity) of the

Element	Scoped in / Scoped out	Rationale
		Scheme is scoped into the assessment. This is a reasonable worst case approach.
Changes in availability of materials.	Scoped out	It is anticipated that the quantities of materials used for the Scheme are unlikely to reach the point of significance.
Waste arising from extraction, processing, and manufacture of construction components and products.	Scoped out	Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.
Environmental impacts associated with management of waste from the Scheme e.g., on water resources, air quality, noise, or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste.	Scoped out	Environmental impacts associated with management of waste from the Scheme e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant sections.
Environmental impacts associated with the operation of offsite waste management facilities used by the Scheme in construction, operation and decommissioning.	Scoped out	Environmental impacts are considered as part of the planning and permitting process for these facilities themselves.
Changes to allocated/ safeguarded mineral sites.	Scoped out	There are no allocated / safeguarded mineral or waste sites within the Site.
Changes to allocated / safeguarded waste sites.	Scoped out	
Changes to permitted waste sites	Scoped out	Two permitted waste sites have been identified with the CRSC. These will be avoided by the CRC as it is refined.

14.4 Glint and Glare

Introduction

14.4.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to glint and glare impacts in respect of residential amenity, road safety, railway operations and infrastructure and aviation safety. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology

relevant to glint and glare. Matters that are proposed to be scoped in and out of the assessment are identified.

14.4.2 A Glint and Glare assessment will accompany the Environmental Statement ('ES') and application for a Development Consent Order ('DCO'), with any significant effects identified expected to be reduced to not significant through iterative design changes or mitigation screening prior to the application being submitted.

Legislation, Planning Policy Context and Guidance

14.4.3 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the ES.

Legislation

14.4.4 There is limited legislation in the UK at present in relation to the assessment of glint and glare for proposed developments. The relevant legislation is listed below;

- The Air Navigation Order 2016 (Ref 313).

National Planning Policy

14.4.5 Relevant national planning policy includes:

- National Policy Statement ('NPS') for Renewable Energy Infrastructure (EN-3) (Ref 9) with paragraphs 2.10.94 to 2.10.98 setting out policy with respect to the preparation of glint and glare assessments with respect to solar developments

Local Planning Policy

14.4.6 Relevant local planning policy includes:

- East Riding of Yorkshire Local Plan Update 2020-2039 (Adopted 2025) (Ref 13) with reference to Policy EC5: Supporting the renewable and low carbon energy sector.

Guidance

- Civil Aviation Authority ('CAA') – CAP738: Safeguarding of Aerodromes 3rd Edition (Ref 314);
- US Federal Aviation Administration ('FAA') Policy (Ref 315); and
- FAA Policy: Review of Solar Energy Systems Projects on Federally - Obligated Airports (Ref 316).
- Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 25);

- Planning Practice Guidance ('PPG') on Renewable and Low Carbon Energy (UK) (Ref 263); and
- Planning Guidance for the Development of Large Scale Ground Mounted Solar PV Systems (Ref 320).

Consultation

14.4.7 No consultation has been undertaken to date. If deemed necessary after the initial modelling phase of the Glint and Glare, consultation will be undertaken with the relevant statutory parties, including Wolds Gliding Club at Pocklington Airfield. Other potential consultees are the CAA and the National Highways.

Study Area

14.4.8 A 1 km Study Area from the Humberhead Sites is deemed appropriate for the assessment of ground-based receptors as this contains a good spread of residential and road receptors in most directions from the Scheme. Aviation receptors within 30 km of the Humberhead Sites will be identified, and licensed aerodromes within 20 km, military aerodromes within 10 km and small airfields and helipads within 5 km will be assessed.

14.4.9 No railway lines have been identified within 1 km of areas of the Scheme which are expected to host solar PV, therefore railway receptors fall outside the Study Area.

14.4.10 The further distance a receptor is from a solar farm, the less chance it has of being affected by glint and glare due to scattering of the reflected beam and atmospheric attenuation, in addition to obstructions from ground sources, such as any intervening vegetation or buildings. This is based on best practice and previous experience of completing Glint and Glare Assessments across the UK and Ireland including previous Nationally Significant Infrastructure Project ('NSIP') schemes which been granted a DCO including: Longfield Solar Farm, Tillbridge Solar, Gate Burton Energy Park, Fenwick Solar Farm, East Yorkshire Solar Farm.

Baseline Conditions

14.4.11 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to glint and glare.

14.4.12 There are a number of residential receptors within the Study Area which will require assessment, notably within the villages of Allerthorpe, Hayton, Londesborough, Shiptonthorpe, Seaton Ross, Foggathorpe and Holme-on-Spalding-Moor as well as other properties located within the vicinity.

14.4.13 There are also a number or roads within the Study Area which will require assessment, including, but not limited to, A1079, B1247, A614 and A163.

Major roads to be assessed will include motorways, dual-carriageways, A roads, B roads and main roads. Minor roads excluded from assessment are low speed roads which serve residential, commercial and industrial estates, roads which serve individual properties and single track roads.

14.4.14 There are a number of aerodromes within 30 km of the Scheme. Only one - Pocklington Airfield, operated by Wolds Gliding Club and located approximately 1.2 km from the Humberhead Sites, will require assessment, as the Scheme is located within its safeguarding buffer zone as outlined in paragraph 14.4.53. Pocklington Airfield does not have an air traffic control tower ('ATCT'), therefore no ATCTs will require assessment.

14.4.15 There are no railway lines within the Study Area, and therefore none which require assessment for glint and glare impacts.

14.4.16 There are no riverways or canals within the Study Area which require assessment for glint and glare impacts. Pocklington Canal and Market Weighton Canal are both narrow waterways through which any craft would be moving at low speed, therefore any impacts would be negligible in nature and not cause a safety concern.

14.4.17 Public Rights of Way ('PRoWs') do not require assessment due to there being negligible to no adverse safety effects of glint and glare from solar farm developments. Pedestrians and cyclists can mitigate or negate glint and glare impacts through a variety of means such as looking away, wearing sunglasses, or shielding their eyes with the brim of a hat or their hands. This approach has been acceptable on a number of consented DCOs such as Longfield Solar Farm, Tillbridge Solar, Gate Burton Energy Park and Fenwick Solar Farm in addition to other projects.

14.4.18 There are a number of bridleways within 1 km of the Humberhead Sites, however the British Horse Society ('BHS') has released advice on solar farms near routes used by equestrians (August 2025) (). This advice states: *"Panels are designed to absorb and not reflect light for efficiency (reflected light is wasted energy) and although the amount of reflection varies with the materials, the incidence of 'glint and glare' is negligible compared with glass or water and will not be uniform throughout a period of sunlight*". It further states in relation to glint and glare and its effects on horses: *"Increasingly, proposals for solar farms include comment on the impact of 'glint and glare'. The Society has no evidence of 'glint and glare' from solar panels and no evidence of horses reacting to it or of it being detrimental to the health and wellbeing of horses."*

Potential Effects and Mitigation

14.4.19 This section sets out the potential effects of the Scheme on residential and bridleway amenity, as well as road and aviation safety.

Construction and Decommissioning

14.4.20 Glint and glare impacts during the construction and decommissioning phases of the Scheme will typically be less than during the operational phase due to fewer panels being in situ. The worst-case glint and glare impacts will be present during the operational phase of the Scheme which will be the focus of the assessment, albeit these are predicted to be limited.

14.4.21 Mitigation in the form of vegetation planting may be recommended after assessment of the operational phase. Advanced planting, or similar, during the construction phase of the Scheme can be used to ensure the mitigation is fully implemented before the Scheme is operational.

Operation and Maintenance

14.4.22 The operational phase of the Scheme will have the maximum potential for glint and glare impacts due to all the proposed Solar Panels being in situ, however these impacts are likely to be limited due to standard mitigations such as anti-reflective coatings, vegetation and topography. Glint and glare impacts from Solar Panels have the potential for adverse effects on residential properties, road users, rail users and aviation assets such as ATCTs and pilots on approach to runways and helipads.

14.4.23 Existing topography, vegetation and infrastructure has the potential to screen glint and glare effects from ground-based receptors such as residential properties, road users, rail users, bridleway users and ATCTs.

14.4.24 Common mitigation strategies to reduce impacts from glint and glare for ground-based receptors are:

- Provision of screening (in the form of enhancement to existing hedgerows/trees or new planting) at the site boundary or within the Site between receptors and areas of visible Solar Panels;
- Refinement of the Site layout and design, which may include adjustments to the azimuth orientation and/or tilt angle of Solar Panels; and
- Implementing areas of fixed panels instead of single-axis tracking panels Both technologies will be assessed within the DCO application to retain design flexibility, with technology selection refined at detailed design stage where necessary. However, it may be appropriate to implement fixed or tracker panels in specific areas.

14.4.25 The most commonly applied mitigation for ground-based receptors is the introduction of perimeter or strategic screening to interrupt lines of sight to visible Solar Arrays. Where appropriately designed and established, such screening can reduce or remove potential glint and glare effects.

14.4.26 The specific areas of the Solar Array requiring potential screening, where applicable, will be identified through the Glint and Glare assessment

submitted with the DCO. Where screening is not practicable or sufficient on its own, further refinements to site layout and/or panel configuration will be considered at detailed design stage.

14.4.27 Glint and glare effects from solar panels are generally of lower intensity than direct solar irradiance; however, under certain geometric conditions they may give rise to temporary visual effects for aviation receptors (including aircraft on approach).

14.4.28 The assessment will therefore consider the potential for glint and glare to result in distraction or nuisance to pilots, having regard to receptor location, flight paths, and duration of effects.

14.4.29 Where modelling identifies potentially significant effects, design mitigation measures (such as panel orientation, layout refinement, or screening) will be considered to ensure effects are reduced to an acceptable level in consultation with relevant aviation stakeholders.

14.4.30 Replacement of solar panels will be undertaken once during the operational lifetime of the Scheme. During this period the glint and glare impacts will be similar to the construction and decommissioning phases of the Scheme and so not assessed further.

Methodology

14.4.31 This section describes the methodology proposed for the assessment of the effects of glint and glare, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

14.4.32 A desk-based assessment will be undertaken when a preliminary design of the site layout has been completed, to identify when and where glint and glare may be visible at receptors within the Study Area of the Humberhead Sites, throughout the day and the year.

Sun Position and Reflection Model

Sun Data Model

14.4.33 The calculations in the solar position calculator are based on equations from Astronomical Algorithms. The sunrise and sunset results are theoretically accurate to within a minute for locations between +/- 72° latitude, and within 10 minutes outside of those latitudes. However, due to variations in atmospheric composition, temperature, pressure and conditions, observed values may vary from calculations.

Solar Reflection Model

14.4.34 The position of the sun is calculated at one-minute intervals of a typical year.

14.4.35 In order to determine if a solar reflection will reach a receptor, the following variables are required:

- Sun position;
- Observer location; and
- Tilt, orientation, and extent of the solar panels in the solar array.

14.4.36 The model assumes that the azimuth and horizontal angle of the sun is the same across the Humberhead Sites. This is considered acceptable due to the distance of the sun from the Scheme and the miniscule differences in location of the sun over the Humberhead Sites.

14.4.37 The solar reflection in the model is considered to be specular as a worst-case scenario. In practice, the light from the sun will not be fully reflected as solar panels are designed to absorb light rather than reflect it. The text above and the associated appendix submitted as part of the ES will outline the reflective properties of solar glass and compares it to other reflective surfaces.

14.4.38 Most modern solar panels have a slight surface texture which should have a small effect on diffusing the solar radiation further, as well as utilising black, polycrystalline panels which are known for their lower reflectance. Although, this has not been modelled to conform with the worst-case scenario assessment.

14.4.39 The panel reflectivity will be modelled to assume an anti-reflective coating ('ARC'), which is the industry standard for Solar Panels and further reduces the reflective properties of the Solar Panels.

Determination of Ocular Impact

14.4.40 The software used for this assessment is based on the Sandia Laboratories Solar Glare Hazard Analysis Tool ('SGHAT'). This tool is specifically mentioned in the FAA guidance as the software that should be used in this type of assessment. Again, this is following the current best practice available due to the lack of UK guidance.

14.4.41 The impact (Ref 318) of viewed glare can be classified into three levels based on the retinal irradiance and subtended source angle: low potential for after-image (green), potential for after-image (yellow), and potential for permanent eye damage (red).

14.4.42 Green glare can be ignored when looking at ground based and some aviation receptors. Green glare does not cause temporary flash blindness and happens at an instant with very slight disturbance. As per FAA guidelines, mitigation is only required for green glare when affecting an Air Traffic

Control Tower, but not for when affecting pilots. Therefore, it can be assumed that green glare is acceptable for ground-based receptors.

14.4.43 The modelling software outputs a hazard plot for each receptor predicted to be impacted by glare from the Solar Array. The hazard plot shows that the irradiance of the Sun is approximately three orders of magnitude greater than the reflected irradiance, i.e., the power density of solar reflections from photovoltaic panels are approximately 0.1% that of viewing the Sun. Due to the disparity in irradiance, whenever the Sun is observed in the same frame as solar reflections from a Solar Array, the Sun will be main source of glare impacts upon the observer. In such a case, the impact is deemed to be Low as a worst-case scenario.

Relevant Parameters of the Scheme

14.4.44 The photovoltaic panels will be either Fixed Panels or Tracker Panels. The Fixed Panels will be oriented in a southwards direction to maximise solar gain and will remain in a fixed position throughout the day and during the year (i.e. they will not rotate to track the movement of the sun). The Tracker Panels will be orientated in an east-west arrangement and rotate to track the movement of the sun.

14.4.45 The maximum height of the Fixed Panels will be 3.5 m above ground level and have a tilt angle between 10 and 35 degrees. Tracker Panels will be a maximum of 4.5 m. above ground level and continuously track the sunlight throughout the day up to an angle of +/- 60 degrees from the horizontal. The maximum above ground height and points at the top of the solar panels will used to determine the potential for glint and glare generation, as this represents a worst-case scenario.

Identification of Receptors

Ground Based Receptors

14.4.46 Glint is most likely to impact upon a ground-based receptor close to dusk and dawn, when the sun is at its lowest in the sky. Therefore, any effect would likely occur early in the day or late in the day, reflected to the west at dawn and east at dusk.

14.4.47 A 1 km Study Area from the panels is deemed appropriate for the assessment of ground-based receptors as outlined in paragraphs 14.4.8.

14.4.48 In accordance with industry standard practice, an observer height of 2 m will be utilised for residential receptors, as this is a typical height for a ground-floor window. Upper floor windows will be taken into account in the visibility assessment for glint and glare. With regards to road users, a receptor height

of 1.5 m will be employed as this is typical of eye level. Horse rider eye level has been assumed to be 2.5 m above ground level for bridleway receptors.

14.4.49 An assessment will be undertaken to determine zones where solar reflections will never be directed near ground level.

14.4.50 Where there are several residential receptors within close proximity, a representative dwelling or dwellings will be chosen for full assessment as the impacts will not vary to any significant degree. Where small groups of receptors are evident, the receptors on either end of the group will be analysed in detail with the worst-case impacts attributed to all receptors within the group.

Aviation

14.4.51 Glint is only considered to be an issue with regards to aviation safety when the solar farm lies within close proximity to a runway, particularly when the aircraft is descending to land. This is outlined within the FAA guidance as being the key aviation receptors to assess and is considered best practice in the absence of UK guidance.

14.4.52 The Scheme is within a safeguarded zone of an aerodrome, therefore a full geometric study (which would determine if there is potential for glint and glare at key locations, most likely on the descent to land) is required.

14.4.53 Buffer zones to identify aviation assets vary depending on the safeguarding criteria of that asset. As outlined in paragraph 14.4.8, all aerodromes within 30 km will be identified, however, generally the detailed assessments are only required within 20 km for large international aerodromes, 10 km for military aerodromes and 5 km for small aerodromes.

Magnitude of Impact

Static Receptors (Residential Receptors)

14.4.54 Although there is no specific guidance set out to identify the magnitude of impact from solar reflections, the following criteria has been set out for the purposes of this report and has been accepted for assessing numerous solar farms across the UK and Ireland:

- **High** - Solar reflections impacts of over 30 hours per year or over 30 minutes per day;
- **Medium** - Solar reflections impacts between 20 and 30 hours per year or between 20 minutes and 30 minutes per day;
- **Low** - Solar reflections impacts up to 20 hours per year or up to 20 minutes per day; and
- **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

Moving Receptors (Road)

14.4.55 Again, no specific guidance is available to identify the magnitude of impact from solar reflections on moving receptors except in aviation, however, it is thought that a similar approach should be applied to moving receptors as aviation, based on the ocular impact and the potential for after-image.

14.4.56 The FAA guidance states that for a solar development to obtain FAA approval or to receive no objection, the following criteria must be met:

- No potential for glare (glint) or "low potential for after-image" along the final approach path for any existing or future runway landing thresholds (including planned or interim phases).

14.4.57 The following criteria has been set out for the purposes of this report:

- **High** - Solar reflections impacts consisting of any amount of yellow glare;
- **Low** - Solar reflections impacts consisting of any amount of only green glare; and
- **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

14.4.58 The FAA produced an evaluation of glare as a hazard and concluded in their report (Ref 319) that:

"The more forward the glare is and the longer the glare duration, the greater the impairment to the pilots' ability to see their instruments and to fly the aircraft. These results taken together suggest that any sources of glare at an airport may be potentially mitigated if the angle of the glare is greater than 25 deg from the direction that the pilot is looking in. We therefore recommend that the design of any solar installation at an airport consider the approach of pilots and ensure that any solar installation that is developed is placed such that they will not have to face glare that is straight ahead of them or within 25 deg of straight ahead during final approach."

14.4.59 It is reasonable to assume that although this report is assessing pilots vision impairment, it can also be applied to drivers of other road and rail vehicles. Therefore, the driver's field of view will also be analysed where required and if the glare is out with 25 degrees either side of their line of sight then any impacts will reduce to None. There are more mitigation options available for road and rail users than aviation receptors, and therefore the use of FAA guidance in assessing these receptors is a worst-case scenario.

Moving Receptors (Aviation)

14.4.60 Each final approach path which has the potential to receive glint is assessed using the SGHAT model. The model assumes an approach bearing on the runway centreline, a 3-degree glide path with the origin 50 ft (15.24 m) above the runway threshold.

14.4.61 The computer model considers the pilots field of view. The azimuthal field of view ('AFOV') or horizontal field of view ('HFOV') as it is sometimes referred, refers to the extents of the pilot's horizontal field of view measured in degrees left and right from directly in front of the cockpit. The vertical field of view ('VFOV') refers to the extents of the pilot's vertical field of view measured in degrees from directly in front of the cockpit. The HFOV is modelled at 50 degrees left and right from the front of the cockpit whilst the VFOV is modelled at 30 degrees.

14.4.62 The FAA guidance states that there should be no potential for glare or 'low potential for after-image' at any existing or future planned runway landing thresholds for the Scheme to be acceptable. Given the FAA guidance and commentary on impacts, the following criteria has been set out for the purposes of this report:

- **High** - Solar reflections impacts consisting of any amount of yellow glare;
- **Low** - Solar reflections impacts consisting of any amount of only green glare;
- **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

Cumulative and In-Combination Effects

14.4.63 As noted in paragraph 14.4.8 the further distance a receptor is from a solar farm, the less chance it has of being affected by glint and glare due to scattering of the reflected beam and atmospheric attenuation, in addition to obstructions from ground sources, such as any intervening vegetation or buildings. The 1 km Study Area used for the Glint and Glare Assessment is the Zone if Influence ('ZoI') for glint and glare impacts.

14.4.64 The Glint and Glare Assessments submitted with the planning applications for any potential cumulative solar development will be used to inform any possible cumulative impacts. Cumulative impacts will only be present upon a receptor if there are predicted impacts from the Humberhead Sites and at least one other solar development.

14.4.65 Should there be a potential for cumulative impacts, a glint and glare visibility assessment will be undertaken to determine the significance of the impact and if any mitigation measures may be required.

14.4.66 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the ES. Receptors identified within the glint and glare assessment will be assessed within in-combination effects assessment.

Assumptions, Limitations and Uncertainties

14.4.67 It is assumed that:

- The model does not consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, vegetation, hills, buildings, etc (that is, it calculates a "bare-earth" scenario);
- The model does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the Solar Array, and support structures may impact actual glare results;
- Due to variations in atmospheric composition, temperature, pressure and conditions, observed values may vary slightly from calculated positions;
- The model does not account for the effects of diffraction; however, buffers are applied as a factor of safety; and
- The model assumes clear skies at all times and does not account for meteorological effects such as cloud cover, fog, or any other weather event which may screen the sun.

14.4.68 Due to these assumptions and limitations, the model overestimates the number of minutes of glint and glare which are possible at each receptor and presents the worst-case scenario. Where glint and glare are predicted, a visibility assessment is carried out to determine a more accurate, real-world prediction of the impacts.

Summary of Elements Scoped In and Scoped Out

14.4.69 In line with the Planning Inspectorate's Technical Advice Page for Scoping Solar Development, the Glint and Glare Assessment for the Scheme is outside the scope of being an ES Chapter. However, it will be included as a Technical Appendix to the Other Environmental Matters Chapter. A summary of the elements scoped into and out of the assessment of glint and glare is presented in **Table 10-3**.

Table 14-25 Elements scoped in and out of the assessment of glint and glare

Element	Scoped in / Scoped out	Rationale
Construction		
All elements	Scoped out	Potential glint and glare effects during the construction stage will be limited and less than the operational stage. The operational stage assessment will cover any and all glint and glare effects during the construction stage. If mitigation is required, this can be implemented pre-construction.
Operation		

Element	Scoped in / Scoped out	Rationale
Residential	Scoped in	Residential amenity.
Major Roads	Scoped in	Road user safety.
Minor Roads	Scoped out	Minor roads are low speed. The intensity of glint and glare effects are far lower than that of the sun. Adverse safety effects of glint and glare from solar panels is negligible at low speeds.
Rail	Scoped out	There are no railways within the 1 km Study Area for glint and glare.
PRoW Users	Scoped out	Glint and glare does not represent an adverse safety concern for PRoW users due to being able to mitigate potential glint and glare effects through simple actions and in line with the advice from BHS on horses.
Aviation (Runway Approach Paths)	Scoped in	Pocklington Airport is within 5 km of the Humberhead Sites, therefore requiring assessment for potential glint and glare impacts on pilots approaching its runways.
Aviation (Air Traffic Control Towers)	Scoped out	Pocklington Airport does not have an air traffic control tower. There are no other aerodromes within the vicinity of the Humberhead Sites.
Riverways & Canals	Scoped out	The identified waterways within the vicinity of the Humberhead Sites are narrow and low speed. Any potential adverse safety effects from glint and glare from solar panels is negligible.
Decommissioning		
All elements	Scoped out	See construction rationale above.

14.5 EMF

Introduction

14.5.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to potential significant effects of electromagnetic fields ('EMFs') by the Scheme during its construction, operation, and decommissioning phases, with particular focus on risk to human health. It includes a summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to EMF. Matters that are proposed to be scoped in and out of the assessment are identified.

14.5.2 EMFs arise from the generation, transmission, distribution and use of electricity. EMFs occur around all electronic infrastructure. In this instance, EMF sources associated with the Scheme are the Grid Connection Cables (that will be located within the Cable Route Search Corridor ('CRSC')) and associated electrical infrastructure, including Substations and Battery Energy Storage System ('BESS'). In most cases they do not extend far from the source. Fences, shrubs and buildings easily block electric fields. Magnetic fields are produced by the flow of electric current; however, unlike electric fields, most materials do not readily block magnetic fields. The intensity of both EMFs diminishes with increasing distance from the source. EMFs can have both direct and indirect effects on human health.

14.5.3 The chapter will describe and identify the potential level of effects arising as a result of the Scheme. This chapter covers any proposed:

- Underground cable routes;
- Substations including inverters, transformers and switch gear; and
- BESS

Legislation, Planning Policy Context and Guidance

14.5.4 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance:

Legislation

14.5.5 CE marking (Conformité Européene, or European Conformity marking) indicates that a product has been assessed by the manufacturer and deemed to meet European Union safety, health and environmental protection requirements (Ref 321). The Electromagnetic Compatibility Regulations 2016 (Ref 322) implemented the relevant EU Directive for CE marking, the Electromagnetic Compatibility Directive 2014/30/EU (Ref 323). The

Regulations ensure that electrical and electronic equipment should not generate, or be affected by, electromagnetic disturbance.

14.5.6 CE marking requirements were adopted and extended indefinitely in Great Britain until the UK left the EU in 2020.

14.5.7 From 1 January 2021, the UKCA (UK Conformity Assessed) mark started to replace the CE mark for goods sold within Great Britain, and the CE mark has continued to be required for goods sold in Northern Ireland. The Regulations also continue recognition of CE marking in the UK. The legislation will apply indefinitely for a range of product regulations. This means businesses have the flexibility to use either the UKCA (UK Conformity Assessed) or CE marking to sell products in Great Britain ('GB') (Ref 324).

14.5.8 All proposed cables and associated electrical equipment will be 'UKCA' and/or 'CE' marked. The electrical components will meet safety, health, and environmental protection requirements of UKCA / CE marked products, as required by law.

National Planning Policy

14.5.9 Relevant national planning policy includes the National Policy Statement ('NPS') for Electricity Networks Infrastructure EN-5 2025, (designated January 2026) (Ref 10). Reference will be made to paragraphs 2.10.11 to 2.10.13 with respect to compliance with exposure guidelines.

Local Planning Policy

14.5.10 Local planning policies relevant to EMF will be considered as part of the assessment set out within:

- East Riding of Yorkshire Local Plan Update 2020-2039 (Adopted 2025) (Ref 13) with respect to Policy EC5: Supporting the renewable and low carbon energy sector. This confirms that the effects of development should be made acceptable including impacts associated with electromagnetic production.

Guidance

UK Government Advice

14.5.11 The UK Government advice (Ref 325) on exposure to EMF in the everyday environment, including electrical appliances in the home and mobile phones will be considered.

14.5.12 The UK Government advice and guidance on public exposure limits to EMF radiation, including NPS EN-5, is designed to comply with the 1998 International Commission on the Non-Ionizing Radiation Protection ('ICNIRP')

guidelines (Ref 326) in terms of the 1999 EU Recommendation. In 2010 ICNIRP produced new guidelines but these have not yet been incorporated into UK Policy. The new guidelines will not apply in the UK unless the Government make a specific decision to introduce them. The ICNIRP 2010 limits allow for higher public exposures, so continuing to follow the ICNIRP 1998 guidelines ensures lower public limits are applied.

14.5.13 The public exposure limits in UK policy define reference levels for Electric and Magnetic Fields. Where field levels exceed these reference levels in significantly occupied spaces, further investigation is warranted.

14.5.14 In the UK, the public limits apply where the time of exposure is significant, rather than anywhere and everywhere where the public have access. This specifically refers to residential properties, and to properties where members of the public spend an appreciable proportion of their time.

14.5.15 The ICNIRP 1998 guidelines also form the basis of the Control of Electromagnetic Fields at Work Regulations 2016 for employers (Ref 9).

14.5.16 In 2012, the Department for Energy and Climate Change ('DECC') advised (Ref 328) that ICNIRP 1998 guidelines for both occupational and public exposure should be considered.

International Commission on Non-Ionizing Radiation Protection ('ICNIRP') guidelines

14.5.17 The assessment will consider the ICNIRP guidelines published in 1998.

14.5.18 The reference limits presented within the ICNIRP guidelines will be used when considering residential and non-residential properties and other locations where members of the public may congregate.

Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 329)

14.5.19 This confirms the need for the provision of an EMF assessment as an appendix to the Environmental Statement ('ES') where cables are proposed over 132 kV. The EMF assessment will be attached as a technical appendix to the Other Environmental Matters chapter within the ES.

Guidance on EMF from a collective of companies responsible for operating the energy networks in the United Kingdom and Ireland (Ref 330)

14.5.20 This is guidance presented by an industry body for the companies which run the UK and Ireland's energy networks. The group comprises 14 members including National Grid. This confirms that power cables are the most significant source of EMFs and presents electric and magnetic field level data

from various cable configurations. The data has been used in the assessment of electromagnetic field effects from many other solar schemes.

Consultation

14.5.21 No consultation has been undertaken regarding EMFs. Targeted consultation may be recommended following completion of the technical assessment and/or responses from the Scoping Report.

Study Area

14.5.22 The Study Area will be defined by the location of all proposed electronic infrastructure within the Scheme, and its immediate vicinity. The main focus will be on the Cable Route Corridor ('CRC'), as underground power cables will be the most significant source of EMF within the Scheme.

Baseline Conditions

14.5.23 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to EMF.

14.5.24 The relevant receptors for potential effects on human health from EMFs are places of residence/work and Public Rights of Way '(PRoWs') in the Study Area.

14.5.25 All electrical equipment emits electric and magnetic radiation.

14.5.26 The expected micro-Tesla from cables associated with the Scheme will be reported within the ES. At approximately 0 m from 400 kV underground cables, the magnetic field strength would be 96.17 micro-Tesla. There are no electric fields above ground associated with underground cables.

14.5.27 The cables will connect into the existing electrical infrastructure, as well as a proposed BESS to store surplus energy. Existing overhead lines are present within the Study Area which are not associated with the Scheme.

14.5.28 It is assumed that existing electrical infrastructure complies with the reference levels (refer to **Table 14-26**) and respects any required setback distances. No field work/site surveys have been undertaken to understand the existing baseline conditions with respect to EMF.

14.5.29 Therefore, the focus of the assessment is primarily on the Scheme's proposed electrical infrastructure, rather than any existing electrical infrastructure.

Potential Effects and Mitigation

14.5.30 This section sets out the potential effects of EMFs from the Scheme on human health.

Construction and Decommissioning

14.5.31 During construction, the Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs. Temporary construction plant may give rise to negligible and short-term electromagnetic emissions; however, these are not considered to give rise to likely significant effects. On this basis, potential effects from EMF during construction are scoped out of further assessment. The same principle applies for the decommissioning phase.

14.5.32 Effects from the Scheme are not predicted to be a significant concern during construction and decommissioning as the underground cables will not be connected, and therefore will not emit any EMF. Therefore, the effects of EMFs from the CRC during construction will be less than the effects during operational phase.

Operation and Maintenance

14.5.33 Unlike during the construction phase, there may be some effects during operation, as all electrical infrastructure will be connected and operational. As the highest voltage Scheme component, the Grid Connection Cables will be the main source of EMF in the environment. Using underground cables significantly reduces the risk to human health from EMFs.

14.5.34 Notable sources of radiation, other than the underground cables, will include the 400 kV substation, 132 kV substation, transformers, inverters, above and below ground cables, and BESS positioned across the Scheme. As of the time of this report, the specific locations for these have not been finalised. However, good design practice will contribute to the placement of potential EMF generating equipment and infrastructure, to reduce potentially significant impacts on human health. Embedded measures relevant to EMF include:

- The use of underground cabling;
- Locating the BESS and Substations away from sensitive receptors;
- An appropriate buffer from all infrastructure (excluding cables), which will be defined as environmental survey work and technical design work progresses; and
- The design of the Scheme's electrical infrastructure will be in accordance with all relevant codes and practices.

14.5.35 All electrical infrastructure used across the Scheme will be CE and/or UKCA marked ensuring compliance with Electromagnetic Compatibility Directive 2014/30/EU and relevant UK legislation.

14.5.36 Additionally, the 400 kV substation, 132 kV substation, transformers, inverters, above and below ground cables, and BESS are predicted to produce fields at

a lower level than that of underground cables as the equipment will be housed in protective enclosures. It is proposed that these elements will be addressed in the technical appendix.

14.5.37 The impact of the Grid Connection Cables within the Scheme can only reliably be determined via assessment of the proposed site layout and CRC alignment; this will be undertaken in accordance with the methodology and guidance stated in the following section. However, the 400 kV cables would be underground and therefore surface EMF would be below the ICNIRP guidance limits. Additionally, the cables would not be located in areas where people would linger for extended period and any significant impacts identified will be mitigated through design alterations. The Scheme is therefore predicted to have a 'minor' effect, at worst, upon surrounding receptors.

14.5.38 Common mitigation strategies for EMFs are:

- Utilising electrical infrastructure which produces reduced EMFs;
- The imposition of set-back distances from sensitive receptors; and
- Shielding around sources of EMFs.

14.5.39 The Scheme will be designed as far as practicable to ensure that the maximum levels of electromagnetic radiation received at existing residential properties, workplaces, and PRoWs from the CRC during operation remain below the ICNIRP reference levels, as detailed in **Table 14-26**, through embedded mitigation. Any required mitigation will be secured in the appropriate management plans.

14.5.40 The operational phase of the Scheme is proposed to be 60 years. During the operational phase of the Scheme, on-site activities would include routine servicing, maintenance activities, and the replacement of equipment such as Solar Panels and BESS when required, as well as management of vegetation.

14.5.41 It is anticipated that any personnel visiting the Site for maintenance purposes and during the periodic replacement of solar and BESS infrastructure will be present for short periods and therefore will not have a prolonged exposure to EMFs.

Methodology

14.5.42 This section describes the methodology proposed for the assessment of effects on EMF, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

14.5.43 This Scoping Report chapter has considered the ICNIRP guidelines published in 1998, as will the associated technical report that will form an appendix to the ES. Assumptions will be made regarding the type of infrastructure that is to be implemented, where required.

14.5.44 The assessment presented in the technical appendix will cover the following electrical components and associated development that form part of the Scheme:

- Solar Panels;
- Sub-distribution Switch Rooms;
- Conversion Units;
- 400 kV and 132 kV Substations;
- BESS;
- Up to 132 kV Grid Connection Cables; and
- Up to 33 kV On-Site Cables.

14.5.45 The 400 kV underground cabling will be the most significant source of EMF from the Scheme and therefore these will form the main focus of the technical assessment. Lower voltage interconnecting cables on site will be considered for completeness, however, significant effects are not anticipated.

14.5.46 The reference limits presented within the ICNIRP guidelines (**Table 14-26**) will be used when determining recommended setback distance from residential and non-residential properties and other locations where the general public may congregate.

14.5.47 As set out in the guidance section, the limits in the UK come from the 1998 ICNIRP guidelines. These specify:

- Basic Restrictions:
  - These are the levels at which radiation is potentially harmful to humans. This is a current density given in mA m-2 (milliamps per metre squared).
- Reference Level (Investigation Level):
  - Provided for practical exposure assessment purposes to determine whether the basic restrictions are likely to be exceeded. Compliance with the reference level will ensure compliance with the relevant basic restriction.
- Field Actually Required:
  - This is the field strength at which the basic restriction is likely to be exceeded.

14.5.48 The values for the above stated in the ICNIRP 1998 paper are shown in **Table 14-26** below. These are the public exposure values, not the occupational exposure values, the former is more conservative than the latter by a factor of five and therefore the values in the table are conservative.

Table 14-26 ICNIRP Exposure Limits 1998

Basic Restriction (mA m^{-2})	Magnetic Fields Reference Level (μT)	Electric Fields Reference Level (kV m^{-1})	Magnetic Field Actually Required to Exceed Basic Restriction (μT)	Electric Field Actually Required to Exceed Basic Restriction (kV m^{-1})
2	100	5	360	9

14.5.49 The Scheme will be also reviewed against other legislation, policy, and guidance outlined earlier in this section of the scoping report.

Assessment Process

14.5.50 The CRC and associated voltages, locations of other electrical infrastructure, and locations of existing residential properties workplaces, and PRoWs will be considered. Within the technical appendix, reference calculations will be undertaken to determine whether setback distances are required. The final CRC will be located within the current CRSC and refined to avoid residential properties and workplaces where practicable.

14.5.51 A worst-case scenario will be assessed for both the specifications and potential locations of the Grid Connection Cables. This approach will aim to allow for flexibility in cable placement within the defined CRC. The precise alignment of the cables will be confirmed during the detailed design stage. The assessment will ensure that the final design will remain within the parameters of the worst-case scenario. The Grid Connection Cables will be laid within the CRC (expected to be approximately 50 m wide). The final location of the Grid Connection Cables will avoid residential properties and workplaces where practicable.

Cumulative Effects

14.5.52 Cumulative effects in relation to EMF are possible where proposed infrastructure is sited close to existing sources of EMFs. The Scheme will be designed as far as practicable to ensure that the maximum levels of electromagnetic radiation received at existing residential properties, workplaces, and PRoWs from the CRC during operation remain below the ICNIRP reference levels, through embedded mitigation.

14.5.53 The report that will form a technical appendix to the ES will consider consented and built developments in close proximity to the Scheme (refer to the Study Area in paragraph 14.5.22), and consider whether any cumulative impacts are predicted.

14.5.54 The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Scheme affecting a single receptor will be assessed within the ES. Receptors identified within

the EMF assessment will be assessed within in-combination effects assessment.

Receptor Sensitivity

14.5.55 Human receptors (including local residents and the wider public) are considered to be of medium sensitivity, as exposure to EMFs is a routine part of everyday life from both natural and anthropogenic sources. Such exposures are typically controlled within established guideline limits, and receptors are therefore able to accommodate changes in EMF levels provided these remain within accepted thresholds.

Magnitude of Impact

14.5.56 Magnitude of impact: The magnitude of effect upon receptors is predominantly dependent on the following factors:

- The predicted EMF level;
- The duration a person may experience EMFs; and
- The person's setting e.g. a dwelling, office, PRoW, etc.

14.5.57 A 'Negligible' magnitude would occur if no EMF could be experienced by any person.

14.5.58 A 'Low' magnitude would occur if a person could be subjected to EMF which was below the reference health limit with respect to their setting as per ICNIRP guidance.

14.5.59 A 'Medium' magnitude would occur if a person could be subjected to EMF which was above the reference health limit but below the human health limit with respect to their setting as per ICNIRP guidance e.g. increased exposure limits based on a person's profession.

14.5.60 A 'High' magnitude would occur if a person could be subjected to EMF which was above the human health limit with respect to their setting as per ICNIRP guidance.

Assumptions, Limitations and Uncertainties

14.5.61 If specific cable/voltage information is not available, the technical appendix will assume a worst-case scenario (typically this involves using the highest voltage and current).

Summary of Elements Scoped In and Scoped Out

14.5.62 A separate EMF chapter is proposed to be scoped out of the ES. An EMF assessment will be included as a technical appendix to the Other Environmental Matters chapter of the ES.

14.5.63 Through the design of the Scheme and embedded mitigation, no significant effects are expected.

14.5.64 A summary of the elements scoped in and out of the assessment of EMF is presented in **Table 14-27**.

Table 14-27 Elements scoped in and out of the assessment of EMF

Element	Scoped in / Scoped out	Rationale
Construction		
EMF Effects on human health from 400 kV Grid Connection Cables	Scoped out	The Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs. Temporary construction plant may give rise to negligible and short-term electromagnetic emissions; however, these are not considered to give rise to likely significant effects.
EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground cables, transformers, inverters, substations, BESS)	Scoped out	As mentioned above, the Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.
Operation		
EMF Effects on human health from 400 kV Grid Connection Cables	Scoped in	An EMF assessment will be included as a technical appendix to the Other Environmental Matters chapter of the ES. With embedded mitigation measures, no significant effects are expected.
EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground cables, transformers, inverters, substations, BESS)	Scoped in	An EMF assessment will be included as a technical appendix to the Other Environmental Matters chapter of the ES. With embedded mitigation measures, no significant effects are expected.

Element	Scoped in / Scoped out	Rationale
Decommissioning		
EMF Effects on human health from 400 kV Grid Connection Cables	Scoped out	The Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.
EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground cables, transformers, inverters, substations, BESS)	Scoped out	As mentioned above, the Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.

14.6 Ground Conditions

Introduction

14.6.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to Ground Conditions. This chapter includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to ground conditions. Matters that are proposed to be scoped in and out of the assessment are identified.

14.6.2 This chapter explains the approach to assessing likely significant effects on ground conditions during construction, operation (including maintenance), and decommissioning phases, how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward.

Legislation, Planning Policy Context and Guidance

14.6.3 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

14.6.4 Relevant legislation includes:

- Water Framework Directive (2000/60/EC) (Ref 331);
- Climate Change Act (2008) (Ref 40);
- The Environmental Protection Act 1990 (Ref 165);
- The Water Act 2003 (Ref 332);

- The Water Resources Act 1991 (Ref 155);
- The Building Act 1984 and the Building (Amendment) Regulations 2016 (Ref 333);
- The Environment Act 1995 (Ref 258) and 2021 (Ref 79);
- Planning Act 2008 (Ref 1);
- Environmental Permitting (England and Wales) Regulations 2016 (Ref 169);
- Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (Ref 295);
- Environmental Damage (Prevention and Remediation) (England) Regulations 2015 (Ref 334); and
- The Construction (Design and Management) Regulations 2015 (Ref 335).

National Planning Policy

14.6.5 The following planning policies from relevant National Policy Statements ('NPS') have been considered as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

- Overarching NPS for Energy ('EN-1') 2025, (designated January 2026) (Ref 8)) sets out national policy for energy. Reference will be made to Section 5.11 (including paragraphs 5.11.14, 5.11.17-18) which discuss contaminated land and risk; and
- NPS for Renewable Energy Infrastructure ('EN-3') 2025, (designated January 2026) (Ref 9), including paragraph 2.10.26 which reflects on minimising soil impacts in relation to land contamination.

14.6.6 Other relevant national planning and guidance includes:

- National Planning Policy Framework ('NPPF') (Ref 11);
- Planning Practice Guidance ('PPG'). Paragraph 013 ID: 5-013-20150327 – Renewable and low carbon energy: What are the particular planning considerations that relate to large scale ground mounted solar photovoltaic farms (Ref 336);
- PPG. ID: 33-004-20190722. Guidance on determining if land is contaminated (Ref 337); and
- PPG. ID: 45-001-20140306. Land stability guidance within the UK's PPG (Ref 338).

Local Planning Policy

14.6.7 Relevant local planning policy includes:

- East Riding of Yorkshire Council, East Riding Local Plan Update (2020-2039) (Adopted 2025) (Ref 13) with reference to Policy ENV6: Managing environmental hazards Relevant Industry Guidance.

14.6.8 Relevant industry guidance includes:

- HM Government, Part 2A Contaminated Land Statutory Guidance, 2012 (Ref 339);
- Environment Agency's online guidance for the management of land contamination 'Land contamination: risk management ('LCRM') (Ref 340);
- BS10175:2026, Investigation of Potentially Contaminated Sites - Code of Practice (Ref 341);
- BS 8576 (2013), Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds ('VOCs') (Ref 342);
- BS 8485 (2019), Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (Ref 343);
- Construction Industry Research and Information Association ('CIRIA') C665, Assessing risks posed by hazardous ground gases to buildings, 2007 (Ref 344);
- CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice (Ref 345);
- CIRIA C811 5th Edition 'Environmental Good Practice On Site' 2023 (Ref 346);
- Environment Agency 'Guidance Note on Piling/Penetrative Ground Improvement Methods on Land Affected by Contamination' NC/99/73, 2001, updated by CL:AIRE in 2025 (Ref 347);
- BRE series 'Concrete in Aggressive Ground' (2005) (Ref 348); and
- CL:AIRE, Framework for Assessing the Sustainability of Soil and Groundwater Remediation (2010) (Ref 349).

Consultation

14.6.9 Consultation will be undertaken following submission of this Scoping Report with statutory parties including the local council and local geological groups.

Study Area

14.6.10 For the purposes of determining the local baseline conditions with respect to ground conditions, a Study Area extending 250 m from the Scoping Site Boundary ('the Site') (extending to 1 km for controlled water receptors) has been considered based on professional experience and judgement, ensuring that sensitive resources and receptors are included in the assessment. This Study Area is appropriate to assess the local geological and hydrogeological setting, and any influence that potential land contamination may have on the Scheme or local sensitive receptors.

14.6.11 The Site incorporates the footprint of the works, which includes a ground mounted solar array, and associated development comprising a Battery Energy Storage System ('BESS'), electrical and cable route infrastructure, landscaping and biodiversity enhancements, together with any temporary

land required during construction and decommissioning. This will include ancillary buildings comprising office space and welfare facilities, as well as operational monitoring and maintenance equipment.

Baseline Conditions

14.6.12 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to ground conditions.

Geology

Introduction

14.6.13 The British Geological Survey ('BGS') Map Sheet 71 (Selby, 1:50,000 scale) and Sheet 72 (Beverley, 1:50,000 scale) (Ref 350 and Ref 351) along with online freely available geological mapping tools provided by the BGS (Ref 352), indicate the geological setting of the Site.

Made Ground

14.6.14 According to BGS Mapping, no Made Ground was identified on Site or within 250 m of the Site. Several pockets of worked ground and infilled ground were identified on Site and within 250 m of the Site.

Superficial Deposits

14.6.15 The Superficial Deposits underlying the Site consists of:

- For Humberhead 1 – Alluvium (silt and clay on gravel), Bielby Sand Formation, Pocklington Gravel Formation, Till;
- For Humberhead 2 – Head Clay (silt and sand), Pocklington Gravel Formation, Till;
- For Humberhead 3 – Alluvium (silt and clay on gravel), Bielby Sand Formation, Thorganby Clay Member, Hemingbrough Glaciolacustrine Formation;
- For Humberhead 4 – Peat, Alluvium (silt and clay on gravel), Bielby Sand Formation, Hemingbrough Glaciolacustrine Formation; and
- The Cable Route Search Corridor ('CRSC') includes all the Superficial Deposits identified above.

14.6.16 Further detail regarding the presence and implications of Peat is provided in Section 14.2 Soils and Agriculture of this chapter.

Bedrock

14.6.17 The Bedrock geology underlying the Humberhead Sites consists of:

- For Humberhead 1 – Mercia Mudstone Group;

- For Humberhead 2 – Welton and Burnham Chalk Formation, Ferriby Chalk Formation, Hunstanton Chalk Formation, Redcar Mudstone Formation, Penarth Group, Mercia Mudstone Group;
- For Humberhead 3 – Mercia Mudstone Group;
- For Humberhead 4 – Mercia Mudstone Group; and
- The CRSC includes all the Bedrock geology identified above.

Hydrogeology

14.6.18 According to Defra's Magic Map (Ref 135), the Environment Agency ('EA') classifies the Superficial Deposits underlying the Site to be either Secondary A, Secondary (undifferentiated) or Unproductive Aquifers:

- Humberhead 1 – Alluvium, Bielby Sand Formation, Pocklington Gravel Formation and Till are classified as Secondary Undifferentiated aquifer;
- Humberhead 2 – Head Clay is classified as Unproductive aquifer. Pocklington Gravel Formation and Till is classified as Secondary Undifferentiated aquifer;
- Humberhead 3 – Alluvium and Bielby Sand Formation are classified as Secondary Undifferentiated. Thorganby Clay Member and Hemingbrough Glaciolacustrine Formation are classified as Unproductive aquifer;
- Humberhead 4 – Peat and Hemingbrough Glaciolacustrine Formation are classified as Unproductive. Alluvium is classified as Secondary Undifferentiated aquifer. The Bielby Sand Formation in this area is classified as Secondary A aquifer. Glaciofluvial Deposits are also classified as Secondary A aquifer; and
- The CRSC includes Secondary A, Secondary Undifferentiated and Unproductive aquifers.

14.6.19 According to Magic Map, the aquifer classification of the bedrock geology is as follows:

- The Mercia Mudstone Group and Penarth Group are classified as a Secondary B aquifer;
- The Redcar Mudstone Formation is classified as a Secondary (undifferentiated) aquifer; and
- Welton and Burnham Chalk Formation, Ferriby Chalk Formation, Hunstanton Chalk Formation are classified as Principal aquifers.

14.6.20 According to BGS Mapping:

- There are no Source Protection Zones ('SPZ') within 1 km of Humberhead 1;
- Humberhead 2 is within Zone I and Zone II SPZ;
- Humberhead 3 is located approximately 315 m north of a Zone I SPZ; and
- Humberhead 4 is located approximately 800 m southwest of a Zone I SPZ.

Hydrology

14.6.21 Surface water features are present in abundance across the Site. The features have been identified using Magic Map:

- Humberhead 1 – A number of drains, tributaries and small waterways are identified on-site. There are multiple watercourses flowing alongside and between the Humberhead 1 plots which include Whiterail Beck, Missick Beck, Common Beck and Blamire Drain. The CRSC surrounding Humberhead 1 includes the watercourses identified above as well as Hayton Beck, Pocklington Beck, Pocklington Canal, Longmarsh Drain and several ponds;
- Humberhead 2 – A number of drains, tributaries and small waterways are identified on-site. Burnby Beck flows through the northern area of Humberhead 2-1. Towthorpe Beck is adjacent to Humberhead 2-3. The CRSC surrounding Humberhead 2 includes the surface water features identified above. The CRSC connecting Humberhead 1 and Humberhead 2 includes two drains;
- Humberhead 3 – A number of drains, tributaries and small waterways are identified on-site. There are multiple watercourses flowing alongside and between the Humberhead 3 Sites which include Foss Dike Black, Wood Dike and Black Dike. The CRSC surrounding Humberhead 3 includes the surface water features identified above as well as ponds. The River Foulness is identified between the CRSC between Humberhead 3-2 and 3-2;
- Humberhead 4 – A number of drains, tributaries, ponds and small waterways are identified on-site. There are multiple watercourses flowing alongside and between the Humberhead 4 Sites which include East Ings Drain, Back Delfin, Beils Beck, Egremont Drain, New Drain, Suehead Drain and Main Drain. Market Weighton Canal and Carr Dike flows adjacent to Humberhead 4-8. The CRSC surrounding Humberhead 4 includes the surface water features identified above; and
- The CRSC connecting Humberhead 1 to Humberhead 4 (north to south) includes a number of drains, ponds, River Foulness and watercourses identified as The Runner and Lowmath Drain.

14.6.22 Further details regarding hydrology, flood risk and drainage relating to the Site is provided in **Chapter 9: Water Environment**.

Mining

14.6.23 According to the Mining Remediation Authority (Ref 353), there is no recorded mining, or evidence of mining within the Site.

Landfill

14.6.24 According to the Groundsure Insights (Ref 354), there is one authorised landfill located directly north of Humberhead 4-1, partially within the CRSC, known as "Gallymoor Landfill Site".

14.6.25 No records of historic landfill sites were identified on Site or within 250 m of the Site.

Mineral Safeguarding Areas

14.6.26 The Site lies within a Mineral Safeguarding Area ('MSA') set out by the East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 (Ref 15). The MSA effects all four sites and is for a mixture of sand and gravel, crushed rock, limestone, industrial chalk, clay, and silica sand.

Sites of Special Scientific Interest ('SSSI')

14.6.27 According to the Groundsure Insights website, Humberhead 1-1 boarders a SSSI known as 'Pocklington Canal' which also flows through the Cable Search Corridor. Humberhead 4-8 is adjacent to a SSSI known as 'South Cliffe Common'.

Potential Effects and Mitigation

14.6.28 This section sets out the potential effects of the Scheme on the geology, geological designated sites, hydrogeology, hydrology and land contamination.

14.6.29 Potential effects of the Scheme on Minerals Safeguarding Areas are included in **Chapter 13: Socio-Economics** of this Scoping Report.

Construction and Decommissioning

14.6.30 At this stage, it is considered that construction may involve the stripping of topsoil (where present e.g. Temporary Construction Compounds and landscaping works), the excavation of trenches along the Cable Route Corridor, some limited ground disturbance and possible piling works for the installation of any structures requiring foundations, such as the BESS, On-site Substations, ancillary buildings, Solar Panel Mounting Structures, and electrical and grid connection infrastructure. Further details of proposed construction are outlined in **Chapter 4: Scheme Description**.

14.6.31 It is anticipated that any potential effects associated with ground conditions during Construction will be effectively managed through a Construction Environmental Management Plan ('CEMP'). For example, control measures to ensure compliance with and implementation of relevant legislation and guidance; control measures for site emissions such as dust and runoff;

protection of on-site workers through Personal Protective Equipment ('PPE'); and implementation and adherence to Health & Safety Protocols, Plans and Procedures. An outline CEMP ('oCEMP') accompany the Development Consent Order ('DCO') application and set out a framework of mitigation measures identified in the ES. An outline Site Waste Management Plan ('oSWMP') will also accompany the DCO application and set out how hazardous waste will be managed. Further details of decommissioning are outlined in **Chapter 4: Scheme Description**.

14.6.32 The decommissioning of the Scheme will be subject to best practice following relevant legislation at the time to limit possible effects. It is anticipated that any potential effects associated with ground conditions during decommissioning will be effectively managed through the Decommissioning Environmental Management Plan ('DEMP'). An outline DEMP ('oDEMP') will accompany the DCO application, setting out mitigation measures and monitoring requirements.

14.6.33 Detailed versions of the above management plans will be secured as a requirement of the DCO.

Operation and Maintenance

14.6.34 On-site activities when the development is complete and operational will be limited to the maintenance of the infrastructure. During maintenance activities there may be the need to use oils, grease, fuels, lubricants or cleaning agents on-site. There is a small risk of chemical pollution arising from accidental spillages during these operations. The effect of the operational activities are anticipated to be lesser than the Site's construction phase and would be controlled and managed through appropriate management plans, such as the outline Operational Environmental Management Plan ('oOEMP') and detailed versions of the OEMP will be secured as a requirement of the DCO.

14.6.35 During the operation of the Scheme, it is estimated that the Solar Panels could require replacement once and the batteries could require replacement up to four times. The effect of maintenance and replacement activities are anticipated to be lesser than the Site's construction phase and would be controlled and managed through appropriate management plans, such as the oOEMP and secured through the requirements of the DCO.

Mitigation

14.6.36 It is anticipated that any potential effects during construction associated with ground conditions at the Site will be effectively managed through the oCEMP the adoption of industry good practice and appropriate PPE measures. The oCEMP will be prepared to accompany the application.

14.6.37 Potential environmental impacts that will be avoided, prevented, reduced or offset through the implementation of these mitigation measures include:

- Human exposure through direct contact / inhalation / dermal uptake of contaminants potentially present in soil and groundwater;
- Creation of preferential pathways and mobilisation of contamination;
- Contamination of natural soils, driving of contamination into an aquifer during piling, contamination of groundwater with concrete, paste or grout;
- Pollution and degradation of water quality of any underlying aquifer;
- Infiltration and / or runoff into the local drainage / sewerage network - pollution of drainage and sewerage network and any adjacent surface water features;
- Run-off and infiltration of contaminants from material stockpiles;
- Contamination of drainage and sewerage network and / or groundwater; and
- Spread of nuisance dusts and soils to the wider environment and local roads.

14.6.38 A number of environmental design and management measures will be employed as standard good practice to minimise impacts to both human health and controlled waters during the construction and decommissioning phases of the Scheme. These will be incorporated into the oCEMP and oDEMP as appropriate, which will be provided alongside the ES as part of the DCO application.

14.6.39 Operation and maintenance activities during the Site's operational phase would be managed through an OEMP. An oOEMP will be prepared as part of DCO application to address all operational related issues. This will include a spillage Emergency Response Plan, which maintenance staff will be required to have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material. The oOEMP will be developed into a detailed OEMP following the grant of the DCO. Given that operation and maintenance activities will be appropriately controlled, operational activities are proposed to be scoped out of the assessment.

14.6.40 Mitigation measures identified within this chapter are summarised in **Appendix 1A: Commitments Register**, along with how they will be secured in the DCO.

Assessment Methodology

14.6.41 The assessment of potential effects as a result of the Scheme (construction, operation (including maintenance) and decommissioning) on Ground Conditions will be undertaken using the methodology set out here.

14.6.42 The EA's LCRM guidance (Ref 340) identifies that the first step (known as Stage 1, Tier 1) in evaluating land contamination risks is a Preliminary Risk Assessment ('PRA'). The objective of a PRA is to identify and evaluate potential land quality risks and constraints associated with a development and to prepare an initial conceptual site model that can be used to inform future decision making and the design future ground investigation and/or mitigation, should it be required. A PRA report for the Study Area will be prepared as a technical appendix provided at Consultation.

14.6.43 The EA guidance on Managing and Reducing Land Contamination: Guiding Principles (Ref 355) and the EN-1 (Ref 8) will be referred to in the PRA.

14.6.44 The PRA will include the following:

- Details of land within the Study Area including development history, geology, hydrogeology, hydrology, soil and groundwater quality and environmental setting;
- A review of the environmental data report provided by a third-party;
- Details of any available site investigation reports for land within the Site;
- Details from a site walkover documenting:
    - The existing layout, current operations and condition of land within the Site, the property boundaries and immediately surrounding land;
    - The visual inspection of any potential indicators of any land contamination, for e.g. spillages, disturbed ground; and
    - The visual inspection of any geohazards or ground conditions constraints.
- A conceptual site model ('CSM') and an evaluation of potential contamination linkages.

Assumptions, Limitations and Uncertainties

14.6.45 The following limitations are applicable to this scoping report:

- The baseline conditions included are high-level and based only on freely available sources of information;
- A walkover of the Site and Study Area has not been undertaken at this stage;
- No stakeholder consultations have been undertaken at this stage;
- Historical maps were not reviewed; and
- Detailed desk-based assessment (PRA) will be undertaken and presented during Consultation (including the historical maps, consultation and third-party data).

Summary of Elements Scoped In and Scoped Out

14.6.46 A separate ground conditions chapter is proposed to be scoped out of the ES. The PRA will provide information on potential source, pathway, receptor linkages and recommendations for mitigation measures and further works.

14.6.47 Following these mitigation measures and recommendations, any residual effects on ground conditions are considered to be not significant.

14.6.48 A brief overview of the Ground Conditions assessment and PRA results will be set out in the Other Environmental Matters chapter of the ES.

14.6.49 A summary of the elements scoped out of the ground conditions are presented in **Table 14-28**

Table 14-28 Elements scoped out of the assessment of Ground Conditions

Element	Scoped in / Scoped out	Rationale
Construction		
All Ground Conditions elements related to construction.	Scoped in (see paragraph 14.6.48)	A PRA will be produced and appended to the Other Environmental Matters chapter of the ES. The results and recommendations of this will be incorporated into the oCEMP.
Operation		
All Ground Conditions elements related to operation.	Scoped out	Maintenance activities during the operational phase will be managed through an OEMP which will be based on the oOEMP prepared for the DCO application and are proposed to be scoped out of the assessment.
Decommissioning		
All Ground Conditions elements related to decommissioning.	Scoped in (see paragraph 14.6.48)	A PRA will be produced and appended to the Other Environmental Matters chapter of the ES. The results and recommendations of this will be incorporated into the oDEMP.

14.7 Major Accidents and Disasters

Introduction

14.7.1 This chapter sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to Major Accidents and Disasters ('MA&Ds'). It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to MA&Ds. Matters that are proposed to be scoped in and out of the assessment are identified.

14.7.2 The EIA Regulations (Ref 2) consider MA&Ds. The EIA Regulations cite two specific Directives as examples of risk assessments to be brought into EIA, namely Directive 2012/18/EU of the European Parliament and of the European Council which deals with major accident hazard registered sites (Ref 356) and Council Directive 2009/71/Euratom which deals with nuclear sites (Ref 357).

14.7.3 Schedule 4 paragraph 5(d) of the EIA Regulations requires that the EIA contains:

"a description of the likely significant effects of the development on the environment resulting from the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)" whilst Schedule 4, Part 8 requires that the EIA contains "a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned".

14.7.4 There is no specific guidance available which sets out the approach for undertaking a MA&Ds assessment within an EIA, as such this assessment for MA&Ds is guided by a Primer published by the Institute of Sustainability and Environmental Professionals ('ISEP') (formerly Institute of Environmental Management and Assessment ('IEMA')) (Ref 358). The Primer provides the following definitions:

"Major accident: events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the Client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events;

Disaster: may be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."

14.7.5 The Planning Inspectorate's Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 359) recommends that information is included on major accidents and disasters' receptors and the anticipated impacts. The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA Scoping Report as follows:

- Explanation as to how potential major accident and disaster risks have informed the site selection and the Scheme description in the Scoping Report;
- A major accident and disaster risk identification screening exercise, taking into consideration the potential consequence and anticipated likelihood of occurrence, with consideration given to any relevant thresholds for significance identified within industry guidance, for example battery fire; and
- Identification of any sensitive receptors in relation to the site including for example Control of Major Accident Hazards ('COMAH') Regulations sites.

14.7.6 The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register.

14.7.7 This chapter is supported by **Appendix 14-A: Long List of Major Accidents and Disasters**.

Legislation, Planning Policy Context and Guidance

14.7.8 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance, further details of which will be provided in the Environmental Statement ('ES').

Legislation

14.7.9 Relevant legislation includes:

- The Planning Act 2008 (Ref 1);
- Infrastructure Planning EIA Regulations 2017;
- Health and Safety at Work etc. Act 1974 (Ref 360);
- The Electricity at Work Regulations 1989 (Ref 361);
- The Workplace (Health, Safety and Welfare) Regulations 1992 (Ref 362);
- The Management of Health and Safety at Work Regulations 1999 (Ref 363);
- Construction Design Management ('CDM') Regulations 2015 (Ref 364);
- The Dangerous Substances (Notification and Marking of Sites) Regulations 1990 (Ref 365);
- The Dangerous Substances and Explosive Atmospheres Regulations ('DSEAR') 2002 (Ref 366);
- Civil Contingencies Act 2004 (Ref 368);

- The Regulatory Reform (Fire Safety) Order 2005 (Ref 369); and
- The COMAH Regulations 2015 (Ref 367).

National Planning Policy

14.7.10 Relevant national planning policy includes:

- Overarching National Policy Statement ('NPS') for Energy ('EN-1') 2025 (designated January 2026) (Ref 8). Reference will be made to Section 4.13 with respect to the consideration of safety.

Local Planning Policy

14.7.11 Local planning policies relevant to major accidents and disasters will be considered as part of the assessment and set out within:

- East Riding of Yorkshire Local Plan Update 2020-2039 (adopted 2025) with reference to Policy EC5: Supporting the renewable and low carbon energy sector. This confirms that the effects of development should be made acceptable, which includes impacts associated with safety (Ref 13).

Guidance

14.7.12 Relevant industry guidance includes:

- ISEP (formerly IEMA), Major Accidents and Disasters in EIA: A Primer 2020;
- Department for Environment, Food and Rural Affairs ('DEFRA'), Guidelines for Environmental Risk Assessment and Management (Ref 370);
- International Organisation for Standardization ('ISO') 31000: 2018 Risk Management – Guidelines (Ref 371);
- Department for Energy, Security and Net Zero ('DESNZ'), Health and safety in grid scale electrical energy storage systems (Ref 372);
- Health & Safety Executive ('HSE'), Grid-scale battery energy storage systems (Ref 373);
- National Fire Chiefs Council ('NFCC'), Grid scale energy storage system planning – Guidance for fire and rescue services (Ref 374);
- Cabinet Office, National Risk Register 2025 (Ref 375); and
- Planning Practice Guidance ('PPG') – Renewable and Low Carbon Energy (Ref 336)).

Consultation

14.7.13 Consultation will be undertaken following submission of this Scoping Report with statutory parties including East Riding of Yorkshire ('ERYC'), and HSE. Although not a statutory consultee, following PPG advice, Humberside Fire & Rescue will also be consulted as part of the EIA process.

Study Area

14.7.14 The Study Area for assessment of MA&Ds is not defined within regulatory guidance or a standardised methodology. The distances identified for the different features outlined below were identified based on a combination of a review of the Study Area boundaries set within each of the individual technical chapters of this Scoping Report, along with an appraisal of the types of features considered within this major accidents and disasters assessment.

14.7.15 The following factors and associated distances were taken into consideration for setting the Study Area, in order to capture the adverse consequences caused by other events on the Scheme and relate to distances from the Scoping Site Boundary:

- Built Environment:
  - Airports and airfields within 13 km;
  - COMAH establishments within 5 km;
  - Major Accident Hazard ('MAH') Pipelines within 1 km;
  - Fuel bulk storage within 1 km;
  - Rail within 1 km; and
  - Utilities/transmission crossing the Scheme.
- Natural Features:
  - Flooding within 1 km;
  - Ground stability within 1 km;
  - Dam failures within 3 km; and
  - Seismic activity within 5 km.

Baseline Conditions

14.7.16 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to MA&Ds.

14.7.17 The following data sources have been utilised to inform the scoping baseline:

- United Kingdom ('UK') National Risk Register 2025 (Ref 375);
- Overview of Natural and Man-made Disaster Risks the European Union may face (Ref 376);
- UK Flood map for planning (Ref 377);
- Multi-Agency Geographic Information for the Countryside ('MAGIC') (Ref 135);
- OpenInfrastructure Map (Ref 378);
- UK Centre for Ecology and Hydrology ('CEH') Land Cover Map (Ref 379);
- British Geological Survey ('BGS') GeoIndex Onshore (Ref 189);
- COMAH 2015 Public Information Search (Ref 380);
- Airfields of Britain Conservation Trust ('ABCT') (Ref 381);

- DEFRA Air Quality Management Areas ('AQMAs') (Ref 382);
- Google Aerial and Street view maps covering the Study Area (Ref 383);
- UK Topographic Map (Ref 384);
- UK CEH Lakes Portal (Ref 385);
- OpenRailwayMap (Ref 386);
- UKGov – Check your flood risk map (Ref 387);
- Cellmapper (Ref 388);
- Ministry of Defense - Locations map (Ref 389);
- Fuel Oil News UK & Ireland terminals and storage map (Ref 390);
- Office for National Statistics ('ONS'), Census maps – Manufacture of chemicals and chemical industries (Ref 391);
- S.I Unexploded Ordnance ('UXO') Risk Map (Ref 392);
- Zetica UXO Risk Map (Ref 393);
- UK Subsidence risk by postcode (Ref 395); and
- UK Mining Remediation Authority Map (Ref 396).

Infrastructure and Industrial Sites

14.7.18 There is one COMAH establishment within the Study Area, Yara UK Ltd's Pocklington site. COMAH sites as defined by the HSE are classified into one of two tiers, Lower Tier and Upper Tier, depending on the quantity of dangerous substances they hold. Upper Tier establishments will hold greater quantities of dangerous substances meaning that additional requirements are placed on them by the COMAH Regulations (Ref 394). The Yara UK Ltd site at Pocklington is an Upper tier COMAH establishment, located approximately 1.2 km north of the Scoping Site Boundary (Humberhead 1-1). There is also a petrol station located approximately 1.0 km north of the Scoping Site Boundary (Humberhead 1-1).

14.7.19 Transport infrastructure in the area consists of A roads and B roads including the A1079 and the A614. There are no railway lines within the Study Area. There is one airfield, Pocklington Airfield, in use within the Study Area requiring assessment as the Scheme is located within the Safeguarding Buffer Zone.

14.7.20 The nearest residential areas to the Scheme are located in close proximity to the Site including the villages of Allerthorpe, Hayton and Londesborough.

Sensitive Receptors of Relevance to MA&Ds

14.7.21 The following sensitive receptors which could be vulnerable to a MA&Ds have been identified:

- Private residences (and their inhabitants) within the local area;
- Local economic receptors including businesses and employees with further details in **Chapter 13: Socio-Economics**;

- Community receptors, including public rights of way, community land, and community buildings;
- The historic and cultural environment, including archaeological heritage and built heritage as detailed in **Chapter 10: Cultural Heritage**;
- Designated ecological sites, fully described in **Chapter 8: Biodiversity**, including:
    - Pocklington Canal Site of Special Scientific Interest ('SSSI');
    - South Cliffe Common SSSI;
    - White Carr Meadow SSSI;
    - Other non-statutory sites and priority habitats;
- The water environment, including groundwater, local rivers, and surrounding ponds with further details in **Chapter 9: Water Environment**;
- Infrastructure and built environment including transport infrastructure, industrial infrastructure, and energy infrastructure with further details in **Chapter 11: Transport and Access**; and
- The interactions between the receptors above.

14.7.22 It is considered reasonable and proportionate to exclude certain receptor groups from the outset. Construction workers, as a receptor, can be excluded from the assessment because existing legal protection is considered to be sufficient to minimise any risk from major accidents or disasters to a reasonable level.

Potential Effects and Mitigation

14.7.23 This section sets out the potential effects of the Scheme with respect to MA&Ds, with a long list of MA&D Events prepared. This long list can be found in **Appendix 14-A**.

14.7.24 An initial scoping exercise has been undertaken to identify and review all major accidents or disasters that could be relevant to the Scheme. This initial list was drawn from a number of sources, including the National Risk Register 2025. This initial scoping exercise shows the potential vulnerability of the Scheme to the risk of a major accident and/or disaster associated with a variety of different events during each phase of the Scheme and is presented in **Appendix 14-A**.

14.7.25 In general, major accidents or disasters, as they relate to the Scheme, fall into three categories:

- Events that could not realistically occur, due to the nature of the Scheme or its location;
- Events that could realistically occur, but for which the Scheme, and associated receptors, are either no more vulnerable than any other project or would not have an impact should the event occur; and

- Events that could occur, and to which the Scheme could be vulnerable, or which the Scheme itself has a particular capacity to exacerbate.

14.7.26 Events falling into this last category are scoped in for further assessment.

14.7.27 The long list within **Appendix 14-A** was screened further to identify the third group of major accidents or disasters listed above to short list events (see **Table 14-29**) for further consideration. **Appendix 14-A** therefore provides further clarity on the topics and events which have been scoped in, and those which have been scoped out, with suitable reasoning provided.

Construction and Decommissioning

14.7.28 The short list of MA&Ds events presented in **Table 14-29** and **Table 14-30** will be considered for the construction and decommissioning phases within the ES.

Table 14-29 Construction Major Accidents and Disasters to be considered Further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
Flooding	Parts of the Scheme are located within Flood Zones 2 and 3. Both the vulnerability of the Scheme to flooding and its potential to exacerbate flooding will be considered in the Flood Risk Assessment ('FRA') and reported in the ES. Mitigation will be considered and, where necessary, incorporated into the Scheme design.	Property and people in areas of increased flood risk.	**Chapter 9: Water Environment**
Plant Disease/ Pests	Removal or new planting of vegetation may be required. Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased or invasive plants to prevent their spread. Measures, such as an invasive plant management plan would be a commitment within the outline Construction Environmental Management Plan ('oCEMP') / outline Landscape and Environmental Management Plan ('oLEMP').	Habitats and species.	**Chapter 7: Landscape and Visual** **Chapter 8: Biodiversity**
Road Accidents	During construction there will be an increase in heavy construction plant and equipment on the local road network which may increase the risk of road traffic accidents. The mitigation for traffic and transport effects would be described within an oCEMP / outline Construction Traffic Management Plan ('oCTMP').	Road users	**Chapter 11: Transport and Access**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
Utilities Failure (gas, electricity, water, sewage, oil, communications)	The construction of the Scheme has the potential to affect existing utility infrastructure above and below ground, potentially damaging or cutting off the supply of utilities to local residents and businesses. A high voltage overhead line bisects Humberhead 1-4 among other infrastructure in the area. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken in addition to a geophysical survey. Consultation with relevant utilities providers is a routine part of solar development and consultees include water, gas and electricity utilities providers and telecommunications providers, as appropriate. Information obtained from consultation will be used to inform the Scheme layout and design. In terms of risks during construction, these would be covered off by standard good working practice and implementation of the CEMP and protective provisions in the DCO.	Local residents and businesses	Through consultation and desk-based review the appropriate protective provisions will be identified and applied
Pollution incident to Ground Receptors	During construction there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the oCEMP.	Local residents and businesses, local habitats and species	**Chapter 14: Other Environmental Matters (Ground Conditions)**

Table 14-30 Decommissioning Major Accidents and Disasters to be considered Further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
Road Accidents	During decommissioning there will be an increase in heavy plant and equipment on the local road network which may increase the risk of road traffic accidents. The mitigation for traffic and transport effects would be described within an outline	Road users	**Chapter 11: Transport and Access**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
	Decommissioning Environmental Management Plan ('oDEMP').		
Utilities Failure (electricity, gas, water, supply and sewage)	The decommissioning of the Scheme has the potential to affect existing utility infrastructure above and below ground. Consultation with relevant utilities providers would be held before decommissioning commences and the appropriate protective provisions will be identified and applied. This risk would be controlled through standard control measures which would form commitments within the oDEMP	Employees and local residents	Through consultation and desk-based review the appropriate protective provisions will be identified and applied
Pollution incident to Ground Receptors	During decommissioning there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the oDEMP.	Employees, local residents and businesses, local habitats and species	**Chapter 14: Other Environmental Matters (Ground Conditions)**

Operation and Maintenance

14.7.29 The short list of MA&Ds events presented in **Table 14-31** will be considered for the operation phase within the ES.

Table 14-31 Operation and Maintenance Phase Major Accidents and Disasters to be considered Further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
Fires	There is a very low risk of electrical fire within the BESS. BESS safety is typically driven by the US Standard NFPA 88577. This has led to Underwriters laboratory ('UL') Standards UL1973 (Designing BESS Safely) and UL9540 (BESS Testing). Any BESS imported into the UK will need to comply with the Supply of Machinery Safety Regulations 2008. In addition, BESS manufacturers exporting to the UK are required to ensure that the UL9540 series of tests have been carried out, including Large Scale Fire Testing ('LSFT'). In particular, these tests are required to demonstrate that the BESS enclosure will retain a fire inside the unit for a minimum of 1 hour. The BESS would include cooling systems designed to regulate temperatures to within safe conditions which minimises the risk of fire. In addition, the Scheme design would include adequate separation between battery banks to ensure an isolated fire would not become widespread and lead to a major incident. Fire detection and suppression features would be installed to detect (e.g. multispectral infrared flame detectors) and suppress (e.g. water base suppression systems) fires to minimise this risk. There will be a live 24/7 data reporting system from the BESS units to a control room. Batteries will automatically shut down if a problem / fault is detected. An outline Battery Safety Management Plan ('oBSMP') will be prepared for the Scheme. The oBSMP will be considered in the	Employees, local residents, local aquatic habitats and species.	oBSMP (standalone document to be submitted with the DCO application)

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
	iterative design of the Scheme ensuring that design requirements to ensure fire safety (such as ensuring adequate provision of land for water storage) and management of any firewater runoff are captured. A detailed BSMP will be prepared post-determination. This will be implemented and will ensure appropriate design, monitoring and management. The BSMP will ensure that risk assessment is undertaken and fed into the design process to ensure that impacts of fire plume gases on health, safety, and the environment are minimised, managed and controlled. The BSMP will also address firefighting, firewater control and emergency response. At this time, it is envisaged that firewater is likely to be stored in tanks at the BESS (in accordance with FRS requirements) and that an impermeable firewater containment system will be designed so that firewater can be captured and either treated prior to release or tankered offsite for disposal.		
Pollution incident to Aquatic Receptors	Liquid hazardous substances are not expected to form part of the operation of the Scheme, however there is potential for release of toxic substances entrained within firewater in the highly unlikely event of a fire at the BESS. Mitigation for this includes measures as outlined above.	Employees, local residents, local aquatic habitats and species	**Chapter 9: Water Environment**
Pollution incident to Air	Hazardous substances released to air are not expected to form part of the operation of the Scheme, however there is potential for	Employees, local residents,	**Chapter 14: Other Environmental Matters (Air Quality)**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
	release of toxic substances in the highly unlikely event of a fire at the BESS. The risk is assessed within the BESS Fire Plume Appraisal. Mitigation for this includes measures as outlined above.	local aquatic habitats and species	
Flooding	Parts of the Scheme are located within Flood Zones 2 and 3. Both the vulnerability of the Scheme to flooding, and its potential to exacerbate flooding, will be covered in the FRA, both in terms of the risk to the Scheme and increased risk caused by the Scheme. Mitigation will be considered and, where necessary, incorporated into the Scheme design.	Property and people in areas of increased flood risk	**Chapter 9: Water Environment**
Road Accidents	The operation of the Scheme would not result in increased traffic flow or changes to traffic composition which could have an adverse impact on highway safety. The potential for glint and glare to affect road users will be considered within the ES if any risks are identified. Mitigation will be considered and, where necessary, incorporated into the Scheme design.	Road users	**Chapter 11: Transport and Access** **Chapter 14: Other Environmental Matters (Glint and Glare)**
Aviation Disasters	There is one airfield under consideration for assessment within the Scheme, located at Pocklington Airfield. The potential for glint and glare to affect aircraft will be considered in **Chapter 14: Other Environmental Matters** if any risks are identified. Mitigation will be considered and, where necessary, incorporated into the Scheme design.	Aircraft users	**Chapter 14: Other Environmental Matters (Glint and Glare)**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other Chapters?
Cyber Accident / Failure	Solar energy systems are connected to the electrical grid and may have frequent communication with utility control and automation systems. There are threats posed to critical national infrastructure from cyber-attacks, due to the reliance on Information and Communications Technologies in the electricity system which presents vulnerability. Industry standard control measures will be implemented.	Employees and people using grid network	Industry standard control measures will be implemented by the Scheme.
Electrical Accident / Failure	The Scheme has the potential to cause an electrical accident/failure. This risk would be controlled through an appropriate maintenance schedule detailed within the outline Operational Environmental Management Plan ('oOEMP').	Employees	oOEMP
Utilities Failure (gas, electricity, water, supply and sewage)	The Scheme has the potential to affect existing utility infrastructure. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken in addition to a geophysical survey. Consultation with relevant utilities providers is a routine part of solar development and consultees may include water, gas and electricity utilities providers and telecommunications providers as appropriate.	Employees and local residents	Locations of Utilities will be accounted for in the Scheme design and protective provisions secured through the DCO.
MA&Ds associated with replacement of solar panels	Over the operational lifetime of the Scheme, it is therefore estimated that the Solar Panels could require replacement once, and the batteries up to four times, during the operation of the Scheme. The replacement works will follow much the same activities as to be undertaken during the construction phase and will introduce similar hazards as reported in **Table 14-29.**	Those referred to in **Table 14-29**	Those referred to in **Table 14-29**

Methodology

14.7.30 A standalone assessment of Major Accidents and Disasters is proposed to be scoped out of the ES. This is because other chapters in the ES will comprehensively assess potential effects of the Scheme which could give rise to the MA&Ds events described in **Table 14-29** to **Table 14-31**. Given the nature of the development and its potential impacts this is considered a proportionate approach.

14.7.31 The Other Environmental Topics ES chapter will include a MA&Ds section clearly signposting the reader to the chapters where these assessments take place and highlighting their relevance to MA&Ds.

Cumulative and In-Combination Effects

14.7.32 The cumulative project would be designed to incorporate embedded mitigation to the extent that there will be no significant effect on MA&Ds. The embedded mitigation measures applicable to the cumulative development are likely be similar to those listed within the embedded mitigation section within this ES chapter. Therefore, Cumulative and In-Combination Effects have been scoped out.

Assumptions, Limitations and Uncertainties

14.7.33 The location and layout of certain elements of infrastructure (including cable routes, construction methodologies and BESS location), have not yet been determined. It is assumed that the risk of MA&Ds will be taken into account within the iterative design process, including the choice of locations within the Scheme and use of best practice methodologies for construction.

14.7.34 Although the majority of the MA&Ds identified in the long list are considered under other legislative or design requirements, this is not considered to be sufficient reason to automatically eliminate the MA&D from further consideration. This is consistent with the approach for other topics, for example that the need to comply with nature conservation legislation does not mean that ecology and nature conservation does not need to be considered in EIA. However, where it is concluded that the need for compliance is so fundamental that the risk of any MA&D events being affected is remote, MA&Ds on the long list are not included on the short list.

Summary of Elements Scoped In and Scoped Out

14.7.35 A summary of the elements scoped into and out of the assessment of Major Accidents and Disasters is presented in **Table 10-3**.

Table 14-32 Elements scoped in and out of the assessment of Major Accidents and Disasters

Element	Scoped in / Scoped out	Rationale
Construction		
MA&Ds	Scoped out for all potential MA&Ds	All MA&Ds will be adequately covered elsewhere in the assessment.
Operation		
MA&Ds	Scoped out for all potential MA&Ds	All MA&Ds will be adequately covered elsewhere in the assessment.
Decommissioning		
MA&Ds	Scoped out for all potential MA&Ds	All MA&Ds will be adequately covered elsewhere in the assessment.

14.8 Arboriculture

Introduction

14.8.1 This Section sets out the proposed scope of the Environmental Impact Assessment ('EIA') with respect to Arboriculture. It includes a brief summary of specific legislation, policy and guidance, baseline conditions and the proposed assessment methodology relevant to Arboriculture. For the reasons set out in this Section, Arboriculture is proposed to be scoped out of the Environmental Statement ('ES').

14.8.2 Arboriculture can be defined as the cultivation and management of trees. In this context it relates to the assessment of all tree related features across the Humberhead Sites and Cable Route Search Corridor ('CRSC') to include individual trees, groups of trees, woodlands and hedgerows.

14.8.3 There is some cross over with assessments for **Chapter 8: Biodiversity** and **Chapter 7: Landscape and Visual** which also consider trees from a biodiversity and landscape perspective. The Arboricultural Impact Assessment ('AIA'), to be submitted with the ES, will accord with BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations (Ref 397).

14.8.4 The Scheme has the potential to impact both directly and indirectly on many tree features. Direct impacts relate to physical tree loss or damage following activities such as felling, pruning or root severance. Indirect impacts relate to the trees growing environment such as changes in soil structure, moisture content and pH.

14.8.5 However, the removal of hedgerows and trees will be avoided as far as reasonably practicable. Whilst in certain areas, there may be the need for some minimal vegetation removal (for example in the vicinity of access points to create visibility splays), targeted arboriculture surveys will inform these decisions to ensure the impacts are limited. Sufficient offsets to vegetation, informed by targeted arboriculture surveys, will be embedded within the design at the Humberhead Sites. These surveys and associated desk study assessments will also inform the refinement of the Cable Route Corridor ('CRC'), along with other environmental, engineering and land considerations. Mitigation within the outline Construction Environmental Management Plan ('oCEMP') and the outline Decommissioning Management Plan ('oDEMP') will manage the risk of direct or indirect impacts to trees during construction, operation and decommissioning. Detailed versions of these management plans will be secured as a requirement of the DCO.

14.8.6 The Scheme also has the potential to enhance and provide increased protection for existing hedgerows and trees in addition to providing significant new hedgerow and tree planting (which will more than compensate any potential minimal losses) to be delivered by the landscaping plans and managed by the outline Landscape and Ecology Management Plan ('oLEMP') which provides an important opportunity to increase the diversity and resilience of tree cover within the local area. A detailed LEMP will be secured as a requirement of the DCO. Furthermore, the land within the Humberhead Sites will be able to recover from many years of intensive arable use and for soil quality to improve in the long term following a period of non-production.

Legislation, Planning Policy Context and Guidance

14.8.7 The assessment will be undertaken in accordance with, and with reference to, the following legislation, planning policy and guidance. Further details of which will be provided in the ES.

National Legislation

14.8.8 Tree Preservation Orders ('TPOs') are contained within Part VIII of the Town and Country Planning Act 1990 (Ref 398), as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012 (Ref 399) which came into force on 6 April 2012. Section 192 of the Planning Act 2008 (Ref 1) made further amendments to the Town and Country Planning Act 1990 which allowed for the transfer of provisions from within existing TPOs to regulations. Part 6 of the Localism Act 2011 (Ref 7) amended Section 210 of the Town and Country Planning Act 1990 concerning time limits for proceedings in regard to non-compliance with TPO regulations. A TPO is an order made by a local planning authority in England to protect specific trees,

groups of trees or woodlands in the interests of amenity. A Development Consent Order ('DCO') can provide an exemption from the need to apply for consent for works to protected trees.

14.8.9 The Forestry Act 1967 (Ref 400) creates the legal framework for the felling of trees in England and includes provisions for restocking requirements. A felling licence is required to fell any growing trees unless an exception applies. Common exemptions include:

- The removal of less than 5 cubic metres ('m^3') of timber per calendar quarter where no more than 2 m^3 are sold;
- Felling trees with a stem diameter of 8 cm or less or coppicing trees up to 15 cm in diameter (measured at 1.3 m above ground level);
- The removal of trees in churchyards, gardens, or public open spaces.
- Felling trees to prevent or abate a nuisance or prevent danger;
- Felling trees immediately required to implement full planning consent or DCO approval;
- Felling trees to satisfy an obligation in accordance with an Act of Parliament; and
- Tree removals by, or on behalf of, a statutory undertaker.

14.8.10 Schedule 8 of the PA 2008 amended the Forestry Act wording in relation to TPOs, replacing references to consent "*under the order*" with the concept of "*relevant consent*". The changes sought to harmonise and prevent conflicts between forestry and planning legislation.

14.8.11 The Hedgerow Regulations 1997 (Ref 104) protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. To meet this definition, a hedgerow must generally be at least:

- 20 m in length (or join another hedge at each end); and
- 30 years old.

14.8.12 Additional criteria include a range of ecological, archaeological, or heritage features, so consultation with a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or adjacent to agricultural or countryside land.

14.8.13 Prior to the removal or destruction of a protected hedgerow, an application must be made to the Local Planning Authority. However, full planning permission or a DCO provides an exemption from this requirement.

14.8.14 The Management of Hedgerows (England) Regulations 2024 (Ref 401), which came into force on 23 May 2024, establish a prohibition on cutting or trimming (or the permitting of another person to cut or trim) an 'important' agricultural hedgerow from 1 March to 31 August, unless one of the specified exemptions applies. Any trees growing in a hedgerow are legally considered as part of the hedgerow.

14.8.15 The Occupiers Liability Act 1957 (Ref 402) confers a duty on an occupier to take reasonable care to ensure that lawful visitors to their property are safe from harm. In 1984, the Occupiers Liability Act 1984 (Ref 403) extended this duty to include certain uninvited visitors, including trespassers. This duty to the uninvited is limited to:

- Risks the occupier is aware of or has reasonable grounds to believe it exists;
- Risks that the uninvited are likely to encounter (i.e. hazardous trees in accessible areas); and
- Risks from which the occupier could be reasonably expected to take steps to protect visitors (invited or otherwise).

14.8.16 Section 2(3)(a) of the 1957 Act also states that occupiers must anticipate that children may be less careful than adults. The standard of care considers the nature of the occupier(s) and the reasonableness of any steps to help prevent injury.

14.8.17 Claims under these Acts are generally pursued as civil actions in negligence, not criminal prosecutions.

14.8.18 The Environment Act 2021 (Ref 79) introduced strengthened measures to address illegal felling (through amendments to the Forestry Act) and requires highways authorities to consult before felling street trees. The Environment Act also provides the legal framework for setting long-term environmental targets. Under this framework, the government has established a legally binding target – through the Environmental Targets (Woodland and Trees Outside Woodland) (England) Regulations 2022 (Ref 404), to increase tree canopy and woodland cover in England to 16.5% of total land area by 31 December 2025, supporting net zero ambitions and nature recovery.

14.8.19 Section 115 of the Environment Act 2021 requires local highway authorities in England to consult with the public in relation to the proposed felling of 'street trees' (defined as a tree on an urban road). However, consultation is not required if the works are required to implement planning permission granted under Section 70, 73, 76D, 77, or 79, or outline planning granted under Section 92 of the Town and Country Planning Act. Other exceptions include situations where the authority considers that the street tree to be dead, or where the authority considers that the street tree is required to be felled by an order under the Plant Health Act 1967 (Ref 405) or under any enactment on the basis that the tree is dangerous.

14.8.20 Schedule 4 of the Electricity Act 1989 (Ref 406) sets out the provisions for establishing wayleaves and the removal or pruning of trees (and shrubs) in relation to electricity lines or plant (including existing and new infrastructure).

14.8.21 Licence holders can give notice to the owner/occupier of the land to require them to fell or prune trees (including roots) to prevent an obstruction or

interference with the installation, maintenance or working of the line or plant, or where the tree or shrub could constitute an unacceptable danger. The licence holder is to cover reasonable expenses. If the owner/occupier doesn't undertake the work within 21 days (and no counter notice is served) the licence holder can undertake the works. The owner/occupier can serve counter notice within the 21 day period and the matter will then be referred to the Secretary of State. Tree works should be in accordance with good arboricultural practice and are to do as little damage as possible to trees and the surrounding land.

14.8.22 The Electricity Safety, Quality and Continuity Regulations 2002 (as amended) (Ref 407) set out the safety standards and requirements for UK electricity suppliers. This includes requirements to maintain suitable clearances between trees and overhead lines, to set standards for tree works and to manage risks so far is reasonably practicable. Tree work should be carried out in accordance with best arboricultural practice.

National Planning Policy and Guidance

14.8.23 The following NPSs detail policies relevant to arboriculture in the context of the development proposals.

- The Overarching National Policy Statement for Energy ('EN-1') (Ref 8) with reference to Paragraphs 5.4.15 - 5.4.16, 5.4.33, 5.4.55 - 5.4.57 and 5.11.27; and
- The National Policy Statement for Renewable Energy Infrastructure ('EN-3') (Ref 9) with reference to Paragraphs 2.10.92 - 2.10.93.

14.8.24 In addition, the following guidance will also be taken into account:

The Planning Practice Guidance Natural Environment 2019 Natural Environment Trees and Woodland (paragraph 029-035) (Ref 408); Local Planning Policy and Guidance

14.8.25 Relevant local planning policy and guidance includes:

- East Riding of Yorkshire Local Plan Update (2020-2039) (Adopted April 2025) (Ref 13), with reference to Policy ENV2: Promoting a high quality landscape, which includes considerations for retaining and protecting trees and hedgerows and related mitigation; and
- East Riding of Yorkshire, 2025. Design Code SPD 3.3 Trees and Hedgerows (Ref 409).

Other relevant guidance

14.8.26 The British Standards Institute's Trees in relation to design demolition and construction – Recommendations (BS5837:2012) provides a framework which

sets out how trees should be considered in this context and explicitly applies to development where planning consent is not required.

14.8.27 BS5837:2012 recommends that a tree survey is undertaken to identify the quality and benefits of trees, and the spatial constraints associated with them. This is then used to produce a Tree Constraints Plan showing above and below ground constraints associated with trees. This drawing is used to inform the design process and to allow the retention of good quality trees where appropriate.

14.8.28 An AIA is then developed to identify the likely direct and indirect impacts of the Scheme, and a Tree Protection Plan prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected. These elements are the minimum normally required for a planning application or DCO application and are intended to ensure both a sustainable and harmonious relationship between trees and new development. An Arboricultural Method Statement is often required as a condition of planning consent or as a DCO Requirement to detail how sensitive operations are to be achieved in proximity to retained trees.

14.8.29 In addition, the following documents will also be taken into account:

- Ancient Woodland standing advice - Ancient woodland, ancient trees and veteran trees: protecting them from development (2022) (Ref 410).

Study Area

14.8.30 The Study Area for arboriculture includes any trees with the potential to be impacted by the enabling works and construction of the Humberhead Sites and the CRC. At this stage this equates to the consideration of trees within circa 30 m of the Humberhead Sites and the CRSC. Only trees at risk of impact will be considered.

Baseline Conditions

14.8.31 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Arboriculture.

14.8.32 The Scoping Site Boundary is formed of numerous distinct areas distributed throughout agricultural land southeast of York. The trees present are predominantly established at field edges and within hedgerows. The predominant species likely include native oak (*Quercus robur)*, ash (*Fraxinus excelsior),* native birch species *(Betula spp),* poplar species (*Populus spp.)* and willow (of various species) (*Salix spp.)*. Tree cover between Site areas likely reflects present and historic agricultural management. Various small woodland areas are distributed around, typically immediately beyond the Humberhead Sites. These are likely formed of the same species identified

above with additional species of native birch and of various native small tree and shrub species (such as hawthorn and hazel).

14.8.33 Ash in the UK and across Europe have been lost in great numbers due to ash dieback ('ADB') caused by the ascomycete fungus (*Hymenoscyphus fraxineus*). It is expected that the ash trees on the Humberhead Sites and across the CRSC will show varying degrees of disease progression; the number of expected individuals showing resistance to the disease is debated but may be expected to be around of 15% of individual ash trees.

14.8.34 Across the UK, native oaks are threatened by several diseases and syndromes, along with the environmental impacts from changes in land use and climate change. However, the diseases impacting oaks are less acute and wide spread as the effects of ADB on ash. The oaks are expected to be the highest value trees with the longest remaining life of the trees across the Humberhead Sites and across the CRSC.

14.8.35 Due to the nature of the current land use and the cultural practises of land management in England, veteran and ancient trees are likely to be present within the Humberhead Sites. Both Ancient Woodland and Veteran trees are considered to be irreplaceable habitat features which are given a high priority in the planning process. Surveys to identify veteran and ancient trees on and immediately adjacent to the Humberhead Sites have been completed and the results are being evaluated at the time of writing.

Statutory and Non-Statutory Designations that may Influence the Management of Trees

14.8.36 The Department for Environment, Food and Rural Affairs' ('DEFRA') MagicMap (Ref 135) identifies no designated ancient semi natural woodland ('ASNW'), plantation on ancient woodland sites ('PAWS') or replanted ancient woodland on the Humberhead Sites and the CRSC, or within 30 m. The nearest ASNW is approximately 100 m south from Site 3-2. This ANSW designation is approximately 40 m north of the edge of the CRSC.

14.8.37 Four Priority Habitat Inventory (England) – Deciduous Woodland designations are identified within Sites 1-1, 2-1, 4-1 and 4-2 This designation is identified in numerous locations at the edges of the Humberhead Sites, including 1-1, 1-3, 2-1, 2-2, 3-1, 4-2, 4-2, 4-3 and 4-8.

14.8.38 One Site of Special Scientific Interest ('SSSI') is adjacent to Humberhead 1-1 (Pocklington Canal). The Operations Requiring Natural England's Consent ('ORNEC') identifies controls to the introduction of, and changes in, tree and woodland management (Ref: OLD1001799). One SSSI is identified immediately adjacent to Humberhead Site (South Cliffe Common), with the associated ORNEC also identifying controls to tree and woodland management (Ref: OLD1001441).

14.8.39 There are no Scheduled Monuments within the Site which could influence the management of trees.

14.8.40 East Riding of Yorkshire Council's online Planning Constraints Mapping (Ref 412) has been reviewed for the presence of TPOs or Conservation Areas ('CAs') on or immediately adjacent to the Humberhead Sites which could influence the management of trees. Tree Preservation Orders are identified at the boundary of Humberhead 4-3 at Skiff Lane Tollingham.

14.8.41 The Woodland Trust Ancient Tree Inventory (Ref 411) contains records of ancient and veteran trees northeast of Shiptonthorpe adjacent to Site 2-3. One of which (recorded as a veteran tree) is within Site 1-1, south of Canal Head. Veteran trees require a minimum buffer zone equivalent to stem diameter x 15 or canopy spread +5 m (whichever is greater) in accordance with Standing Advice from Natural England and Forestry Commission (2022).

Potential Effects and Mitigation

14.8.42 This section sets out the potential effects of the Scheme on arboriculture.

Construction and Decommissioning

14.8.43 The design, implementation and decommissioning of the Scheme will be developed to avoid or minimise arboricultural impacts where practicable. In the absence of any mitigation and/or protection the following effects could occur:

14.8.44 Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction.

14.8.45 Soils can be compacted to levels inhospitable to tree root growth. A single pass of machinery, regular pedestrian traffic or the storage of plant and materials can destroy the structure of the soil and lead to the death or dysfunction of roots and prevent future root growth.

14.8.46 Damage to stem and branches from movement of machinery and materials.

14.8.47 Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with significant long term implications for tree health.

Operation and Maintenance

14.8.48 The operation of the Scheme and change in land use also has the potential to impact trees. However, the design and management of the Scheme will be developed to avoid or minimise tree related impacts where feasible and new trees will be planted as compensation for any unavoidable losses. Where trees are retained in proximity to infrastructure, facilitation pruning (e.g. crown lifting) may be required. This may result in an ongoing requirement to prune trees to maintain a reasonable clearance of access routes, visibility splays and other infrastructure for future usage, in accordance with best practice.

14.8.49 Where part of a tree group or woodland is to be removed, the retained trees may be subject to an increased risk of windthrow due to a loss of companion shelter. In addition, trees which were located in areas of low use (where significant defects required no management intervention) may subsequently, post development, require management or removal on safety grounds due to increased land use intensity.

14.8.50 In general, retained trees will also require periodic inspection by a competent person to assess their structural condition and ensure that to any risks from tree failure are managed. Occasional removal of dead wood or other remedial works to address significant defects may be required in areas of frequent access. In some areas this will be a change to current tree management requirements on the Humberhead Sites and will be the responsibility of the tree owner.

14.8.51 It is estimated that the Solar Panels could require replacement once and the batteries up to four times during the operation of the Scheme. The effects of maintenance and replacement activities on retained trees across the Scheme are anticipated to be minimal due to the mounting frames, cabling, substation and other infrastructure already being in situ and not needing replacement, in addition to the tree works already being undertaken where required to install these items; these activities would be controlled and managed through appropriate management plans such as the LEMP and secured through the requirements of the DCO.

Mitigation

14.8.52 Mitigation by design will be applied to avoid impacts to trees where possible (especially those trees of the greatest value). This will be informed by the desk study and targeted tree survey of arboricultural constraints and supported by design principles, parameters and commitments. The impact of shading from trees and their future growth will be assessed and taken into account. Arboricultural impacts will be considered in an AIA (and Tree Protection Plan) as described in the Methodology Section below. Post

consent, an Arboricultural Method Statement (which will be secured via the oCEMP) will set out the specification for tree protection measures and the methodology for sensitive works near retained trees.

14.8.53 Mitigation, such as the use of specialist construction techniques, can be applied to reduce the extent of tree removals where new features (such as access routes and services) are unavoidably required in proximity to tree features (i.e., within root protection areas ('RPAs').

14.8.54 Unavoidable tree loss will be addressed with new planting which can help to improve the diversity and resilience of the local tree population, particularly in the face of climate change and the emerging threat of new pests and diseases. New planting can utilise stock of a provenance and genetic diversity which will help to increase climate resilience in the long term.

14.8.55 Mitigation may also include new or increased proactive management for existing trees of value to increase quality, biodiversity value and resilience.

Methodology

Site Walkover

14.8.56 A walkover has been undertaken within the Humberhead Sites to identify and record trees which are likely ancient or veteran, and thus have greater constraints associated with them than that of non ancient/veteran trees. Multiple trees of this status have been identified. Such trees are of at least mature dimensions for the species and exhibit substantial dead or decayed wood habitat. Where identified they have been recorded via a tree survey to British Standards BS5837:2012 Trees in relation to design, demolition and construction – Recommendations which will identify the quality and value of the trees and the spatial constraints associated with them. Buffer zones have been applied in accordance with Standing Advice.

14.8.57 Tree dimensions, health and structural condition, quality category and likely remaining useful contribution (in years) have been considered. This will provide essential information to the design team to allow the retention of the highest value trees where feasible. This will also include a consideration of the likely future growth and shading impact of trees.

Desk Study and Targeted Tree Survey

14.8.58 A targeted approach to tree surveys is considered appropriate, and this has been successfully applied on a range of solar schemes across the UK (including East Yorkshire Solar Farm and Sunnica Energy Farm).

14.8.59 A desk study will be undertaken with reference to the National Tree Map dataset (provided by Bluesky International Ltd). This provides data on tree heights and canopy spread derived from LiDAR and aerial imagery. A buffer

zone will be added to each tree based on its recorded height which will be used to estimate a typical maximum stem diameter. The buffer will be derived from AECOM's extensive dataset of tens of thousands of trees surveyed across the UK. This will be used to provide early tree constraint information and to inform the design.

14.8.60 The desk study will then identify those trees at substantive risk from impacts from the construction activities within the Humberhead Sites and CRC, and these will then be subject to a targeted detailed tree survey to BS5837:2012 (i.e., 'at risk areas').

14.8.61 Topographical survey information will be utilised to inform the position of tree features subject to targeted detailed tree surveys.

14.8.62 Trees which are not subject to a detailed survey will be addressed solely via desk study data.

Baseline Tree Constraints

14.8.63 A Tree Constraints Plan will be produced to set out the spatial constraints associated with arboricultural features on and immediately adjacent to the Humberhead Sites and CRC This will include identification of any feature with a significant statutory or non-statutory designation and any relevant buffer zone.

14.8.64 The likely future impact of trees will also need to be fully considered in the design process to ensure well placed tree retention and to minimise unnecessary conflicts associated with trees. Trees will continue to grow and increase in stature and must be provided reasonable space for their likely future dimensions to avoid pressure for tree removal or ongoing onerous tree pruning works which would have a negative impact on the health or amenity value of the trees. Current and future shading arcs will be shown on the Tree Constraints Plan based on tree heights. Future tree heights will be based on published mature heights for the species where identified and will adopt a maximum height of 30 m where species is not identified (e.g. trees considered via desk study only).

Assessment of Arboricultural Impacts

14.8.65 An AIA to BS5837:2012 will be developed to consider the likely direct and indirect impacts of the Scheme on trees. This will constitute a desktop analysis of the proposals for the Humberhead Sites and CRC overlaid onto the Tree Constraints Plan and will identify those trees to be removed in relation to the Scheme, as well as consider how trees to be retained are to be protected throughout the construction phase. Suitable mitigation measures will also be recommended as appropriate.

14.8.66 A Tree Protection Plan will set out the spatial positioning of protective measures to protect retained trees and will identify trees for removal.

14.8.67 Full consideration of the spatial constraints associated with trees and well implemented and maintained tree protection measures throughout the construction phase, will ensure that important trees can be successfully retained and incorporated into the Scheme.

14.8.68 An AIA will be included as an appendix to the Landscape and Visual ES Chapter.

14.8.69 A commitment to produce an Arboricultural Method Statement will be included in the oCEMP; an Arboricultural Method Statement will be appended to a detailed CEMP secured as a requirement of the DCO.

Assumptions, Limitations and Uncertainties

14.8.70 Should access be restricted due to land access agreements, dense vegetation or other restrictions, trees will be surveyed from the nearest feasible vantage point and conditions and dimensions will be estimated.

14.8.71 Important hedgerows (as per the Hedgerow Regulations) will be determined by the Biodiversity and Heritage assessments.

14.8.72 The level of topographical survey detail will impact the accuracy of tree positions (and any associated buffer zones and/or RPAs) and will also have an impact on how much detail can be feasibly recorded especially for trees within woodlands and tree groups.

14.8.73 Where trees form a coherent group feature, they will be recorded as group and be assigned maximum dimensions.

14.8.74 The British Standard BS5837:2012 is currently under revision and the revised version (which has been delayed) is due to be published in November 2026. Because the tree survey will have been completed to the 2012 standard it is proposed to adopt this methodology for the arboricultural assessment to be submitted as part of the ES.

14.8.75 The desk study, use of buffers and targeted approach to tree surveys is considered a reasonable and proportionate response to the scale of the Site and has been used successfully on a range of Nationally Significant Infrastructure Projects ('NSIPs') including solar in the region (such as East Yorkshire Solar Farm). This approach is likely to overestimate rather than underestimate tree constraints. The application of site walkovers to identify ancient or veteran trees and targeted tree surveys of at risk locations helps to further reduce any risk that tree constraints may not be fully represented.

14.8.76 The loss of companion shelter and any additional tree management to address this will need to be considered following site clearance works and

may result in the requirement for additional tree loss or management (beyond that identified within any initial assessment of arboricultural impacts).

Summary of Elements Scoped In and Out

14.8.77 A standalone ES chapter for Arboriculture is proposed to be scoped out; however, an AIA will be completed to the relevant standards, to include identification for the mitigation of impacts to trees, and will be appended to the Landscape Visual Impact Assessment chapter.

14.9 Telecommunications and Utilities

14.9.1 This section discusses the potential effects of the Scheme and the assessment methodology in relation to telecommunications and utilities.

Baseline Conditions

14.9.2 There are several cables, pylons and pipelines crossing the Scheme (including Humberhead 1 to 4 and the Cable Route Search Corridor ('CRSC')) which are owned and operated by a number of different utilities providers. Details of these are provided in **Table 14-33** and **Table 14-34** below.

Table 14-33 Utilities within the Humberhead Sites

Utility type	Owner	Approximate Length within Scoping Site Boundary	Details
Humberhead 1			
11 kV Overhead Lines	Northern Power Grid	1.47 km	170 m total crossing the north-east and north-west corners of the Humberhead 1-1. 1.3 km runs through the centre of Humberhead 1-2.
66 kV Overhead Lines	Northern Power Grid	200 m	170 m crosses the south-west corner of Humberhead 1-1. 30 m crosses the northern corner of Humberhead 1-2.
Pipeline	Northern Gas	900 m	Along the north-east boundary of Humberhead 1-2, running along the A1079.
Communications	BT Openreach	240 m	Along the north-east boundary of Humberhead 1-2, running along the A1079.

Utility type	Owner	Approximate Length within Scoping Site Boundary	Details
Communications - Planned	BT Openreach	485 m	Along the north-east boundary of Humberhead 1-2, running along the A1079.
11 kV electrical cabling	Northern Power Grid	660 m	Along the north-east boundary of Humberhead 1-2, running along the A1079.
Other	Northern Power Grid	120 m	Along the north-east boundary of Humberhead 1-2, running along the A1079.
Pipeline	Yorkshire Water	770 m	690 m along the north-east boundary of Humberhead 1-2, running along the A1079. 80 m in the northern most point of Humberhead 1-3.
Overground Electrical Line	National Grid	620 m	Crosses Humberhead 1-4 north-west to south-east.
Humberhead 2			
11 kV electrical cabling	Northern Power Grid	500 m	Runs through the northern fields of Humberhead 2-1, connecting to the existing wind turbine.
Pipeline	Yorkshire Water	2.14 km	1.8 km runs through Humberhead 2-1, north to south. 340 m east of Humberhead 2-2, running along Loughborough Avenue.
Pipeline	INEOS	2.43 km	2.1 km crosses the length of Humberhead 2-1, from north-west to south-east. 330 m runs across the north-east section of Humberhead 2-2
11 kV Overhead Lines	Northern Power Grid	1.86 km	910 m runs through the northern fields of Humberhead 2-1. 950 m runs north to south and along the northern boundary of Humberhead 2-3.
Low Voltage electrical cabling	Northern Power Grid	180 m	In the northern field of Humberhead 2-1.

Utility type	Owner	Approximate Length within Scoping Site Boundary	Details
Humberhead 3			
Communications – Overhead Lines	BT Openreach	330 m	Running along the eastern section of Humberhead 3-1.
Low Voltage electrical cabling	Northern Power Ground	40 m	A small section in the eastern section of Humberhead 3-1.
Low Voltage Overhead Lines	Northern Power Ground	50 m	A small section in the eastern section of Humberhead 3-1.
11 kV Overhead Lines	Northern Power Grid	2.2 km	1.4 km running through the centre of Humberhead 3-1, from east to west, and through the northern section of Humberhead 3-1. 550 m runs through the western fields of Humberhead 3-2. 250 m crosses the north-west corner of Humberhead 3-3.
11 kV electrical cabling	Northern Power Grid	70 m	In the north-west corner of Humberhead 3-3, connecting to the existing wind turbine.
Humberhead 4			
11 kV Overhead Lines	Northern Power Grid	10.38 km	1.6 km m running through both the central fields and north-east corner of Humberhead 4-1, and along Market Weighton Road. 1.1 km of Overhead Lines in the south-east corner of Humberhead 4-2. 3.07 km run through the south-east of Humberhead 4-3 and along the northern boundary. Two lines run east to west, and one line intersects from the north-west of Humberhead 4-5, totalling 1.1 km. Multiple lines run across the southern area of Humberhead 4-6, totalling 1.65 km. 1.86 km run across the south-east area of Humberhead 4-7.
Pipeline	Yorkshire Water	6.06 km	2.9 km of pipeline within Humberhead 4-1, running through

Utility type	Owner	Approximate Length within Scoping Site Boundary	Details
			its northern section and all road within the boundary. 2.76 km running within Humberhead 4-3, through the centre and along the southern boundary. 400 m run parallel to Bursea Lane in the northern area of Humberhead 4-6.
Low Voltage electrical cabling	Northern Power Grid	2.3 km	1.9 km within Humberhead 4-1, running along Sand Lane, Cliffe Lane and Market Weighton Road. 400 m within Humberhead 4-2, with cabling running along the northern boundary and in the south-east corner.
11 kV electrical cabling	Northern Power Grid	2.16 km	90 m in the north-east corner of Humberhead 4-1. 290 m in Humberhead 4-3, along Skiff Lane. 580 m running along the south boundary of Humberhead 4-4. 1.2 km within Humberhead 4-7, north-west along New Lane, and along the south boundary.
Eastern Green Link 2 (Proposed)	National Grid and Scottish and Southern Electricity Networks ('SSEN')	1.4 km	Runs through the centre of Humberhead 4-3. This is consented but not yet built.
Communications	BT Openreach	4.14 km	2.7 km within Humberhead 4-1, running along Sand Lane, Cliffe Lane and Market Weighton Road. 1.44 km running through Humberhead 4-3 along Lock Lane and Skiff Lane.
Communications - Overhead Lines	BT Openreach	350 m	60 m runs along Cliff Lane, within Humberhead 4-1. 150 m running within Humberhead 4-3.

Utility type	Owner	Approximate Length within Scoping Site Boundary	Details
			140 m runs across the eastern section of Humberhead 4-8.
Communications - Planned	BT Openreach	1.29 km	160m running along Cliff Road within Humberhead 4-1. 1.13 km running throughout Humberhead 4-3, along both Lock Lane and Skiff Lane.
Communications - Duct	BT Openreach	230 m	Running along Cliff Lane, within Humberhead 4-1.
Communications	EU Networks	330 m	North of Humberhead 4-1, running along Market Weighton Road.
AUX electrical cabling	Northern Power Grid	230 m	North of Humberhead 4-1, running along Market Weighton Road.
Pipeline	Northern Gas	190 m	North of Humberhead 4-1, running along Market Weighton Road.
Other	Northern Power Grid	40 m	Within Humberhead 4-3.
Low Voltage Overhead Lines	Northern Power Grid	100 m	Within Humberhead 4-3.

Table 14-34 Utilities within the Cable Route Search Corridor

Utility type	Owner	Approximate Length within the CRSC
11 kV Overhead Lines	Northern Power Grid	26.48 km
33 kV Overhead Lines	Northern Power Grid	680 m
66 kV Overhead Lines	Northern Power Grid	2.8 km
Low Voltage Overhead Lines	Northern Power Grid	1.25 km
Other	Northern Power Grid	1.7 km
Overhead Lines	National Grid	3.1 km
11 kV electrical cabling	Northern Power Grid	14.77 km
Low Voltage electrical cabling	Northern Power Grid	6.23 km
Eastern Green Link 2 (Proposed)	National Grid and SSEN	2.2 km
Pipeline	Northern Gas	1.41 km
Pipeline	INEOS	750 m

Utility type	Owner	Approximate Length within the CRSC
Pipeline	Yorkshire Water	20.53 km
Communications	BT Openreach	39.02 km
Communications - Duct	BT Openreach	300 m
Communications	EU Networks	970 m
Communications	National Grid	615 m
Communications – Overhead Lines	BT Openreach	5.42 km
Communications - Planned	BT Openreach	3.32 km
Communications	Vodafone	615 m

Potential Effects

14.9.3 Solar Panels and associated development have the potential to affect above and below ground telecommunications and utilities. Any potential impacts are most likely to be direct physical in-situ impacts to existing infrastructure, rather than indirect impacts as a result of the Scheme.

14.9.4 The Scheme, as described in **Chapter 4: Scheme Description**, is unlikely to interfere with above ground television receptors given its limited height.

14.9.5 Where above ground utilities and telecommunications infrastructure exists within or adjacent to the Site, there is the potential for development to encroach upon the relevant safeguarded areas.

14.9.6 Solar farms have the potential to affect existing below ground utility infrastructure, for example, through 'cable strike' when piling the Solar Mounting Structures or excavating the cable trenches.

Assessment methodology

14.9.7 To identify any existing constraints, a desk-based study has been undertaken across the Scoping Site Boundary, supported by a geophysical survey across Humberhead 1-4. The geophysical survey will corroborate the desk-based findings and accurately plot the utilities, ensuring they can be appropriately avoided within the Scheme design.

14.9.8 Consultation with relevant telecommunications and utilities providers such as water, gas and electricity providers will be undertaken, as appropriate. This will facilitate the sharing of ShapeFiles, confirming specific alignments of the utilities, to allow for an additional cross check to be undertaken.

14.9.9 Alongside the information obtained from the desk-based study and geophysical survey, discussions and negotiations with the relevant

undertakers will be undertaken prior to submission of the DCO Application. This will mean safeguarding distances and measures for working in proximity will be incorporated into the development parameters for the Scheme, and protective provisions agreed where required. These discussions will be undertaken as part of the design evolution of the Scheme and sufficient offsets and/or suitable mitigation measures (e.g. buffers) will be embedded into the design to ensure that there is no potential for likely significant effects.

14.9.10 Existing easements, wayleaves and other third-party rights affecting the land will be considered and respected, and the layout has been developed to ensure that no conflict arises with underground utilities or associated access requirements e.g. for maintenance.

14.9.11 Taking the above into account, relevant measures will be captured within the Scheme design to ensure potential effects to existing infrastructure will be avoided.

14.9.12 Therefore, it is proposed that telecommunications and utilities will be scoped out of the EIA and not be included in the ES.

15 Proposed Structure of the ES

15.1.1 The ES will consist of three volumes and a Non-Technical Summary ('NTS'). This section provides a summary of each document that will form the Environmental Statement ('ES').

15.1.2 **ES Volume I: Main Report** – this will form the main body of the ES, detailing the results of the EIA, likely significant effects arising from the Scheme, and the proposed mitigation measures. The ES will also identify opportunities for social and economic benefits and environmental enhancement. The ES will be divided into a number of background and technical chapters; each being supported with figures and tabular information. Volume I of the ES will consider the environmental effects associated with a number of identified topics, which may receive significant environmental effects. The following chapters will be included within the ES:

- Chapter 1: Introduction;
- Chapter 2: The Order Limits and Context;
- Chapter 3: The Scheme;
- Chapter 4: Alternatives and Design Evolution;
- Chapter 5: Environmental Impact Assessment Methodology;
- Chapter 6: Health
- Chapter 7: Climate Change;
- Chapter 8: Landscape and Visual;
- Chapter 9: Biodiversity;
- Chapter 10: Ornithology;
- Chapter 11: Water Environment;
- Chapter 12: Cultural Heritage;
- Chapter 13: Transport and Access;
- Chapter 14: Noise and Vibration;
- Chapter 15: Socio-economics;
- Chapter 16: Other Environmental Matters;
- Chapter 17: Cumulative and In-Combination Effects; and
- Chapter 18: Summary of Residual Effects.

15.1.3 **ES Volume 2: Figures** – A complete set of figures will be provided for reference which support the assessments in ES Volume 2.

15.1.4 **ES Volume 3: Technical Appendices** – A complete set of appendices will be provided for reference. These comprise of background data, technical reports, tables, figures and surveys which support the assessments in ES Volume 3.

15.1.5 **ES Volume 4: Non-Technical Summary ('NTS')** – The NTS will be presented in a separate document and provides a concise description of the Scheme, the considered alternatives, baseline, assessment methodology, potential

environmental effects and mitigation measures. The NTS will be designed to provide information in an accessible format which can be understood by a wide audience and to assist interested parties with their familiarisation of the project.

16 Summary and Conclusions

16.1 Overview

16.1.1 This Scoping Report represents notification under Regulation 8(1)(b) of the Environmental Impact Assessment ('EIA') Regulations (Ref 2) that the Applicant confirms that it will undertake an EIA in respect of the Scheme and produce an Environmental Statement ('ES') to report the findings of the EIA.

16.1.2 In accordance with the EIA Regulations, the Scoping process is a formal regulatory stage that helps define the scope and level of detail to be included within the ES. The purpose of the Scoping process is to identify the main issues that will be the focus of the assessment and avoid the need for the assessment to cover every possible environmental impact to unwarranted detail.

16.1.3 This Scoping Report also represents a formal application to the Planning Inspectorate under Regulation 10 of the EIA Regulations for a 'Scoping Opinion' as to the information to be provided within the ES that will form part of the Development Consent Order ('DCO') application. This Scoping Report has identified the environmental effects that are considered to have the potential to be significant and proposes the approach to be used in assessments that will be undertaken for the EIA to characterise and understand the significance of these effects. The prescribed consultees are invited to consider the contents of this report and comment accordingly within the statutory 42 day time period.

16.1.4 The Planning Inspectorate guidance relating to Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 25) has been considered in this chapter, and throughout the Scoping Report. For clarity, **Table 16-1** presents a summary of the proposed scope of the environmental topic assessments, as well as which elements of these topics that are to be scoped out, and the rationale behind these decisions.

16.2 Proposed Topics Scoped Out of the ES

16.2.1 This section presents the matters to be 'Scoped Out' of the ES. The topics that it is considered can be scoped out of the ES comprise:

- Telecommunications, Television Reception and Utilities;
- Major Accidents and Disasters; and
- Transboundary Effects.

16.2.2 These are proposed to be scoped out on the basis that the Scheme is not anticipated to result in likely significant effects during its construction, operation and decommissioning phases, in respect of these topics. The recommendations relating to the topics to be scoped out of the ES have been

informed by initial on-site surveys, desk-based assessment, consultation with the relevant consultees and professional judgement of the topic specialists.

16.2.3 In addition to the topics proposed to be fully scoped out of the ES, as listed above, a number of other topics are proposed to be subject to a proportionate assessment only, and therefore will not be reported within standalone ES chapters. These topics are not proposed to be scoped out of the environmental assessment; rather, they will be assessed and reported within the Other Environmental Matters chapter of the ES, reflecting the limited nature and extent of likely significant effects anticipated. These topics comprise:

- Air Quality;
- Soils and Agriculture;
- Materials and Waste;
- Glint and Glare;
- EMF; and
- Ground Conditions.

16.2.4 Arboricultural Impact Assessment will be completed to the relevant standards, to include identification for the mitigation of impacts to trees, and will be appended to the Landscape Visual Impact Assessment chapter of the ES.

16.2.5 As set out in **Appendix 1-B: Transboundary Screening Matrix**, the Scheme is not anticipated to result in transboundary effects when considering the Planning Inspectorate Advice 'Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process' (Ref 416). For this reason, an assessment of these effects is proposed to be scoped out of the ES.

Table 16-1 Summary of ES Scope

Environmental Topic	Element	Scoped in / Scoped out	Rationale
Health	**Construction**		
	Physical activity	Scoped out	Physical activity will be covered under the transport and, open space, leisure and play health determinants.
	Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
	Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
	Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during construction.
	Relocation	Scoped out	The Scheme is unlikely to necessitate relocation.
	Open space, leisure and play	Scoped in	The majority of the site is private land with no loss of public open space, leisure or play areas, and any temporary effects to Public Rights of Way ('PRoWs') will be assessed under the 'transport modes, access and connections' determinant. Whilst it is likely there will be no significant effects, this will be assessed in the ES.
	Transport modes, access and connections	Scoped in	There is potential for the Scheme to affect road and route safety and access to services during the construction phase.
	Community safety	Scoped out	The Scheme is unlikely to affect community safety.
	Community identity, culture, resilience and influence	Scoped in	There is potential for the Scheme to impact community identity and resilience during construction, including through uncertainty and anxiety about potential adverse effects of the Scheme and effects on social cohesion.
	Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
	Education and training	Scoped out	There is potential for increased access to education and training opportunities, with associated health benefits however

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			given sourcing of labour there would be no potential for a significant beneficial effect.
	Employment and income	Scoped out	There is potential for increased access to employment opportunities and subsequent income benefits, with associated health benefits however given sourcing of labour no significant beneficial effects are likely.
	Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
	Air quality	Scoped out	There is no Air Quality Management Area ('AQMA') within or immediately adjacent to the Site.
	Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
	Land quality	Scoped out	The Scheme is unlikely to affect land quality.
	Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.
	Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.
	Landscape and visual	Scoped in	There is potential for the Scheme to reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.
	Health and social care services	Scoped in	There is potential for the Scheme to affect access to and demand for health and social care services through temporary increases in population from the workforce.
	Built environment	Scoped out	The Scheme is unlikely to result in human health effects relating to the built environment.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Wider societal infrastructure and resources	Scoped out	No potential effects apart from those on social infrastructure which will be assessed through the consideration of other determinants, as above.
	Operation		
	Physical activity	Scoped out	The Scheme is unlikely to result in permanent effects on physical activity. The majority of the Site is privately owned agricultural land with no permanent loss of public open space, leisure or recreational facilities, and all PRoW will be retained during operation.
	Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
	Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
	Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during construction.
	Relocation	Scoped out	The Scheme is unlikely to affect relocation.
	Open space, leisure and play	Scoped out	The majority of the Site is privately owned agricultural land, and the Scheme would not result in any permanent loss of public open space, leisure or recreational facilities. All PRoW will be retained during the operational phase.
	Transport modes, access and connections	Scoped out	During operation, vehicle movements are limited to occasional maintenance visits, and all PRoW will be retained. Any transport effects during the operational phase are fully assessed in **Chapter 11: Transport and Access**.
	Community safety	Scoped out	The Scheme is unlikely to affect community safety.
	Community identity, culture, resilience and influence	Scoped out	The Scheme is unlikely to result in significant effects on community identity, resilience or social cohesion during operation. Operational staffing is minimal and the potential for permanent disruption to settlements or demand for local services is negligible.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
	Education and training	Scoped out	As operational employment requirements are limited to a small number of maintenance roles, education and training will be similarly limited.
	Employment and income	Scoped out	As operational employment requirements are limited to a small number of maintenance roles, the potential for health effects through employment and income pathways during operation is not significant.
	Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
	Air quality	Scoped out	There is no AQMA within or immediately adjacent to the Site.
	Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
	Land quality	Scoped out	The Scheme is unlikely to affect land quality.
	Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.
	Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.
	Landscape and visual	Scoped in	There is potential for the Scheme to permanently reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Health and social care services	Scoped out	As operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the capacity of or access to health and social care services.
	Built environment	Scoped out	The Scheme is unlikely to result in human health effects relating to the built environment.
	Wider societal infrastructure and resources	Scoped out	As operational workforce is expected to be minimal and not reside locally, and traffic movements would similarly be minimal, there would be no effects on the access to wider societal infrastructure and resources.
	Decommissioning		
	Physical activity	Scoped out	Physical activity will be covered under the transport modes, access and connections and, open space, leisure and play health determinants.
	Risk taking behaviour	Scoped out	The Scheme is unlikely to affect risk taking behaviour.
	Diet and nutrition	Scoped out	The Scheme is unlikely to affect diet and nutrition.
	Housing	Scoped out	The Scheme is unlikely to affect housing provision / quality of housing during decommissioning.
	Relocation	Scoped out	The Scheme is unlikely to necessitate relocation.
	Open space, leisure and play	Scoped in	The majority of the site is private land with no loss of public open space, leisure or play areas, and any temporary effects to PRoWs will be assessed under the 'transport modes, access and connections' determinant. Whilst it is likely there will be no significant effects, this will be assessed in the ES.
	Transport modes, access and connections	Scoped in	There is potential for the Scheme to affect road and route safety, and access to services.
	Community safety	Scoped out	The Scheme is unlikely to affect community safety.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Community identity, culture, resilience and influence	Scoped in	There is potential for the Scheme to impact community identity and resilience during decommissioning, including through uncertainty and anxiety about potential adverse effects of the Scheme and effects on social cohesion.
	Social participation, interaction and support	Scoped out	The Scheme is unlikely to affect social participation, interaction and support.
	Education and training	Scoped out	There is potential for increased access to education and training opportunities, with associated health benefits however given sourcing of labour there would be no potential for a significant beneficial effect.
	Employment and income	Scoped out	There is potential for increased access to employment opportunities and subsequent income benefits, with associated health benefits however given sourcing of labour no significant beneficial effects are likely.
	Climate change mitigation and adaptation	Scoped out	Climate change effects are scoped out of the Health chapter because they are fully assessed in **Chapter 6: Climate Change**.
	Air quality	Scoped out	There is no AQMA within or immediately adjacent to the Site.
	Water quality or availability	Scoped out	Water quality or availability effects are scoped out of the Health chapter because they are fully assessed in **Chapter 9: Water Environment**.
	Land quality	Scoped out	The Scheme is unlikely to affect land quality.
	Noise and vibration	Scoped in	There is potential for the Scheme to produce noise and vibration impacts which could lead to significant human health effects.
	Radiation	Scoped out	Radiation effects are scoped out of the Health chapter because they are fully assessed in **Chapter 14: Other Environmental Matters (EMF)**.

Environmental Topic	Element	Scoped in / Scoped out		Rationale
	Landscape and visual	Scoped in		There is potential for the Scheme to reduce the scenic beauty, sense of place, and other amenity benefits which people derive from looking at the surrounding environment.
	Health and social care services	Scoped in		There is potential for the Scheme to affect access to and demand for health and social care services through temporary increases in population from the workforce.
	Built environment	Scoped out		The Scheme is unlikely to result in human health effects relating to the built environment.
	Wider societal infrastructure and resources	Scoped out		No potential effects apart from those on social infrastructure which will be assessed through the consideration of other determinants, as above.
Climate Change	Lifecycle Greenhouse Gas ('GHG') Assessment	Product stage – Raw material extraction, manufacturing and transport of products required to build the equipment for the Scheme.	Scoped in	The Lifecycle GHG Assessment is scoped in and will consider GHG emissions associated with the construction, operation and maintenance of the Scheme.
		Construction process phase – On-site construction activity including emissions from construction compounds.	Scoped in	
		Operation and maintenance phase	Scoped in	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
		– Operation and maintenance of the Scheme.		
		Decommissioning phase – on-site decommissioning activity.	Scoped out	Decommissioning activities will be managed through the outline Decommissioning Environmental Management Plan ('oDEMP'), to be submitted with the DCO application, which will set out appropriate mitigation and good practice measures for GHG management and climate risk. On this basis, decommissioning-phase climate effects are proposed to be scoped out of further assessment.
	Climate Change Risk Assessment	Scoped out		Scheme design incorporates climate resilience measures; relevant climate change considerations addressed within topic chapters (e.g. flood risk).
	In-combination Climate Impact Assessment	Scoped out		No likely significant in-combination effects anticipated; climate change considered where relevant within topic-specific assessments.
Landscape and Visual	**Landscape - Construction**			
	0.5 km Cable Route Study Area	Scoped in		Landscape receptors within this Study Area would be scoped into the Landscape and Visual Impact Assessment ('LVIA').
	1 km Study Area	Scoped in		
	2 km Study Area	Scoped in		
	5 km Study Area	Scoped in		
	Landscape - Operation			
	0.5 km Cable Route Study Area	Scoped out		Construction phase only
	1 km Study Area	Scoped in		Landscape receptors within this Study Area would be scoped into the LVIA.
	2 km Study Area	Scoped in		
	5 km Study Area	Scoped in		
	Landscape - Decommissioning			

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	0.5 km Cable Route Study Area	Scoped out	Construction phase only
	1 km Study Area	Scoped in	Landscape receptors within this Study Area would be scoped into the LVIA.
	2 km Study Area	Scoped in	
	5 km Study Area	Scoped in	
	Landscape - Cumulative effects		
	1 km Study Area	Scoped in	Landscape Character will be assessed out to 5 km
	2 km Study Area	Scoped in	
	5 km Study Area	Scoped in	
	Visual - Construction		
	0.5 km Cable Route Study Area	Scoped out	All Visual receptors within this Study Area would be scoped into the LVIA.
	1 km Study Area	Scoped in	All Visual Receptors within the 1 km Study Area would be Included within the LVIA. However, Visual receptors within the 1 km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.
	2 km Study Area	Scoped out	Visual receptors outside the 1 km Study Area that do not have direct, extensive and/or open views towards the Scheme are to be Scoped Out of the LVIA.
	5 km Study Area	Scoped out	
	Visual - Operation		
	0.5 km Cable Route Study Area	Scoped out	Construction phase only
	1 km Study Area	Scoped in	All Visual Receptors within the 1 km Study Area would be Included within the LVIA. However, Visual receptors within the 1 km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.
	2 km Study Area	Scoped out	Visual receptors outside the 1 km Study Area that do not have direct, extensive and/or open views towards the Scheme are to be Scoped Out of the LVIA.
	5 km Study Area	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Visual - Decommissioning		
	0.5 km Cable Route Study Area	Scoped out	Construction phase only
	1 km Study Area	Scoped in	All Visual Receptors within the 1 km Study Area would be Included within the LVIA. However, Visual receptors within the 1 km Study Area with no intervisibility of the main solar Sites would be scoped out of the LVIA.
	2 km Study Area	Scoped out	Visual receptors outside the 1 km Study Area that do not have direct, extensive and/or open views towards the Scheme are to be Scoped Out of the LVIA.
	5 km Study Area	Scoped out	
	Visual - Cumulative effects		
	1 km Study Area	Scoped in	Visual receptors will be assessed out to 2 km
	2 km Study Area	Scoped in	
	5 km Study Area	Scoped out	
	Landscape Character Types ('LCTs') and Landscape Character Areas ('LCAs') as defined by East Riding of Yorkshire Landscape Character Assessment (2018)		
	LCT 1: LCA 1A, LCA 1B, LCA 1C, LCA 1D	Scoped in	Within 5 km Study Area where the Zone of Theoretical Visibility ('ZTV') indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
	LCT 2: LCA 2D	Scoped in	
	LCA 2B	Scoped out	Over 3 km from Site, limited intervisibility and perceived through the settlement of Pocklington
	LCA 2C	Scoped out	
	LCT 3: LCA 3C	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	LCA 4A	Scoped out	Over 4 km from Humberhead 3-4 and 3-5, to be used for ecological mitigation, limited intervisibility was experienced through site survey
	LCT 5: LCA 5B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
	LCT 6: LCA 6A, LCA 6B	Scoped in	
	LCT 7: LCA 7A, LCA 7B	Scoped in	
	LCT 8: LCA 8A, LCA 8B	Scoped in	
	LCA 9D	Scoped out	Over 3.5 km from Site, limited intervisibility.
	LCA 9E	Scoped out	
	LCT 10: LCA 10A, LCA 10B, LCA 10D, LCA 10G, LCA 10H	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
	LCA 10D	Scoped out	Over 4.5 km from Site, limited intervisibility
	LCT 11: LCA 11A, LCA 11B	Scoped in	Within 5 km Study Area where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10**.
	LCT 12: LCA 12A	Scoped out	At edge of 5 km Study Area, limited intervisibility
	Proposed National Landscapes		
	Proposed Yorkshire Wolds National Landscape	Scoped in	Adjacent to Site where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10.**
	Landscape Fabric		

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Ancient Woodland and Woodland	Scoped in	Within the Site itself.
	Veteran Trees, Trees and Hedgerows	Scoped in	
	Land Use	Scoped in	
	Cycleways and Long-distance footpaths		
	The Wolds Way	Scoped in	Within the Site itself.
	National Cycle Network ('NCN') Route 66	Scoped in	
	NCN Route 164	Scoped in	
	Residential Receptors as set out in Figure 7-11 and Appendix 7-D LVIA Receptors		
	Individual Residential Properties	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10.**
	Groups of Residential Properties	Scoped in	
	Settlements	Scoped in	
	Public Receptors as set out in Figure 7-12 and Appendix 7-D LVIA Receptors		
	Byways open to All traffic ('BOAT')	Scoped in	Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10.**
	Restricted Byways	Scoped in	
	Bridleways	Scoped in	
	Footpaths	Scoped in	
	The Wolds Way	Scoped in	
	NCN Route 66	Scoped in	
	NCN Route 164	Scoped in	
	Transport Receptors as set out in Figure 7-13 and Appendix 7-D LVIA Receptors		
	A Roads	Scoped in	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
	B Roads	Scoped in		Receptors within 1 km and those within 2 km with a direct line of sight to Scheme and/or where the ZTV indicates theoretical visibility as shown on **Figures 7-9 and 7-10.**
	Classified Unnumbered Roads	Scoped in		
	Motorway	Scoped in		
	Unclassified Roads	Scoped in		
	Railway	Scoped in		
	Unknown Roads	Scoped in		
Biodiversity	Humber Estuary Special Protection Area ('SPA') & Ramsar (8 km south) Functionally Linked Land ('FLL') associated with ornithological features	Construction	Scoped in	No potential for direct effects due to separation distance (approximately 8 km). However, there is potential for indirect effects on qualifying bird species via impacts to FLL within and surrounding the Site, including disturbance, displacement and habitat loss and/or modification of supporting habitat used by qualifying species.
		Operation	Scoped in (Scoped out for Cable Route Search Corridor ('CRSC'))	
		Decommissioning	Scoped in	
	Humber Estuary Special Area of Conservation ('SAC') (8 km south)	Construction	Scoped out	Potential impacts to qualifying features such as river lamprey arising from indirect effects of construction from run off entering estuary will be mitigated by following standard pollution prevention measures, to be included in the outline Construction Environmental Management Plan ('oCEMP').
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Thorne and Hatfield Moors SPA (16 km south-west)	Construction	Scoped out	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase.
		Operation	Scoped out	
		Decommissioning	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
	Thorne and Hatfield Moors SAC (16 km south west)	Construction	Scoped out	
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Lower Derwent Valley SPA & Ramsar (3 km west) FLL	Construction	Scoped in	No potential for direct effects due to separation distance (approximately 3 km). However, there is potential for indirect effects on qualifying bird species via impacts to FLL within and surrounding the Site, including disturbance, displacement and habitat loss and/or modification of supporting habitat used by qualifying species.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Lower Derwent Valley SAC (3 km west)	Construction	Scoped out	Potential impacts to qualifying features, such as otter, arising from indirect effects of construction if run off were to result in pollution will be mitigated by following standard pollution prevention measures to be included in the oCEMP and outline Landscape and Ecological Management Plan ('oLEMP').
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Skipwith Common SAC (8 km west)	Construction	Scoped out	Potential impacts to the qualifying features of this designation are considered unlikely due to distance and lack of potential impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	River Derwent SAC (5 km west)	Construction	Scoped out	Potential impacts to qualifying features, such as river lamprey, arising from indirect effects of construction if run off were to result in pollution to the River Derwent will be mitigated by
		Operation	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
		Decommissioning	Scoped out	following standard pollution prevention measures to be included in the oCEMP and oLEMP.
	Strensall Common SAC (16 km north-west)	Construction	Scoped out	Potential impacts to the features of this designation are considered unlikely due to distance and lack of potential impact pathways during the construction, operation, and decommissioning phase.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	White Carr Meadow SSSI (0.6 km south-west)	Construction	Scoped out	
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Pocklington Canal Site of Special Scientific Interest ('SSSI') (adjacent)	Construction	Scoped in	Construction and decommissioning activities close to the boundary of the SSSI could lead to disturbance of habitats and associated species. Operational impacts are considered to be limited based on embedded mitigation measures and best practice.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	South Cliffe Common SSSI (adjacent)	Construction	Scoped in	Construction and decommissioning activities close to the boundary of the SSSI could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase is anticipated to have reduced impact compared to current agricultural use.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Skipwith Common SSSI (8 km west)	Construction	Scoped out	Potential impacts to the features of this designation are considered unlikely due to distance and lack of potential impact pathways during the construction, operation, and decommissioning phase.
		Operation	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
		Decommissioning	Scoped out	Construction traffic movements will be insufficient to create potential pathways through air pollution.
	White Carr Local Wildlife Site ('LWS') (within CRSC)	Construction	Scoped in	Construction and decommissioning activities close to the boundary of this LWS could lead to disturbance of habitats and associated species. No operational impacts are anticipated. The operation phase should have reduced impact compared to current agricultural use.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Bubwith – Holme-on-Spalding-Moor Disused Railway Line LWS (within CRSC)	Construction	Scoped in	
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Nunburnholme Meadow LWS (adjacent)	Construction	Scoped in	
		Operation	Scoped out	
		Decommissioning	Scoped in	
	South Cliffe Common LWS (adjacent)	Construction	Scoped in	
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Scorbro Rush Plantation - historic LWS (adjacent)	Construction	Scoped in	
		Operation	Scoped out	
		Decommissioning	Scoped in	
	All other LWS (20) within 2 km	Construction	Scoped out	Potential impacts to the qualifying features of these designations are considered unlikely due to distance and lack of impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phases.
		Operation	Scoped out	
		Decommissioning	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
	Habitats			
	Arable land	Construction	Scoped out	Loss of extensive areas of arable habitat is anticipated. This habitat is of negligible ecological importance. For those species of which this habitat has value (such as breeding and wintering birds), these species are scoped into the assessment and the value of this habitat is assessed as part of that aspect.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Grassland	Construction	Scoped in	Potential for habitat loss (losses as yet undefined).
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Waterbodies	Construction	Scoped in	Habitat loss in general is to be determined but the embedded mitigation measures will seek no loss of ponds and a buffer of 10 m to any works. This buffer, as well as the oCEMP and oLEMP, should suffice to prevent impacts from potential damage to retained habitat during construction, operation, and decommissioning phases.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Ditches	Construction	Scoped in	Potential for small scale habitat loss (losses as yet undefined). Following the embedded mitigation measures, losses would be limited to necessary crossing locations.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Watercourses	Construction	Scoped in	
		Operation	Scoped in (Scoped	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
			out for CRSC)	
		Decommissioning	Scoped in	
	Hedgerow	Construction	Scoped in	Potential for habitat loss (losses as yet undefined) following the embedded mitigation measures, losses would be limited to access locations, but sections of hedgerow may be removed to connect fields and allow for larger solar panel areas.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Trees	Construction	Scoped in	Potential for habitat loss (losses as yet undefined) following the embedded mitigation measures, losses would be limited to access locations, but trees may be removed to connect fields and allow for larger solar panel areas.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Broad-leaved Woodland	Construction	Scoped out	No loss of this habitat is anticipated as woodland habitat will be retained and a 10 m buffer from woodland habitat is proposed, which will be sufficient to protect the habitat from any potential damage during construction, operation, and decommissioning phases.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Degradation of retained habitats	Construction	Scoped out	Potential for damage to retained habitats will be avoided by following the embedded mitigation measures set out in the oCEMP and oLEMP to be submitted with the DCO application.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Invasive non-native flora	Construction	Scoped out	Potential for spread if they occur in areas affected by construction, operation, and decommissioning activities.

Environmental Topic	Element	Scoped in / Scoped out		Rationale
		Operation	Scoped out	Invasive species impacts will be managed via embedded mitigation Measures in the form of an Invasive species management Plan ('ISMP').
		Decommissioning	Scoped out	
	Species			
	Amphibians	Construction	Scoped in	Loss and/or temporary fragmentation of habitat and disturbance, killing and/or injury during construction and decommissioning. No significant impacts are anticipated during operation. Maintenance and replacement activities can be manged through appropriate embedded avoidance measures as part of the Operational Environmental Management Plan ('oOEMP'). Habitats within solar areas will be improved for amphibians.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Reptiles	Construction	Scoped out	Small scale habitat impacts will be managed through embedded avoidance measures implemented by Ecological Clerk of Works ('ECoW').
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Badger	Construction	Scoped in	Loss and/or fragmentation of habitat Disturbance, killing and/or injury during construction and decommissioning. Embedded mitigation measures will include the provision of mammal gates or natural gaps in boundary fences which will minimise impacts during operation.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Bats	Construction	Scoped in	Loss and/or fragmentation of habitat, disturbance, potential loss of roost opportunities in trees (impacts unclear until final design is known).
		Operation	Scoped in (Scoped	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
			out for CRSC)	
		Decommissioning	Scoped in	
	Otter	Construction	Scoped in	Loss and/or fragmentation of habitat, potentially including breeding habitat, Disturbance, killing and/or injury. Impacts on habitats are uncertain until the final design is known. Operational impacts are considered to be limited and access to watercourses for this species will be maintained.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Water vole	Construction	Scoped in	Loss and/or fragmentation of habitat Disturbance, killing and/or injury. Impacts on habitats are uncertain until the final design is known. Operational impacts are considered to be limited and access to watercourses for this species will be maintained.
		Operation	Scoped out	
		Decommissioning	Scoped in	
	Brown hare	Construction	Scoped out	Construction impacts will be managed through embedded mitigation, such as ECoW, and appropriate avoidance measures. During operation, fencing of the solar panel areas and associated infrastructure areas will be designed to allow passage of small mammals through incorporation of appropriate gates.
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Hedgehog	Construction	Scoped out	
		Operation	Scoped out	
		Decommissioning	Scoped out	
	Invertebrates	Construction	Scoped out	Loss / fragmentation of habitat is unlikely to be of sufficient magnitude to affect populations locally based on the dominance of monoculture agricultural habitats present.
		Operation	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out		Rationale
		Decommissioning	Scoped out	
	Aquatic fauna	Construction	Scoped in	Loss and/or temporary fragmentation of habitat. Disturbance, killing and/or injury. Operational impacts are considered to be limited based on embedded mitigation measures and best practice.
		Operation	Scoped out (Scoped in for CRSC)	
		Decommissioning	Scoped in	
	Birds (breeding) – ground nesting birds and Schedule 1 species	Construction	Scoped in	Loss and/or modification of habitat; and risk of harm or injury during construction activities.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
	Birds (non-breeding) associated with the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.	Construction	Scoped in	Disturbance and displacement; loss and/or modification of foraging and/or roosting habitat; and indirect effects on FLL.
		Operation	Scoped in (Scoped out for CRSC)	
		Decommissioning	Scoped in	
Water Environment	**Construction**			
	Surface water features as listed in **Table 9-1** for water quality and hydromorphology	Scoped in		The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that with the inclusion of management measures within an oCEMP to be produced at ES stage significant adverse effects could be avoided.
	Allerthorpe Common SSSI	Scoped out		Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Whtie Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
	South Cliffe Common SSSI	Scoped in	Located within the Study Area.
	Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
	Groundwater	Scoped In	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that with the inclusion of management measures within an oCEMP to be produced at ES stage significant adverse effects could be avoided.
	Flood risk from all sources, as described in **Table 9-4**	Scoped out	Flood risk measures during construction to be managed by contractor via CEMP.
	Water supply	Scoped out	The ES will provide information on water needs and supply options, but no impact assessment is proposed on the basis that no new onsite abstraction is proposed, with water being sourced from commercial, licenced sources.
	Foul drainage	Scoped out	It is assumed that given the rural nature of the Site that it would not be possible to connect to a public sewer, and thus foul wastewater would instead be stored in self-contained foul drainage system for offsite disposal.
	Operation		
	Surface water features as listed in **Table 9-1** for water quality and hydromorphology	Scoped in	The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oCEMP to be

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			produced at ES stage would reduce the potential effect on water features.
	Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
	Whtie Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
	South Cliffe Common SSSI	Scoped in	Located within the Study Area.
	Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
	Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
	Groundwater	Scoped in	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oOEMP to be produced at ES stage would reduce the potential effect on water features.
	Groundwater Thermal interaction	Scoped out	Heat generated by underground grid connection cables is unlikely to be significant due to underground grid connection cables being relatively shallow across land and the localised nature of any temperature change.
	Flood risk from all sources, as described in **Table 9-4**	Scoped in	Elements of the Scheme may impact on flood risk in the Study Area.
	Outline Drainage Strategy	Scoped in	Elements of the Scheme may impact the existing surface water runoff regime.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Water supply	Scoped out	The ES will provide information on water needs and supply options, but no impact assessment is proposed on the basis that no new onsite abstraction is proposed, with water being sourced from commercial, licenced sources.
	Foul drainage	Scoped out	It is assumed that given the rural nature of the Site that it would not be possible to connect to a public sewer, and thus foul wastewater would instead be stored in self-contained foul drainage system for offsite disposal.
	Decommissioning		
	Surface water features as listed in **Table 9-1** for water quality and hydromorphology	Scoped in	The features are contained within the Study Area and may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oCEMP to be produced at ES stage would reduce the potential effect on water features.
	Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
	Whtie Carr Meadow SSSI and Pocklington Canal SSSI	Scoped in	Located within the Study Area.
	South Cliffe Common SSSI	Scoped in	Located within the Study Area.
	Allerthorpe Common SSSI	Scoped out	Located approximately 2 km northwest, and upstream, of Humberhead 1, thus it is considered there is no pathway.
	Nutrient Neutrality	Scoped out	The Study Area contains no Nutrient Neutrality areas.
	Groundwater	Scoped in	The area is underlain by groundwater features which may be impacted by elements of the Scheme. However, it is likely that inclusion of management measures within an oDEMP to be

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			produced at ES stage would reduce the potential effect on water features.
	Flood risk from all sources, as described in **Table 9-4**	Scoped out	Flood risk measures during decommissioning to be managed by contractor via DEMP.
Cultural Heritage	**Construction**		
	Designated heritage assets within 3 km Study Area	Scoped in	An assessment of impacts on designated heritage assets and non-designated heritage assets (including potential buried archaeological remains), including physical impacts and changes to their setting that may affect their value. An assessment of impacts on the character of the historic landscape.
	Non-designated built heritage assets within 1 km Study Area	Scoped in	
	Non-designated and previously unrecorded buried archaeological remains within 1 km Study Area	Scoped in	
	Historic Landscape	Scoped in	
	Operation		
	Designated heritage assets within 3 km Study Area	Scoped in	An assessment of impacts on designated heritage assets and non-designated built heritage assets, including changes to their setting that may affect their value.
	Non-designated built heritage assets within 1 km Study Area	Scoped in	
	Non-designated and previously	Scoped out	There is not expected to be any potential impacts to buried archaeological remains during the operational phase of the

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	unrecorded buried archaeological remains within 1 km Study Area		Scheme as any impacts will have occurred and been mitigated during the construction phase.
	Historic Landscape	Scoped in	An assessment of impacts on the character of the historic landscape.
	Decommissioning		
	Designated heritage assets within 3 km Study Area	Scoped out	Potential impacts designated heritage assets as a result of changes to their setting during the decommissioning phase of the Scheme are not anticipated to be any greater than those assessed at construction and operation.
	Non-designated built heritage assets within 1 km Study Area	Scoped out	Potential impacts non-designated built heritage assets as a result of changes to their setting during the decommissioning phase of the Scheme are not anticipated to be any greater than those assessed at construction and operation.
	Non-designated and previously unrecorded buried archaeological remains within 1 km Study Area	Scoped out	There is not expected to be any potential physical impacts to buried archaeological remains during the decommissioning phase of the Scheme as any impacts will have occurred and been mitigated during the construction phase.
	Historic Landscape	Scoped out	Potential impacts on the character of the historic landscape are expected to be no worse than those assessed at construction and operation, with the land returned to its former use.
Transport and Access	**Construction**		
	Severance	Scoped in	Due to the temporary increase in traffic, which could generate potentially significant effects.
	Driver Delay	Scoped in	

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Non-Motorised User Delay	Scoped in	
	Non-Motorised User Amenity	Scoped in	
	Fear and Intimidation	Scoped in	
	Road Safety	Scoped in	
	Hazardous and Large Loads	Scoped out	No likely significant effects in EIA terms are anticipated, and an Abnormal Load Assessment will be submitted as part of the DCO application.
	Operation		
	Severance	Scoped out	There are no significant effects predicted due to low vehicle numbers required once operational. It is assumed that any operational movements would fall within the Institute of Sustainability and Environmental Professionals ('ISEP') guidance thresholds of less than a 30% change in total vehicle flows or 10% change in daily Heavy Goods Vehicle ('HGV') flows and would therefore not be significant in EIA terms and not require further assessment. It is also expected to be a lower impact than the Construction Phase. Operational traffic flows will be provided to demonstrate this.
	Driver Delay	Scoped out	
	Non-Motorised User Delay	Scoped out	
	Non-Motorised User Amenity	Scoped out	
	Fear and Intimidation	Scoped out	
	Road Safety	Scoped out	
	Hazardous and Large Loads	Scoped out	No hazardous and large loads are expected in the Operational Phase.
	Decommissioning		
	Severance	Scoped out	It is assumed that the assessment of the Construction Phase would already present the worst-case in Transport and Access terms and capture all effects associated with the Decommissioning Phase. The oDEMP will mitigate the effects during the Decommissioning Phase. On that basis a separate assessment of the Decommissioning Phase is scoped out.
	Driver Delay	Scoped out	
	Non-Motorised User Delay	Scoped out	
	Non-Motorised User Amenity	Scoped out	

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Fear and Intimidation	Scoped out	
	Road Safety	Scoped out	
	Hazardous and Large Loads	Scoped out	
Noise and Vibration	**Construction**		
	Noise and vibration levels associated with construction works.	Scoped in	Temporary noise and vibration emissions from construction works may adversely impact on sensitive receptors.
	Construction traffic noise.	Scoped in	Temporary noise from construction traffic movements may adversely affect receptors near public roads that are part of construction traffic routes.
	Construction traffic vibration.	Scoped out	Road traffic can cause vibration; however, Design Manual for Roads and Bridges LA 111 states: "operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effects." It is assumed that East Riding of Yorkshire Council will maintain good quality conditions for highways used to access the Scheme. Therefore, an assessment of construction traffic vibration has been scoped out.
	Operation		
	Operational noise	Scoped in	Permanent noise emissions from noise generating Scheme components that may adversely affect nearby sensitive receptors.
	Operational traffic noise	Scoped out	Operational traffic flows (limited primarily to occasional maintenance visits and periods of replacement of equipment), would be minimal and not sufficient to result in a 1 dB increase in noise, which would require a 25% increase in traffic.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Vibration from the operation of the Scheme	Scoped out	No plant that would generate perceptible levels of vibration are part of the Scheme and, as such, there will be no associated operational vibration effects. It is proposed that operational ground-borne vibration is scoped out of any further assessment.
	Noise and vibration levels associated with replacement activities	Scoped in	Temporary noise and vibration emissions from maintenance works (including noise from traffic on the local road network) may adversely impact on sensitive receptors.
	Decommissioning		
	Noise and vibration levels associated with decommissioning works.	Scoped in	Temporary noise from construction traffic movements may adversely affect receptors near public roads that are part of construction traffic routes.
	Decommissioning traffic noise.	Scoped in	Temporary noise from decommissioning traffic movements may adversely affect receptors near public roads that are part of decommissioning traffic routes.
	Decommissioning traffic vibration	Scoped out	For the same reasons outlined in for construction traffic vibration, an assessment of decommissioning traffic vibration has been scoped out.
Socio-Economics	**Construction**		
	Employment, economic growth and training	Scoped out	There is potential for the creation of jobs as well as associated economic growth (Gross Value Added), training and apprenticeship opportunities for local residents. As much of this labour demand is expected to be met by the relocation of existing workforces as specialised workforce typically move from project to project, overall there would be no significant effects in respect of employment from construction activities, and consequently no significant effects in respect of economic

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			growth and training related to this. An outline Skills, Supply Chain and Employment Plan ('oSSCEP') will be prepared as part of the DCO application to identify opportunities to maximise the creation of local jobs.
	Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
	Development land including mineral safeguarding	Scoped out	The delivery of any development sites (consented or under consideration) would be avoided by siting and routing. As there are also no allocated sites within the Site boundary, no significant effects on development land would arise. Any mineral sterilisation would not be permanent, and so resources would be available for exploitation after the lifetime of the Scheme. It will be demonstrated in the DCO application that the Minerals Planning Authority has been consulted in respect of the proposals and that the Scheme does not impact on future ambitions for minerals extraction within the region.
	Accommodation	Scoped in	The requirement for workers for temporary construction activities could impact upon availability of rooms within the visitor accommodation sector locally, both in terms of supply during busier months and increasing occupancy levels during quieter months.
	Tourism and recreation	Scoped in	There are some visitor attractions and recreational resources within proximity of the Scheme and therefore the tourism economy and its receptors have the potential to experience significant effects. This includes the Yorkshire Wolds Way hiking path.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			Potential health-related effects pertaining to open space, leisure and play are addressed in **Chapter 5: Health**.
	PRoWs	Scoped out	Potential effects on PRoW are addressed in **Chapter 5: Health**.
	Farming businesses	Scoped out	Farming businesses will experience temporary/short-term loss of use of land when the works to lay cables are ongoing with business use being unchanged from baseline after construction with any effects therefore being not significant.
	Operation		
	Employment, economic growth and training	Scoped out	There would be limited operational employment and therefore limited economic growth training opportunities associated with this such that any beneficial effects would be not significant
	Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
	Development land including mineral safeguarding	Scoped out	As per construction.
	Accommodation	Scoped out	The limited requirement for workers for operation and maintenance activities would have no impact upon availability of rooms within the visitor accommodation sector locally
	Tourism and recreation	Scoped in	As per construction.
	PRoWs	Scoped out	Potential effects on PRoW are addressed in **Chapter 5: Health**.
	Farming businesses	Scoped out	Businesses will be using the renting of their land on the Humberhead Sites to support diversification of their businesses and provide affected farmers with an alternative

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			source of income during operation such that there would be no significant adverse effects.
	Decommissioning		
	Employment, economic growth and training	Scoped out	As per construction.
	Private assets	Scoped out	There would be no land-take from residential properties, businesses or community facilities such that there would be no effects on private assets. Potential impacts on these receptors from indirect effects are addressed in **Chapter 5: Health**.
	Development land including mineral safeguarding	Scoped out	As per construction.
	Accommodation	Scoped in	As per construction.
	Tourism and recreation	Scoped in	As per construction.
	Farming businesses	Scoped out	Farming businesses will experience temporary/short-term loss of use of land when decommissioning activities are ongoing with business use being unchanged from baseline after construction with any effects therefore being not significant.
Other Environmental Matters			
Air Quality	**Construction**		
	Construction Dust Emissions	Scoped out	Embedded measures in the oCEMP would prevent significant effects.
	Road Traffic Emissions	Scoped in	Embedded measures in the Construction Traffic Management Plan ('CTMP') and oCEMP should prevent significant effects if vehicle flows on affected links. Requires comparison of predicted flows against screening criteria at ES stage, to confirm no assessment necessary. The results of the

Environmental Topic	Element	Scoped in / Scoped out	Rationale
			assessment will be reported in the Other Environmental Matters Chapter.
	Non-Road Mobile Machinery Emissions ('NRMM') Emissions	Scoped out	Embedded mitigation in the oCEMP would avoid significant effects.
	Operation		
	Replacement Activity Dust Emissions	Scoped out	Embedded mitigation in the oCEMP would avoid significant effects.
	Road Traffic Emissions	Scoped out	Flows would be below IAQM screening criteria on all road links.
	Decommissioning		
	Decommissioning Dust Emissions	Scoped out	Embedded mitigation in oDEMP would avoid significant effects.
	Road Traffic Emissions	Scoped out	Flows would be below IAQM screening criteria on all road links.
Soils and Agriculture	**Construction**		
	Best and Most Versatile ('BMV') land	Scoped in	BMV land will be affected by the Scheme. However, impacts of construction are expected to be temporary (2 years) and reversible. Restoration will immediately follow construction for the Cable Route Corridor ('CRC') and following decommissioning for the Sites.
	Soil resources	Scoped in	Soil resources within the Humberhead Sites will be surveyed to develop an appropriate soil management plan (SMP) to inform the construction of the Scheme and protect the soil quality for reinstatement. Potential for significant effects on agricultural land or soil resources are to be managed but scoped in.
	Food production	Scoped out	DEFRA recognises that nationally food production levels could be maintained or moderately increased alongside land use change for solar developments.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	(realised in construction but continued on to decommissioning)		
	Operation		
	BMV land	Scoped out	During operation there would be no further development of built infrastructure and therefore no further impacts on BMV land will result from operation. Management and monitoring of soils are to be addressed in the oOEMP.
	Soil resources	Scoped out	During operation the land would recover from intensive use, allowing the soil condition and structure to improve during the operational lifetime of the development. Management and monitoring of soils are to be addressed in the oOEMP.
	Decommissioning		
	BMV Land and soil resources	Scoped in	During the decommissioning phase, all the solar infrastructure would be removed and soil resources restored to return the scheme to baseline conditions. Effects are likely to be less than that of construction and oDEMP will include measures to support the protection of soil resources during reinstatement However, given the sensitivity of peat soils and areas of BMV within the Site, it is proposed to scope in decommissioning effects.
Materials and Waste	Changes in available landfill void capacity Construction, operation, and decommissioning.	Scoped in	Due to the limitation on design information available at this stage (waste quantities), and the uncertainty about the nature of mitigation (s) and the method by which mitigation (s) would be secured, waste generation during the construction, operation and decommissioning (changes in available landfill void capacity) of the Scheme is scoped into the assessment. This is a reasonable worst case approach.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Changes in availability of materials.	Scoped out	It is anticipated that the quantities of materials use for the Scheme are unlikely to reach the point of significance.
	Waste arising from extraction, processing, and manufacture of construction components and products.	Scoped out	Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.
	Environmental impacts associated with management of waste from the Scheme e.g., on water resources, air quality, noise, or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste.	Scoped out	Environmental impacts associated with management of waste from the Scheme e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant sections.
	Environmental impacts associated with the operation of offsite waste management facilities used by the Scheme	Scoped out	Environmental impacts are considered as part of the planning and permitting process for these facilities themselves.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	in construction, operation and decommissioning.		
	Changes to allocated/ safeguarded mineral sites.	Scoped out	There are no allocated / safeguarded mineral or waste sites within the Site.
	Changes to allocated / safeguarded waste sites.	Scoped out	
	Changes to permitted waste sites	Scoped out	Two permitted waste sites have been identified with the CRSC. These will be avoided by the CRC as it is refined.
Glint and Glare	**Construction**		
	All elements	Scoped out	Potential glint and glare effects during the construction stage will be limited and less than the operational stage. The operational stage assessment will cover any and all glint and glare effects during the construction stage. If mitigation is required, this can be implemented pre-construction.
	Operation		
	Residential	Scoped in	Residential amenity.
	Major Roads	Scoped in	Road user safety.
	Minor Roads	Scoped out	Minor roads are low speed. The intensity of glint and glare effects are far lower than that of the sun. Adverse safety effects of glint and glare from solar panels is negligible at low speeds.
	Rail	Scoped out	There are no railways within the 1 km Study Area for glint and glare.
	PRoW Users	Scoped Out	Glint and glare does not represent an adverse safety concern for PRoW users due to being able to mitigate potential glint and glare effects through simple actions and in line with the advice from British Horse Society on horses.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Aviation (Runway Approach Paths)	Scoped in	Pocklington Airport is within 5 km of the Humberhead Sites, therefore requiring assessment for potential glint and glare impacts on pilots approaching its runways.
	Aviation (Air Traffic Control Towers)	Scoped out	Pocklington Airport does not have an air traffic control tower. There are no other aerodromes within the vicinity of the Humberhead Sites.
	Riverways & Canals	Scoped out	The identified waterways within the vicinity of the Humberhead Sites are narrow and low speed. Any potential adverse safety effects from glint and glare from solar panels is negligible.
	Decommissioning		
	All elements	Scoped out	The identified waterways within the vicinity of the Humberhead Sites are narrow and low speed. Any potential adverse safety effects from glint and glare from solar panels is negligible.
EMF	**Construction**		
	Electromagnetic Fields ('EMF') Effects on human health from 400 kV Grid Connection Cables	Scoped out	The Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs. Temporary construction plant may give rise to negligible and short-term electromagnetic emissions; however, these are not considered to give rise to likely significant effects.
	EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground cables, transformers, inverters, substations, Battery Energy	Scoped out	As mentioned above, the Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	Storage System ('BESS'))		
	Operation		
	EMF Effects on human health from 400 kV Grid Connection Cables	Scoped in	An EMF assessment will be included as a technical appendix to the Other Environmental Matters chapter of the ES. With embedded mitigation measures, no significant effects are expected.
	EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground cables, transformers, inverters, substations, BESS)	Scoped in	An EMF assessment will be included as a technical appendix to the Other Environmental Matters hapter of the ES. With embedded mitigation measures, no significant effects are expected.
	Decommissioning		
	EMF Effects on human health from 400 kV Grid Connection Cables	Scoped out	The Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.
	EMF Effects on human health from other electrical infrastructure associated with the Scheme (132 kV/33 kV underground	Scoped out	As mentioned above, the Scheme's electrical infrastructure will not be energised and therefore will not generate any EMFs.

Environmental Topic	Element	Scoped in / Scoped out	Rationale
	cables, transformers, inverters, substations, BESS)		
Ground Conditions	**Construction**		
	All Ground Conditions elements related to construction.	Scoped in	A Preliminary Risk Assessment ('PRA') will be produced and appended to the Other Environmental Matters chapter of the ES. The results and recommendations of this will be incorporated into the oCEMP.
	Operation		
	All Ground Conditions elements related to operation.	Scoped out	Maintenance activities during the operational phase will be managed through an OEMP which will be based on the oOEMP prepared for the DCO application and are proposed to be scoped out of the assessment.
	Decommissioning		
	All Ground Conditions elements related to decommissioning.	Scoped in	A PRA will be produced and appended to the Other Environmental Matters chapter of the ES. The results and recommendations of this will be incorporated into the oDEMP.
Major Accidents and Disasters ('MA&Ds')	**All project phases**		
	All potential MA&Ds	Scoped out	All MA&Ds will be adequately covered elsewhere in the assessment.
Arboriculture	**All project phases**		
	All Arboricultural elements	Scoped out	An Arboricultural Impact Assessment will be completed to the relevant standards, to include identification for the mitigation of impacts to trees, and will be appended to the Landscape Visual Impact Assessment chapter.
	All project phases		

Environmental Topic	Element	Scoped in / Scoped out	Rationale
Telecommunications and Utilities	All telecommunications and Utilities.	Scoped out	Relevant measures will be captured within the Scheme design to ensure potential effects to existing infrastructure will be avoided. Therefore, it is proposed that telecommunications and utilities will be scoped out of the EIA and not be included in the ES.

17 Glossary

17.1 Glossary of Abbreviations

Acronyms	Full Terms
AA	Appropriate Assessment
ABCT	Airfields of Britain Conservation Trust
AC	Alternating Current
ADB	Ash dieback
AEP	Annual Exceedance Probability
AEWA	African-Eurasian Migratory Waterbird Agreement
AFOV	Azimuthal field of view
AIA	Arboricultural Impact Assessment
AIL	Abnormal Indivisible Load
ALC	Agricultural Land Classification
AMS	Archaeological Mitigation Strategy
ANC	Association of Noise Consultants
AOD	Above ordnance datum
APFP Regulations	Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
AQMA	Air Quality Management Area
ARC	Anti-reflective coating
ARG	Amphibian and Reptile Group
ASNW	Ancient semi natural woodland
ATC	Automatic Traffic Count
ATCT	Air Traffic Control Tower
BAP	Biodiversity Action Plan
BESS	Battery Energy Storage System
BGL	Below ground level
BGS	British Geological Society
BMV	Best and Most Versatile
BNG	Biodiversity Net Gain
BoCC5	Birds of Conservation Concern 5
BPM	Best Practicable Means
BRE	Building Research Establishment
BSI	British Standards Institution

Acronyms	Full Terms
BSMP	Battery Safety Management Plan
BTHK	Bat Tree Habitat Key
BTO	British Trust for Ornithology
C&D	Construction & demolition
CA	Conservation Areas
CAA	Civil Aviation Authority
CB6	Sixth Carbon Budget
CCC	Climate Change Committee
CCGT	Combined Cycle Gas Turbine
CCRA	Climate Change Risk Assessment
CCTV	Closed-Circuit Television
CDM	Construction Design Management
CE	Conformité Européene
CEH	Centre for Ecology and Hydrology
CEMP	Construction Environment Management Plan
CH4	Methane
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CL:ARE	Contaminated Land: Applications in Real Environments
cm	Centimetre
CNP	Critical National Priority
CO2	Carbon Dioxide
COMAH	Control of Major Accident Hazards Regulations
CoPA	Control of Pollution Act
CRC	Cable Route Corridor
CRoW	Countryside and Rights of Way
CRSC	Cable Route Search Corridor
CSM	Contextual site model
CTMP	Construction Traffic Management Plan
DAS	Discretionary Advice Service
DBA	Desk-Based Assessment
DC	Direct Current
DCO	Development Consent Order

Acronyms	Full Terms
DECC	Department for Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DEMP	Decommissioning Environmental Management Plan
DESNZ	Department for Energy, Security and Net Zero
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DoWCoP	Definition of Waste: Development Industry Code of Practice
DSEAR	Dangerous Substances and Explosive Atmospheres Regulations
DTMP	Decommissioning Traffic Management Plan
EA	Environment Agency
ECoW	Ecological Clerk of Works
eDNA	Environmental DNA
EGL2	Eastern Green Link 2
EIA	Environmental Impact Assessment
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
EIP	Environmental Improvement Plan
EMF	Electromagnetic Field
EN-1	Overarching National Policy Statement for Energy
EN-3	National Policy Statement for Renewable Energy Infrastructure
EN-5	National Policy Statement for Electricity Networks Infrastructure
EPD	Environmental Product Declaration
EPMS	Ecological Protection and Mitigation Strategy
EPSML	European Protected Species Mitigation Licence
ERYC	East Riding of Yorkshire Council
ES	Environmental Statement
EU	European Union
EWC	European Waste Catalogue
FAA	Federal Aviation Administration
FLL	Functionally Linked Land
FRA	Flood Risk Assessment
GCN	Great Crested Newt
GCR	Geological Conservation Review
GHG	Greenhouse Gas
GLTA	Ground Level Tree Assessment

Acronyms	Full Terms
GVA	Gross Value Added
GW	Gigawatt
GWDTE	Groundwater Dependent Terrestrial Ecosystem
ha	Hectare
HDD	Horizontal Directional Drilling
HER	Historic Environment Record
HEY	Hull and East Yorkshire
HFC	Hydrofluorocarbon
HFOV	Horizontal field of view
HGV	Heavy Goods Vehicle
HSE	Health & Safety Executive
HSI	Habitat Suitability Index
IAQM	Institute for Air Quality Management
ICCI	In-Combination Climate Impact
ICE	Inventory of Carbon and Energy
ICNIRP	International Commission on the Non-Ionizing Radiation Protection
IDB	Internal Drainage Board
IEMA	Institute of Environmental Management and Assessment
IGP	Island Green Power
IHBC	Institute of Historic Building Conservation
INNS	Invasive Non-Native Species
IOF	Important Ornithological Features
IOS	International Organisation for Standardisation
IRZ	Impact Risk Zones
ISEP	Institute of Sustainability and Environmental Professionals
ISMP	Invasive Species Management Plan
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
JSNA	Joint Strategic Needs Assessment
km	Kilometre
KV	Kilovolts
LAQM	Local Air Quality Management
LAQMTG	Local Air Quality Management Technical Guidance
LCRM	Land contamination: risk management

Acronyms	Full Terms
LEMP	Landscape and Ecological Management Plan
LGV	Light Goods Vehicle
LiDAR	Light Detection and Ranging
LLFA	Lead Local Flood Authority
LNRS	Local Nature Recover Strategy
LOAEL	Lowest Observed Adverse Effect Level
LSE	Likely Significant Effects
LSFT	Large Scale Fire Testing
LSOA	Lower Layer Super Output Areas
LWS	Local Wildlife Site
m	Metre
MA&Ds	Major Accidents and Disasters
MAGIC	Multi-Agency Geographic Information for the Countryside
MHCLG	Ministry of Housing, Communities and Local Government
mm	Millimetre
mph	Miles per hour
MSA	Mineral Safeguarding Area
MSOA	Middle Layer Super Output Areas
MW	Megawatt
MWh	Megawatt hours
N2O	Nitrous Oxide
NCN	National Cycle Network
NDC	Nationally Determined Contribution
NERC	Natural Environment and Rural Communities
NETS	National Electricity Transmission System
NEYEDC	North & East Yorkshire Ecological Data Centre
NF3	Nitrogen trifluoride
NFCC	National Fire Chiefs Council
NGR	National Grid Reference
NHLE	National Heritage List for England
NMU	Non-Motorised User
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance

Acronyms	Full Terms
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NRFA	National River Flow Archive
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project
NVZ	Nitrate Vulnerable Zone
oAMS	Outline Archaeological Mitigation Strategy
oBSMP	Outline Battery Safety Management Plan
oCEMP	Outline Construction Environment Management Plan
oCTMP	Outline Construction Traffic Management Plan
oDEMP	Outline Decommissioning Environmental Management Plan
oDTMP	Outline Decommissioning Traffic Management Plan
OEMP	Operational Environmental Management Plan
oEPMS	Outline Ecological Protection and Mitigation Strategy
oLEMP	Outline Landscape and Ecological Management Plan
ONS	Office for National Statistics
oOEMP	Outline Operational Environmental Management Plan
oPRoWMP	Outline Public Rights of Way Management Plan
ORNEC	Operations Requiring Natural England's Consent
OS	Ordnance Survey
oSMP	Outline Soil Management Plan
oSWMP	Outline Site Waste Management Plan
PA 2008	Planning Act 2008
PAWS	Plantation on ancient woodland sites
PEIR	Preliminary Environmental Information Report
PFC	Perfluorocarbon
PHE	Public Health England
PIC	Personal Injury Collision
PoC	Point of Connection
PPE	Personal protective equipment
PPV	Peak Particle Velocity
PRA	Preliminary Risk Assessment
PRF	Potential roosting features

Acronyms	Full Terms
PRoW	Public Rights of Way
PRoWMP	Public Rights of Way Management Plan
PV	Photovoltaic
PWS	Private Water Supplies
RAF	Royal Air Force
RBMP	River Basin Management Plan
RCP	Representative Concentration Pathway
RICS	Royal Institute of Chartered Surveyors
RIGS	Regional Important Geological / Geomorphological Sites
RPA	Root Protection Area
RQF	Regulated Qualifications Framework
SAC	Special Area of Conservation
SAR	Standardised Admission Ration
SF6	Sulphur hexafluoride
SFRA	Strategic Flood Risk Assessment
SGHAT	Solar Glare Hazard Analysis Tool
sHRA	Shadow Habitats Regulations Assessment
SMP	Soil Management Plan
SMR	Standardised Mortality Ration
SOAEL	Significant Observed Adverse Effect Level
SoS	Secretary of State
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Special Site of Scientific Interest
SWMP	Site Waste Management Plan
TAG	Transport Analysis Guidance
TCC	Temporary Construction Compounds
tCO2e	tonnes of carbon dioxide equivalent
TCPA	Town and Country Planning Act
The Act	The Planning and Infrastructure Act (2025)
TON	Total oxidised nitrogen
TPO	Tree Preservation Order
TRL	Transport Research Laboratory
UK	United Kingdom
UKBAP	United Kingdom Biodiversity Action Plan

Acronyms	Full Terms
UKCA	UK Conformity Assessed
UKCP	United Kingdom Climate Predictions
UKHab	UK Habitat Classification
UL	Underwriters laboratory
UXO	Unexploded ordnance
VFOV	Vertical field of view
VOC	Volatile Organic Compounds
VP	Vantage Point
WeBS	Wetland Bird Survey
WFD	Water Framework Directive
WHO	World Health Organisation
WRAP	Waste and Resources Action Programme
ZoI	Zone of Influence

17.2 Definitions of Frequently Used Terms

Key Terms	Definitions
132 kV Substations	132 kV Substations within the Site which connects to the Conversion Units and Sub-distribution Switch Rooms to increase the voltage generated by the Scheme from 33 kV to 132 kV.
400 kV Substation	400 kV Substation located within any of the preferred locations to increase the voltage generated by the Scheme from 132 kV to 400kV.
Abnormal Indivisible Load ('AIL')	An abnormal load that cannot be broken down into smaller loads for transport. An abnormal load is a vehicle which exceeds 44 tonnes in weight, the width is over 2.9 m or the length is more than 18.65 m.
Agricultural Land Classification ('ALC')	The standardised method for classifying agricultural land in England and Wales according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage, i.e. ALC assesses land quality based upon the type and level of agricultural production the land can potentially support. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5).
Air Quality Management Area ('AQMA')	Places where air quality objectives are not likely to be achieved. Where an AQMA is declared, the local authority is obliged to produce.
Baseline Conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Scheme together with any known or foreseeable future changes that will take place before completion of the Scheme.
Battery Energy Storage System ('BESS')	Battery storage and Associated Development to allow for the storage, importation and exportation of energy to the National Grid.
BESS Compound	The area within which the BESS would be located for the storage, import, and export of energy to the National Grid.
BESS Enclosure	Containers housing BESS batteries. The precise number of individual BESS Enclosure is subject to detailed design.
Best and Most Versatile ('BMV') Land	The highest grades of agricultural land quality, including excellent (ALC Grade 1), very good (Grade 2) and good (Subgrade 3a) agricultural land.
Bifacial monocrystalline panels	Bifacial panels allow sunlight to be captured from both the front and rear sides, allowing them to harness both direct and reflected light from the ground or surrounding surfaces.

Key Terms	Definitions
Cable Route Corridor ('CRC')	The area within which the Cable Route and Grid Connection Cables connecting the Humberhead Sites to the existing National Grid Thornton Substation.
Cable Route Search Corridor ('CRSC')	The wider search area used to identify the potential Cable Route Corridor within which the Cable Route Corridor is located.
Commitments Register	The Commitments Register details the measures likely to be required to ensure that good design objectives are secured and implemented. The purpose of the register is to ensure that potential environmental effects arising from the project are mitigated as far as possible and in accordance with the mitigation hierarchy.
Construction Environmental Management Plan ('CEMP')	The CEMP is to be produced in accordance with the outline CEMP, as a DCO Requirement, prior to the start of operation. The CEMP and the requirement to comply with it will ensure that appropriate environmental management practices are followed during construction.
Conversion Units	Collective term for both the Integrated and Disaggregated Conversion Units. These contain the inverters, transformers, and switchgear to increase the voltage generated by the Scheme to 33 kV. For the purposes of assessment within the ES, these are assumed to be interchangeable with Sub-distribution Switch Rooms (refer to the definition above).
Cumulative Development	Development which may interact cumulatively with the Scheme.
Cumulative Effects	Effects upon the environment that result from the combined impact when added to other past, present or reasonably foreseeable future impacts.
Decommissioning Environmental Management Plan ('DEMP')	The DEMP is to be produced in accordance with the outline DEMP, as a DCO Requirement, prior to the start of operation. The DEMP and the requirement to comply with it will ensure that appropriate environmental management practices are followed during decommissioning.
Design Manual for Roads and Bridges ('DMRB')	A series of 15 volumes authored by National Highways that provide standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads, including motorways in the United Kingdom, and, with some amendments, the Republic of Ireland.
Design Parameters	The Design Parameters define the envelope within which the Scheme will be developed. These comprise maximum and

Key Terms	Definitions
	minimum descriptors of the Scheme components e.g. panel and substation heights.
Design Principles	The Design Principles provide a framework to guide the development of the design from conception to operation. They will be secured in the Development Consent Order and applied post consent during the detailed design stage.
Development Consent Order ('DCO')	Development consent is required pursuant to the Planning Act 2008 for Nationally Significant Infrastructure Projects. A development consent order is a statutory instrument containing powers that enable the applicant to carry out the construction, operation, maintenance and decommissioning of the Nationally Significant Infrastructure Project. Applications for DCOs are made to, and decided by, the relevant Secretary of State.
Disaggregated Conversion Units	Conversion Units where the inverters, transformers, and switchgear are stand alone. Refer to 'Conversion Unit' definition above for further details.
Ecological Clerk of Works	Oversee the management of the risks to biodiversity on construction sites, advising protecting valued biodiversity features and providing practical solutions.
Environmental Impact Assessment Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Embedded Mitigation Measures	In-built design measures embedded in the Scheme as well as standard industry practice.
Environmental Effect	The consequence of an action (impact) upon the environment such as the decline of a breeding bird population as a result of the removal of hedgerows and trees.
Environmental Impact	The change to the environment from development such as the removal of a hedgerow.
Environmental Impact Assessment ('EIA')	A process by which information about environmental effects of a proposed development is collected, assessed and used to inform decision making.
Environmental Statement ('ES')	A document produced in accordance with the EIA Regulations to report the results of an EIA. The Environmental Statement contains a description of the likely significant effects of the development on the environment.
Flood Zone 1	This is land assessed as having a less than 1 in 1,000 chance of river or sea flooding in any year (<0.1% AEP).
Flood Zone 2	This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 chance of river flooding (1% –0.1% AEP), or between

Key Terms	Definitions
	a 1 in 200 and 1 in 1,000 chance of sea flooding (0.5% –0.1% AEP) in any year.
Flood Zone 3	This zone comprises land assessed as having a 1 in 100 or greater chance of river flooding (>1% AEP), or a 1 in 200 or greater chance of flooding from the sea (>0.5% AEP) in any year.
Future Baseline	These are the theoretical conditions that are anticipated in the absence of the Scheme. This is based upon extrapolating the current baseline using technical knowledge of likely changes over the identified period (for example anticipated habitat change over time, climate change projections, traffic and waste volume growth over time).
Grid Connection Cables	Grid Connection Cables comprise high voltage cables (33 kV, 132 kV and or 400 kV) connecting the Sub-distribution Switch Rooms and 132 kV Substations, on to the 400kV Substation(s), and the export connection cables which connect the 400 kV Substation to the existing Thornton National Grid Substation.
Highway Improvement Areas	The areas within which improvements to sections of the existing highway network will be completed to facilitate access to the Scheme, such as improvements to road edge and traffic management.
Horizontal Directional Drilling ('HDD')	Horizontal Directional Drilling is a method for installing cables without digging a trench. It involves drilling a pilot hole the progressively enlarging it to the required diameter.
Humberhead Sites	The photovoltaic electricity generating station and associated development will be contained within four land parcels referred to as Humberhead 1 to Humberhead 4.
Integrated Conversion Units	Conversion Units where the inverters, transformers, and switchgear are housed together within a container. Refer to 'Conversion Unit' definition above for further details.
Internal Access Tracks	Provide access to service the Scheme and will be constructed of compacted granular material with excavation kept to a minimum. Internal Access Tracks servicing the Onsite Substations will be constructed of asphalt to support AIL deliveries of transformers.
Inverter	Inverters convert the direct current ('DC') electricity collected by the Solar Panels into alternative current ('AC'), which allows the electricity generated to be exported to the National Grid. BESS also use inverters to convert between DC and AC. The batteries function in DC and electricity must be converted to AC to pass into or from the grid.
Landscape and Ecological	The LEMP is to be produced in accordance with the Outline LEMP, as a DCO Requirement, following the appointment of a contractor, prior to the start of construction. The LEMP and the requirement to

Key Terms	Definitions
Management Plan ('LEMP')	comply with it will ensure that appropriate landscape and ecological management practices are followed during construction.
Local Planning Authority ('LPA')	The public authority whose duty it is to carry out specific planning functions for a particular area.
Magnitude (of impact)	A term that combines judgements about the size and scale of the impact, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.
Maximum Parameters	These define the worst case extents of design elements of the Scheme, or factors arising from them.
Mitigation	Measures including any process, activity, or design to avoid, prevent, reduce, or, if possible, offset any identified significant adverse effects on the environment.
National Grid Thornton Substation	The area within which the existing substation near Thornton (owned and operated by the National Grid) is located and the point of connection for the Scheme.
National Policy Statement ('NPS')	National Policy Statements are produced by the UK government. They comprise the government's central policy documents for the development of Nationally Significant Infrastructure Projects.
Nationally Significant Infrastructure Projects ('NSIP')	NSIPs are large scale developments such as certain new harbours, power generating stations (including solar and wind farms), highways developments, and electricity transmission lines, which require a certain type of consent known as 'development consent' under the Planning Act 2008.
On-site Cables	Cables connecting the Solar Panels to the Conversion Units and Sub-distribution Switch Rooms.
On-site Substations	A compound containing electrical equipment to enable connection to the National Grid.
Operational Environmental Management Plan ('OEMP')	The OEMP is to be produced in accordance with the Outline OEMP, as a DCO Requirement, prior to the start of operation. The OEMP and the requirement to comply with it will ensure that appropriate environmental management practices are followed during operation.
Perimeter Fencing	Stock proof fencing with a 2.5m maximum height.
Photovoltaic ('PV')	The process of converting sunlight to electrical energy.
Planning Inspectorate	The Planning Inspectorate for England is an executive agency of the Ministry of Housing, Communities and Local Government of the United Kingdom Government with responsibility for making

Key Terms	Definitions
	decisions and providing recommendations and advice on a range of land use planning-related issues across England.
Point of Connection ('PoC')	The Scheme will connect to the National Grid Thornton Substation, which forms the Point of Connection. The connection will be made via Grid Connection Cables and On-site Substations.
Preliminary Environmental Information Report ('PEIR')	Defined in the EIA Regulations as: "information referred to in Regulation 14(2) which –(a) has been compiled by the applicant; and (b) is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)".
Receptor	A component of the natural or man-made environment (including people) that is affected by an impact.
Scheme	The Humberhead Solar project comprising the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic ('PV') electricity generating station, and associated development including a Battery Energy Storage System ('BESS'), electrical and grid connection infrastructure and landscaping and biodiversity enhancements.
Scoping	The process of identifying the issues to be addressed by an EIA. It is a method of ensuring that an EIA focuses on the important issues.
Scoping Opinion	A Scoping Opinion is requested from the Planning Inspectorate on behalf of the Secretary of State, to inform the requirements of EIA process and ultimately the ES which will be submitted as part of the application for development consent. Through the scoping process the views of the statutory consultees and other relevant organisations on the proposed scope of the EIA are sought.
Scoping Site Boundary	The maximum extent of land anticipated to be required for the Scheme. It comprises the Humberhead Sites and the full extent of the Cable Route Search Corridor. The Scoping Site Boundary may be refined to accommodate access requirements as these are further developed. Also referred to as 'the Site'.
Site	The maximum extent of land anticipated to be required for the Scheme. It comprises the Humberhead Sites and the full extent of the Cable Route Search Corridor. The Site may be refined to accommodate access requirements as these are further developed. Also referred to as the 'Scoping Site Boundary'.
Site Access	A location connecting a construction site required for the Scheme to the public highway.
Solar Arrays	The Solar Arrays are made up of connected photovoltaic Solar Panels which convert sunlight/daylight into electrical current.

Key Terms	Definitions
Solar Mounting Structures	A metal frame that holds the solar panels in place and secures them to the ground via metal posts driven into ground (depth dependant on ground conditions). Concrete feet or other non-ground penetrative mounting solutions will also be considered where necessary, for example to protect archaeological features, avoid existing utilities or address specific ground conditions.
Solar Panels	A panel made up of electronic devices called photovoltaic cells which convert light energy (photons) into direct current ('DC') electricity.
Storage Containers	Storage Containers are used to house maintenance equipment.
Study Area	The area in which a particular assessment or survey targets. The Study Area will vary depending on the nature of the technical assessment. Where relevant, these are defined within relevant technical chapters.
Sub-distribution Switch Room	Located throughout the Site to collect the generated power and manage its delivery to the 132 kV and 400 kV Substations. For the purposes of assessment within the ES, these are assumed to be interchangeable with Conversion Units (refer to the definition above).
Substation	A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels.
Switchgear	A combination of electrical disconnect switches, fuses, or circuit breakers used to control, protect and isolate electrical equipment.
Temporary Construction Compounds	Any temporary area for storage of plant, materials, or equipment or for the use of welfare and site management.
The Applicant	Island Green Power
Transformers	Transformers control the voltage of the electricity generated across the Site.
Works Plans	The plans submitted with the Application known as the Works Plans and which delineate the Order limits for the Scheme.
Written Scheme of Investigation	A Written Scheme of Investigation identifies known and potential archaeological features, deposits, or built heritage elements on a site, and proposes a structured approach for investigating them.

Key Terms	Definitions
Zone of Influence	The area for the assessment of cumulative effects. Zones of Influence ('ZOIs') are variable depending on the environmental factor being discussed.
Zone of Theoretical Visibility ('ZTV')	A map, usually digitally produced, showing areas of land within which, the Scheme is theoretically visible, which are used to inform LVIA

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