Light Valley Solar

Environmental Statement Volume 3

Appendix 1.1: EIA Scoping Report

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Light Valley Solar

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning
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Light Valley Solar

DCO Submission

Appendix 1.1: EIA Scoping Report

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Light Valley
Solar

Contents

Table of Acronyms		1
1.	Introduction	5
1.1	Purpose of the EIA Scoping Report	5
1.2	Overview of Proposed Development	6
1.3	The Applicant	7
1.4	Need for the Proposed Development	7
1.5	The need for EIA	7
1.6	Planning Policy Context	8
1.7	Structure of the EIA Scoping Report	11
2.	The Proposed Development	13
2.1	Introduction	13
2.2	Draft Order Limits	13
2.3	Site description and environmental designations	14
2.4	Description of the Proposed Development	18
2.5	Environmentally led design	29
2.6	Construction methodology	32
2.7	Operational and maintenance activities	36
2.8	Decommissioning	36
3.	Alternatives and design integration	39
3.1	Introduction	39
3.2	Legislation, Policy, and Context	39
3.3	Approach to alternatives at EIA scoping stage	40
3.4	Approach to consideration of alternatives in the ES	41
4.	Approach to EIA	42
4.1	Introduction	42
4.2	EIA Guidance	42
4.3	The Purpose and Process of EIA	43
4.4	Overview of Approach to Assessment	47
4.5	Assessment of Effects	49
4.6	Mitigation measures and monitoring	53
4.7	Competent experts	53
4.8	Consultation	54
5.	Agricultural land and soils	57
5.1	Introduction	57
5.2	Relevant legislation, policy, standards and guidance	57
5.3	Consultation	61
5.4	Study area	62

5.5 Baseline conditions 62
5.6 Potential impacts 64
5.7 Design, mitigation and enhancement measures 66
5.8 Likely significant effects 67
5.9 Proposed assessment methodology 69
5.10 Assumptions, limitations and uncertainties 70
5.11 Summary 71
6. Air Quality 73
6.1 Introduction 73
6.2 Relevant legislation, policy, standards and guidance 74
6.3 Consultation 80
6.4 Study area 80
6.5 Baseline conditions 81
6.6 Potential impacts 89
6.7 Design, mitigation and enhancement measures 91
6.8 Likely significant effects 93
6.9 Proposed assessment methodology 96
6.10 Assumptions, limitations and uncertainties 96
6.11 Summary 97
7. Biodiversity 99
7.1 Introduction 99
7.2 Relevant legislation, policy, standards and guidance 100
7.3 Consultation 108
7.4 Study area 108
7.5 Baseline conditions 109
7.6 Potential impacts 117
7.7 Design, mitigation and enhancement measures 119
7.8 Likely significant effects 122
7.9 Proposed assessment methodology 134
7.10 Assumptions, limitations and uncertainties 138
7.11 Summary 138
8. Climate change resilience 147
8.1 Introduction 147
8.2 Relevant legislation, policy, standards and guidance 147
8.3 Consultation 150
8.4 Study area 150
8.5 Baseline conditions 151
8.6 Potential impacts 153
8.7 Design, mitigation and enhancement measures 154
8.8 Likely significant effects 155
8.9 Proposed assessment methodology 157

8.10 Assumptions, limitations and uncertainties 158
8.11 Summary 158
9. Greenhouse gas emissions 160
9.1 Introduction 160
9.2 Relevant legislation, policy, standards and guidance 160
9.3 Consultation 163
9.4 Study area 163
9.5 Baseline conditions 163
9.6 Potential impacts 164
9.7 Design, mitigation and enhancement measures 167
9.8 Likely significant effects 168
9.9 Proposed assessment methodology 172
9.10 Assumptions, limitations and uncertainties 175
9.11 Summary 176
10. Cultural Heritage 177
10.1 Introduction 177
10.2 Relevant legislation, policy, standards and guidance 177
10.3 Consultation 184
10.4 Study area 184
10.5 Baseline conditions 185
10.6 Potential impacts 192
10.7 Design, mitigation and enhancement measures 195
10.8 Likely significant effects 197
10.9 Proposed assessment methodology 199
10.10 Assumptions, limitations and uncertainties 205
10.11 Summary 207
11. Electric, magnetic and electromagnetic fields 210
11.1 Introduction 210
11.2 Relevant legislation, policy, standards and guidance 210
11.3 Consultation 212
11.4 Study area 212
11.5 Baseline conditions 212
11.6 Potential impacts 214
11.7 Design, mitigation and enhancement measures 215
11.8 Likely significant effects 216
11.9 Proposed assessment methodology 216
11.10 Assumptions, limitations and uncertainties 216
11.11 Summary 216
12. Ground conditions 217
12.1 Introduction 217
12.2 Relevant legislation, policy, standards and guidance 217

12.3 Consultation 224
12.4 Study area 225
12.5 Baseline conditions 225
12.6 Potential impacts 237
12.7 Design, mitigation and enhancement measures 238
12.8 Likely significant effects 240
12.9 Proposed assessment methodology 242
12.10 Assumptions, limitations and uncertainties 242
12.11 Summary 243
13. Human health 245
13.1 Introduction 245
13.2 Relevant legislation, policy, standards and guidance 246
13.3 Consultation 248
13.4 Study area 248
13.5 Baseline conditions 249
13.6 Potential impacts 252
13.7 Design, mitigation and enhancement measures 255
13.8 Likely significant effects 256
13.9 Proposed assessment methodology 258
13.10 Assumptions, limitations and uncertainties 258
13.11 Summary 258
14. Landscape and visual 260
14.1 Introduction 260
14.2 Relevant legislation, policy, standards and guidance 260
14.3 Study area 264
14.4 Baseline conditions 265
14.5 Existing baseline 266
14.6 Future baseline 274
14.7 Potential impacts 274
14.8 Design, mitigation and enhancement measures 276
14.9 Likely significant effects 278
14.10 Proposed assessment methodology 281
14.11 Assumptions, limitations and uncertainties 294
14.12 Summary 296
15. Major accidents and disasters 298
15.1 Introduction 298
15.2 Relevant legislation, policy, standards and guidance 298
15.3 Consultation 300
15.4 Study area 301
15.5 Baseline conditions 301
15.6 Potential impacts 304

15.7 Design, mitigation and enhancement measures 307
15.8 Likely significant effects 310
15.9 Proposed assessment methodology 314
15.10 Assumptions, limitations and uncertainties 314
15.11 Summary 314
16. Noise and vibration 319
16.1 Introduction 319
16.2 Relevant legislation, policy, standards and guidance 319
16.3 Consultation 324
16.4 Study area 324
16.5 Baseline conditions 325
16.6 Potential impacts 327
16.7 Design, mitigation and enhancement measures 328
16.8 Likely significant effects 331
16.9 Proposed assessment methodology 332
16.10 Assumptions, limitations and uncertainties 334
16.11 Summary 335
17. Socioeconomics 337
17.1 Introduction 337
17.2 Relevant legislation, policy, standards and guidance 338
17.3 Consultation 340
17.4 Study area 341
17.5 Baseline conditions 341
17.6 Future baseline 347
17.7 Potential impacts 348
17.8 Design, mitigation and enhancement measures 350
17.9 Likely significant effects 351
17.10 Proposed assessment methodology 353
17.11 Assumptions, limitations and uncertainties 355
17.12 Summary 356
18. Traffic and movement 358
18.1 Introduction 358
18.2 Relevant legislation, policy, standards and guidance 358
18.3 Consultation 362
18.4 Study area 362
18.5 Baseline conditions 364
18.6 Potential impacts 367
18.7 Design, mitigation and enhancement measures 369
18.8 Likely significant effects 370
18.9 Proposed assessment methodology 374
18.10 Assumptions, limitations and uncertainties 375

18.11 Summary 375
19. Water Resources and Flood Risk 378
19.1 Introduction 378
19.2 Relevant legislation, policy, standards and guidance 379
19.3 Consultation 383
19.4 Study area 384
19.5 Baseline conditions 384
19.6 Potential impacts 400
19.7 Design, mitigation and enhancement measures 402
19.8 Likely significant effects 404
19.9 Proposed assessment methodology 407
19.10 Assumptions, limitations and uncertainties 411
19.11 Summary 411
20. Cumulative and in-combination effects 415
20.1 Introduction 415
20.2 Relevant legislation, policy, standards and guidance 415
20.3 Proposed methodology 416
20.4 Stage 1: Establishing the long list of other existing and, or approved development 418
20.5 Stage 2: Establishing a shortlist of other existing and, or approved development 422
20.6 Stage 3: Information gathering 423
20.7 Stage 4: Assessment 423
21. Structure and content of the PEIR and ES 425
21.1 Introduction 425
22. Conclusion 426
22.1 Summary of the proposed EIA approach 426
Appendices 443
Appendix 2.1 Commitments register 444
References 455

Tables

Table 2.1 Key parameters of solar panel design 21
Table 2.2 Estimated Heavy Goods Vehicle (HGV) Movements per Site 34
Table 2.3 Management plans and strategies 38
Table 4.1 The location of key information provided in this EIA scoping report 46
Table 4.2 Baseline scenarios 48
Table 4.3 Indicative environmental sensitivity of a receptor 50
Table 4.4 Indicative magnitude of impact 51
Table 4.5 Environmental effects matrix 51
Table 4.6 Competent Authors 53

Table 5.1	Agricultural land and soils - Legislation	57
Table 5.2	Agricultural land and soils - Policy	58
Table 5.3	Agricultural land and soils - Standards and guidance	60
Table 5.4	Criteria for receptor sensitivity	69
Table 5.5	Criteria for determining magnitude of change	69
Table 5.6	Agricultural land and soils scoping summary	71
Table 6.1	Air quality - Legislation	74
Table 6.2	Air quality standards	75
Table 6.3	Air quality - Policy	75
Table 6.4	Air quality - Standards and guidance	78
Table 6.5	Regulated industrial installations within 2km of the Proposed Development	82
Table 6.6	Diffusion Tube Monitoring Sites Closest to the Proposed Development	85
Table 6.7	Estimated Defra background concentrations for the baseline year of 2022	85
Table 6.8	Key community local receptors within 2km of the Proposed Development	87
Table 6.9	Ecological sites within 2km of the Proposed Development	88
Table 6.10	Air Quality scoping summary	97
Table 7.1	Biodiversity - Legislation	100
Table 7.2	Biodiversity - Policy	101
Table 7.3	Biodiversity - Standards and guidance	104
Table 7.4	Biodiversity Scoping Summary	123
Table 7.5	Receptors and geographical scales of ecological importance	135
Table 7.6	Magnitude of effects	136
Table 7.7	Impact Prediction Confidence	137
Table 7.8	Biodiversity Scoping Summary	138
Table 8.1	Climate change resilience - Legislation	148
Table 8.2	Climate change resilience - Policy	148
Table 8.3	Climate change resilience - standards and guidance	149
Table 8.4	Baseline and projection data for climate metrics. All projections data was taken for RCP 8.5. Future projection data is presented for three percentiles.	151
Table 8.5	Climate hazards assessed and the likely impacts it may have upon the Proposed Development.	153
Table 8.6	Likely significant effects of climate change that may affect the Proposed Development.	155
Table 8.7	Climate parameters for the in-combination climate change impact of the Proposed Development.	156
Table 8.8	Climate change resilience scoping summary	159
Table 9.1	Greenhouse gas emissions - Legislation	160
Table 9.2	Greenhouse gas emissions - Policy	161
Table 9.3	Greenhouse gas emissions - Standards and guidance	162
Table 9.4	Summary of the potential construction impacts and emission sources	165
Table 9.5	Summary of potential operation impacts and emission sources	165
Table 9.6	Summary of potential decommissioning impacts and emission sources	166

Table 9.7	IEMA GHG Management Hierarchy	167
Table 9.8	Scoping conclusions for the GHG emissions assessment of the Proposed Development	169
Table 9.9	Carbon Budget Periods relevant to this assessment	173
Table 9.10	Significance criteria as per IEMA	174
Table 9.11	GHG emission assessment scoping summary	176
Table 10.1	Cultural heritage - Legislation	178
Table 10.2	Cultural heritage - Policy	179
Table 10.3	Cultural heritage - Standards and guidance	181
Table 10.4	Designated heritage assets and conservation areas within 2km of Solar Development Sites 1-5	189
Table 10.5	Designated heritage assets and conservation areas within 500m of the Cable Corridor Options Area	191
Table 10.6	Criteria for the determination of the importance of heritage assets	201
Table 10.7	Criteria for determining magnitude of impact (degree of change)	202
Table 10.8	Matrix for determining significance of effect	203
Table 10.9	Criteria for determining significance of effect	204
Table 10.10	Cultural heritage scoping summary	207
Table 11.1	Electromagnetic fields - Legislation	210
Table 11.2	Electromagnetic fields - Policy	211
Table 11.3	Electromagnetic fields – Standards and guidance	211
Table 11.4	Electromagnetic fields scoping summary	216
Table 12.1	Ground conditions - Legislation	218
Table 12.2	Ground conditions - Policy	218
Table 12.3	Ground conditions - Policy	221
Table 12.4	Ground conditions scoping summary	243
Table 13.1	Human health - Legislation	246
Table 13.2	Human health - Policy	246
Table 13.3	Standards and guidance	247
Table 13.4	Human Health scoping summary	258
Table 14-1	Landscape and visual - Legislation	261
Table 14-2	Landscape and visual - Planning policy	261
Table 14-3	Landscape and visual - Standards and guidance	263
Table 14-4	Data sources	265
Table 14-5	Published landscape character assessments and relevant landscape character areas	268
Table 14-6	Visual receptors	270
Table 14-7	Proposed viewpoints	272
Table 14-8	Establishing the value attached to the landscape	282
Table 14-9	Considerations for landscape susceptibility	285
Table 14-10	Landscape susceptibility criteria	286
Table 14-11	Sensitivity of landscape receptors criteria	286

Table 14-12 Magnitude of landscape impacts criteria 288
Table 14-13 Value attached to views criteria 289
Table 14-14 Susceptibility of visual receptors criteria 290
Table 14-15 Sensitivity of visual receptors criteria 291
Table 14-16 Magnitude of visual impacts criteria 292
Table 14-17 Significance of landscape and visual effects 293
Table 14-18 Typical descriptions of landscape and visual effects 293
Table 15.1 Major Accidents and Disasters - Legislation 298
Table 15.2 Major Accidents and Disasters - Policy 299
Table 15.3 Major Accidents and Disasters - Standards and guidance 299
Table 15.4 Major accidents and disasters scoping summary 314
Table 16.1 Noise and vibration - Legislation 320
Table 16.2 Noise and vibration - Policy 320
Table 16.3 Noise and vibration - Standards and guidance 321
Table 16.4 Summary of noise sensitive receptors 326
Table 16.5 Noise and vibration scoping summary 335
Table 17-1 Socioeconomics - Legislation 338
Table 17-2 Socioeconomics - Policy 338
Table 17-3 Socioeconomics - Standards and guidance 340
Table 17-4 Study areas 341
Table 17-5 Population changes 342
Table 17-6 Selby Population Employment Sectors 344
Table 17-7 Commercial Receptors 345
Table 17.8 PRoWs interacting with Sites 1-5 347
Table 17-9 Sensitivity or value of receptors 354
Table 17-10 Magnitude of impact 355
Table 17-11 Level of effects 355
Table 17-12 Socioeconomic scoping summary 356
Table 18.1 Traffic and movement - Legislation 359
Table 18.2 Traffic and movement - Policy 359
Table 18.3 Traffic and movement - Standards and guidance 360
Table 18.4 HGV trips per day per Site 371
Table 18.5 Severance assessment thresholds 371
Table 18.6 Traffic and movement scoping summary 375
Table 19-1 Water resources and flood risk - Legislation 379
Table 19-2 Water resources and flood risk - Policy 380
Table 19-3 Water resources and flood risk - Standards and guidance 382
Table 19-4 Watercourses that interface with the Site 386
Table 19-5 Generalised geology of the region, with typical thicknesses and descriptions of each major Group 389
Table 19-6 Superficial deposits within the study area 391

Table 19-7 Aquifer designations 392
Table 19-8 WER surface water bodies 395
Table 19-9 WER groundwater bodies 396
Table 19-10 Environmental designations (with water dependent features) within the study area 396
Table 19-11 Construction phase likely significant effects 405
Table 19-12 Operation phase likely significant effects 405
Table 19-13 Decommissioning phase likely significant effects 406
Table 19-14 Sensitivity value of receptors 409
Table 19-15 Magnitude of impacts 409
Table 19-16 Environmental effects matrix 411
Table 19-17 Water Resources and Flood Risk scoping summary 411
Table 20.1 Cumulative and in-combination effects – Legislation 415
Table 20.2 Cumulative and in-combination effects – Policy 416
Table 20.3 Cumulative and in-combination effects – Standards and guidance 416
Table 20.4 Stages of cumulative effects assessment 417
Table 20.5 Long list search criteria 420
Table 20.6 Long list search July 2024 420
Table 22.1 Summary pf proposed scope of the EIA 427

Plates

Plate 2-1 Typical photo of fixed solar PV mounted arrays 20
Plate 2-2 Typical photo of tracking solar PV mounted arrays 20
Plate 2-3 Typical photo of a BESS compound 22
Plate 2-4 Typical photo of a central inverter 24
Plate 2-5 Example of equipment at a typical 275kV substation 26
Plate 2-6 Photo of typical fencing around Solar Development Areas within Solar Development Sites 28
Plate 17.1 Age profile for Selby District 343

Table of Acronyms

Acronym	Definition
AADT	Annual Average Daily Traffic
AILs	Abnormal Indivisible Loads
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Areas
ASR	Annual Status Report
BCE	Before Common Era
BEIS	Department for Business, Energy & Industrial Strategy
BESS	Battery Energy Storage System
BGS	British Geological Survey
BMV	Best and Most Versatile
BPM	Best Practicable Means
BS	British Standard
CCC	Climate Change Committee
CCGT	Combined Cycle Gas Turbine
CCR	Climate Change Resilience
CCRA	Climate Change Risk Assessment
CE	Common Era
CEMP	Construction Environmental Management Plan
CLEA	Contaminated Land Exposure Assessment
CNP	Critical National Priority
CoCP	Code of Construction Practice
COMAH	Control of Major Accident Hazards
CRTN	Calculation of Road Traffic Noise
CSM	Conceptual Site Model
DC	Direct Current
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DLUHC	Department for Levelling Up, Housing and Communities
DM	Do-Minimum
DMRB	Design Manual for Road and Bridges
DoWCoP	Definition of Waste: Code of Practice
DTM	Digital Terrain Model
EA	The Environment Agency

Acronym	Definition
ECML	East Coast Main Line
EHO	The Environmental Health Officer
EIA	Environmental Impact Assessment
EIB	The European Investment Bank
EIP	The Environmental Improvement Plan
ELC	European Landscape Convention
EMF	Electromagnetic Field
EMR	Electromagnetic Radiation
EPA	Environmental Protection Act
ES	Environmental Statement
EV	Electric Vehicle
FCD	Field Capacity Days
FRA	Flood Risk Assessment
GHG	Greenhouse Gas
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GVA	Gross Value Added
HAR	Heritage At Risk
HBC	Harrogate Borough Council
HCA	Homes and Communities Agency
HDC	Hambleton District Council
HDD	Horizontal Directional Drilling
HEDBA	Historic Environment Desk-based Assessment
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HLC	Historic Landscape Character
HSE	Health and Safety Executive
HV	High voltage
HVAC	Heating Ventilation and Cooling
IAQM	Institute for Air Quality Management
ICCI	In-Combination Climate Change Impacts
ICE	Inventory of Carbon & Energy
IEMA	Institute of Environmental Management and Assessment
IMD	Index of Multiple Deprivation
IRZ	Impact Risk Zone
LAQM	Local Air Quality Management
LCA	Landscape Character Area

Acronym	Definition
LCRM	Land Contamination: Risk Management
LETI	Low Energy Transformation Initiative
LILA	Locally Important Landscape Areas
LLB	Locally Listed Buildings
LLFA	Lead Local Flood Authority
LLPG	Locally Listed Parks and Gardens
LNR	Local Nature Reserve
LPA	Local Planning Authority
LVIA	Landscape and Visual Impact Assessment
MAGIC	Defra Multi-Agency Geographic Information for the Countryside
MW	Megawatts
NCA	National Character Area
NH	National Highways
NHLE	National Heritage List for England
NIA	Noise Important Areas
NIC	National Infrastructure Commission
NNR	National Nature Reserve
NPPF	The National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	National Policy Statement
NPS EN	National Policy Statement for Energy
NPSE	Noise Policy Statement for England
NRMM	Non-Road Mobile Machinery
NRPB	National Radiological Protection Board
NSIP	Nationally Significant Infrastructure Project
NYC	North Yorkshire Council
oARMP	Outline Archaeological Remains Management Plan
oBFSMP	Outline Battery Fire Safety Management Plan
oCEMP	Outline Construction Environmental Management Plan
oCTMP	Outline Construction Traffic Management Plan
oDEMP	Outline Decommissioning Environmental Management Plan
oLEMP	Outline Landscape and Ecological Management Plan
oMWMP	Outline Materials and Waste Management Plan
oOEMP	Outline Operation Environmental Management Plan
oPASRP	Outline Pollution and Spillage Response Plan
oSRMP	Outline Soil Resource Management Plan

Acronym	Definition
OWSI	Overarching Written Scheme of Investigation
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PPE	Personal Protective Equipment
PPG	Planning Practice Guidance
PRA	Preliminary Risk Assessment
PRoW	Public Rights of Way
PV	Photovoltaic
RAF	Royal Air Force
RDC	Ryedale District Council
RFI	Request for Information
RICS	Royal Institution of Charted Surveyors
RIGS	Regionally Important Geological Sites
RSDC	Richmondshire District Council
SBC	Scarborough Borough Council
SCA	Special Conservation Area
SDC	Selby District Council
SoS	Secretary of State
SPA	Special Protection Area
SPZ	Source Protection Zone
SRN	Strategic Road Network
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable Drainage Solutions
TGN	Technical Guidance Note
UNECE	United Nations Economic Commission Europe's
UNFCCC	United Nations Framework Convention on Climate Change
UXO	Unexploded Ordnance
WC	Wetness Class
WDTE	Water Dependent Terrestrial Ecosystems
WEEE	Waste Electrical and Electronic Equipment
WHO	World Health Organization
WSI	Written Scheme of Investigation
YALPAG	Yorkshire and Lincolnshire Pollution Advisory Group
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1 Purpose of the EIA Scoping Report

1.1.1.1 Light Valley Solar Limited (the Applicant) has commissioned this Environmental Impact Assessment (EIA) Scoping Report to inform preparation of an Environmental Statement to support a Development Consent Order (DCO) application for Light Valley Solar (the Proposed Development). The Proposed Development is located within the administrative area of North Yorkshire Council, near Selby.

1.1.1.2 The Proposed Development's boundary (herein referred to as the 'draft Order Limits') (Figure 1.1 Site Location and Draft Order Limits) comprises 'Solar Development Sites' (herein referred to as 'Solar Development Sites'/'Solar Development Sites 1-5' or individually) which cover a combined area of 1066 hectares. Solar Development Sites 1-5 comprise areas for the solar photovoltaic (PV) modules, Battery Energy Storage System (BESS) and associated infrastructure (referred to as 'Solar Development Areas' see Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan and areas that comprise existing environmental features to be retained and/or enhanced / for biodiversity net gain (referred to as 'Retained and/or Environmental Mitigation/Enhancement Areas' see Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan. Potential siting areas for the BESS are identified as 'BESS Development Areas' on land within the Solar Development Areas within Solar Development Sites 2, or 3, or 4 (see Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan). In addition, the draft Order Limits includes a wide 'Cable Corridor Options Area' within which the cable connections will be required within 'Cable Corridors' between the Solar Development Sites and the existing Monk Fryston Substation where the project will connect to the National Grid (see Figure 1.1 Draft Order Limits). The Cable Corridors would also include areas for environmental mitigation / enhancements /biodiversity net gain as may be required. The Cable Corridors will be identified within the DCO application. The Cable Corridors will allow flexibility for the detailed design process which would follow the DCO should it be granted.

1.1.1.3 The identification of the indicative areas of the main Proposed Development elements which make up the Solar Development Sites 1-5 (described above) is shown on Figure 1.2 (Solar Development Sites 1-5 Concept Layout Plan). The Solar Development Sites 1-5 concept layout has taken into account an initial analysis of environmental constraints, explained at Section 2.5. In particular, the BESS would be located within specific parts of Sites 2, or 3 or 4, which avoids land identified as Flood Zone 3 and proximity to residential properties (minimum 100m separation).

1.1.1.4 The most appropriate location and extent of the elements of the Proposed Development within the Solar Development Sites 1-5 and Cable Corridors within the Cable Corridor Options Area will be identified through consultation with landowners, the community and stakeholders; and the EIA process. Therefore, flexibility has been incorporated in to the draft Order limits and these areas and the internal arrangement of the elements of the Proposed Development will be refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community.

1.1.1.5 A full description of the Proposed Development is provided in Chapter 2 of this EIA scoping report.

1.1.1.6 The DCO application will seek consent for the construction, operation, maintenance and decommissioning of a solar photovoltaic electricity generating facility and energy storage facility with a total capacity exceeding 50 megawatts (MW). As the Proposed Development has secured a 500MW connection to the National Grid it will have a designed installed capacity to fulfil this efficiently and comprise elements described in paragraph 1.2.1.1.

1.1.1.7 In accordance with Regulation 8(1)(b) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) [1], the Applicant confirms that an Environmental Statement (ES) will accompany the DCO application to be submitted to the Planning Inspectorate (PINS) for the Proposed Development.

1.1.1.8 This EIA Scoping Report has been prepared to support an application for a Scoping Opinion from the Secretary of State (SoS) from the Department for Energy Security and Net Zero (DESNZ) for the purposes of Regulation 10 of the EIA Regulations for the Proposed Development.

1.1.1.9 The purpose of this EIA Scoping Report is to establish the scope, including content and extent of matters which should be covered in an ES to be prepared and submitted for the Proposed Development. It has been prepared in accordance with PINS Advice Note Seven [2] for all environmental factors (topics) set out in the EIA Regulations.

1.1.1.10 This chapter is supported by the following figures: Figure 1.1 Site Location Plan and Draft Order Limits.

1.2 Overview of Proposed Development

1.2.1.1 The principal infrastructure of the Proposed Development will be as follows:

- Ground mounted solar PV modules and mounting structures;
- Inverters;
- Transformers;
- High voltage (HV) switchgear and control equipment (housed inside a building);
- Onsite electrical compounds comprising substations and control buildings;
- Onsite cabling;
- A BESS;
- Underground electrical cable routes (located within Cable Corridors which will be identified in due course to allow flexibility for the detailed design process which would follow the DCO should it be granted) to connect solar infrastructure (Solar Development Sites) to each other and with the National Grid at Monk Fryston Substation;
- A 275 kV cable connection within the existing Monk Fryston Substation (no substantive works proposed);
- Spare parts storage buildings or enclosures (which may be part of the electrical compounds);

- Fencing and security measures;
- Access tracks;
- Environmental mitigation / biodiversity net gain; and
- Temporary works will also be required to facilitate construction.

1.3 The Applicant

1.3.1.1 The Proposed Development is being led by the Applicant, Light Valley Solar Limited, which is a subsidiary of Island Green Power UK limited. Island Green Power is a leading international developer of renewable energy projects, established in 2013.

1.3.1.2 Island Green Power has delivered 34 solar projects worldwide totalling more than 1GW of capacity. This includes 17 solar projects in the UK and Republic of Ireland. Their projects include the recently consented Cottam Solar Project, a 500MW solar and BESS project in Lincolnshire. Their mission is to increase solar energy usage, making more renewable energy possible and reducing carbon emissions.

1.4 Need for the Proposed Development

1.4.1.1 The Proposed Development would generate a large amount of electricity from renewable sources, contributing to urgent national targets to decarbonise our electricity supply, provide energy security and delivering affordable energy.

1.4.1.2 The British Energy Security Strategy [3] produced by the UK Government in April 2022 announced the intent to increase solar capacity in the UK from 14GW to 70GW by 2035. The Energy White Paper: Powering our Net Zero Future [4] also outlined the need to 'build back greener' following the impact of Coronavirus, addressing the inter-generational challenge of climate change. The White Paper identifies the UK Government's aim for a fully decarbonised, reliable and low-cost power system by 2050. The 'Powering Up Britain' [5] policy paper further reiterates the UK Government's commitment to solar energy, setting out a goal for a fivefold increase in solar power by 2035. The UK Government's manifesto states that Labour will work with the private sector to triple solar power by 2030 [6]

1.4.1.3 The Proposed Development would contribute to the UK Government's legally binding target to reach net-zero emissions by 2050 and respond to the projected increase in demand for electricity, as well as improving UK energy security and resilience in line with national strategy. The Overarching National Policy Statement for Energy (NPS EN-1) [7] designated in January 2024 establishes that the delivery of low carbon energy infrastructure, such as the Proposed Development, is of Critical National Priority (CNP).

1.5 The need for EIA

1.5.1.1 As the Proposed Development comprises the 'construction or extension of a generating station' and will have a 'capacity of more than 50MW', it is considered to be a Nationally Significant Infrastructure Project (NSIP) under Section 14(1)(a) and Section 15(2) of the Planning Act 2008 ('the Act') [8]. Therefore, the Proposed Development requires a DCO application to be submitted to the SoS for DESNZ for determination.

1.5.1.2 In relation to NSIPs, an EIA is required for certain developments under the EIA Regulations 2017 [9]. The EIA Regulations identify which developments are required to undergo EIA, and these are listed under either 'Schedule 1' or 'Schedule 2' of the EIA Regulations. Those developments listed under 'Schedule 1' must always be subject to EIA and 'Schedule 2' developments are only subject to EIA should it be judged, in accordance with Regulation 3(1) that the development is "likely to have significant effects on the environment by virtue of factors such as its nature, size or location". Schedule 3 of the EIA Regulations provides the selection criteria for screening to determine whether a Schedule 2 development requires EIA.

1.5.1.3 The Proposed Development is categorised as 'Schedule 2' development under Paragraph 3(a) of Schedule 2 of the EIA Regulations [9], as it comprises "industrial installations for the production of electricity, steam and hot water". It must, therefore, be considered whether, under the criteria of Schedule 3, the Proposed Development constitutes EIA development.

1.5.1.4 The Applicant considers that due to the size, nature, and location of the Proposed Development, it has the potential to have significant effects on the environment and that an EIA will be required. Accordingly, under Regulation 8(1)(b) of the EIA Regulations [9] the Applicant wishes to confirm to the SoS that an ES will be submitted with the DCO Application.

1.5.1.5 The stages of the DCO EIA process include:

- Screening (discretionary) (not formally undertaken, project deemed EIA);
- Scoping (discretionary) (the subject of this report);
- Preparation of a Preliminary Environmental Information Report (PEIR) – required for Statutory Consultation; and
- Preparation of an ES to accompany the DCO application.

1.5.1.6 Further details on the approach to EIA for the Proposed Development are provided in Chapter 4 of this EIA Scoping Report.

1.6 Planning Policy Context

1.6.1 National Policy

National Policy Statements

1.6.1.1 National Policy Statements (NPS) are the primary policy basis for NSIP development and the SoS is directed under Section 104 of the Planning Act 2008 to determine a DCO application in accordance with the relevant NPS.

1.6.1.2 The relevant NPSs with effect for this application will be:

- Overarching NPS for Energy EN-1 [10];
- NPS for Renewable Energy Infrastructure (EN-3) [11]; and
- NPS for Electricity Networks Infrastructure (EN-5) [12].

1.6.1.3 The approach taken by the EIA will be informed by the designated NPS as well as national and local planning policy and supplementary guidance insofar as it is considered important and relevant to the application.

1.6.2 NPS-1

1.6.2.1 The Overarching NPS for Energy (EN-1) sets out the overall national energy policy for nationally significant energy infrastructure. It should be considered alongside relevant technology-specific NPSs to form the primary basis for decisions by the SoS. Chapter 2 of NPS EN-1 reflects the current national policy and legislative position on energy infrastructure development, including the legally binding commitment made through the Climate Change Act 2008 to be net zero by 2050. Emphasis is made on decarbonising the power sector and ensuring security of energy supply, with reference to the Net Zero Strategy.

1.6.2.2 In addition, NPS EN-1 introduces the critical national priority (CNP) for low carbon energy infrastructure. NPS EN-1 states that: "Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation Overarching National Policy Statement for Energy (EN-1) [7] 36 hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible." This provides strong policy support for developments like the Proposed Development.

1.6.2.3 NPS EN-1 sets out topic-specific 'assessment principles' and 'generic impacts' which set out how energy NSIP applications should be prepared by the Applicant and considered by the SoS. This includes policies on the application of the mitigation hierarchy in respect of environmental effects.

1.6.3 NPS EN-3

1.6.3.1 NPS EN-3 is a technology-specific NPS, focusing on renewable energy generation projects. NPS EN-1 recognises the target set in the British Energy Security Strategy to deliver up to 70GW of solar deployment by 2035. Section 2.10 sets out policy specific to solar NSIP development, directing the approach to assessment and consideration of impacts specific to solar development in addition to general considerations presented in NPS EN-1. NPS-3 is therefore to be considered alongside NPS EN-1 as the primary policy basis for decisions on renewable energy infrastructure DCO applications.

1.6.4 NPS EN-5

1.6.4.1 NPS EN-5 is a technology-specific NPS, focusing on infrastructure for electricity networks, to include transmissions systems (above or underground) and associated infrastructure such as substations and converter stations. It is therefore to be considered alongside NPS EN-1 as the primary policy basis for decisions on electricity network infrastructure DCO applications. It is considered to be a relevant NPS for the Proposed Development due to the inclusion of electricity network infrastructure (underground cables and on-site substations) within the project.

1.6.4.2 NPS EN-5 sets out assessment principles specific to electricity network infrastructure in addition to those detailed in NPS EN-1. NPS EN-5 has a predominant focus on overhead lines given that this is the category of electricity infrastructure that would comprise an NSIP in its own right. Given that the Proposed Development will not include significant lengths of overhead lines, NPS EN-5 will be considered only insofar as is relevant to the development as proposed.

National Planning Policy Framework

1.6.4.3 The National Planning Policy Framework (NPPF) (2023) [13] sets out the Government's planning policies for England and how these are expected to be applied. Section 2 of the NPPF states that "the purpose of the planning system is to contribute to the achievement of sustainable development". It explains that the planning system has a number of objectives in order to achieve this, including adapting to climate change and moving to a low carbon future.

1.6.4.4 The NPPF does not contain specific policies relating to NSIPs. These are determined in accordance with the decision-making framework in the Act (as amended) and relevant NPS for major infrastructure, as well as any other matters that are relevant (which may include the NPPF).

1.6.4.5 However, as set out in Section 105 of the Act [8], the SoS may consider the policies of the NPPF to be material to the determination of the Proposed Development. These policies will be considered where relevant.

1.6.5 Local Policy

1.6.5.1 The Proposed Development is located within the North Yorkshire Council local authority area which formed as a new unitary council on 1 April 2023. The council replaces the following seven former district and borough councils: Craven District Council, Hambleton District Council, Harrogate Borough Council, Richmondshire District Council, Ryedale District Council, Scarborough Council and Selby District Council. The draft Order Limits are in an area previously covered by Selby District Council.

1.6.5.2 It is noted that existing local plans for the former district and county areas, including the North Yorkshire, City of York and North York Moors National Park Minerals and Waste Joint Plan [14], Selby District Core Strategy Local Plan [15] and Selby District Local Plan 2005 [16] saved policies will remain in place until the new local plan for North Yorkshire Council is adopted.

1.6.5.3 The Local Development Scheme 2023-2028 (LDS) [17] states that a draft Local Plan will be published in 2026 with an adopted plan expected to be in place in 2028. The LDS explains that work is continuing on the Selby Local Plan due to the advanced stage it had reached. The Selby District Local Plan is expected to be adopted in Q4 of 2025 and will set out the approach for new development across the former Selby district area.

1.6.5.4 Local planning policy and supplementary guidance will be considered where relevant.

1.7 Structure of the EIA Scoping Report

1.7.1.1 The EIA Regulations set out the requirements for an Applicant who proposes to request a Scoping Opinion from the SoS. Regulation 10(3) of the EIA Regulations requires an EIA Scoping Report to include:

- *"a plan sufficient to identify the land;*
- *a description of the proposed development, including its location and technical capacity;*
- *an explanation of the likely significant effects of the development on the environment; and*
- *such other information or representations as the person making the request may wish to provide or make."*

1.7.1.2 In accordance with the EIA Regulations, this EIA scoping report provides information to identify the location of the Proposed Development, including a plan. It also provides a description of the Proposed Development, its indicative layout and its technical capacity. Where aspects of the Proposed Development design remain subject to further assessment and option selection, this is identified. This EIA scoping report provides an explanation of the likely significant effects of the Proposed Development on the environment, setting out the proposed approach and methodology for further assessment. Finally, this EIA scoping report provides information and representations from the Applicant in relation to environmental assessment topics that are not considered necessary to scope into further assessment.

1.7.1.3 This EIA scoping report is structured as follows:

- Chapter 1: Introduction (this Chapter) – provides an introduction to the Proposed Development, the need for an EIA, and the purpose and structure of this EIA Scoping Report;
- Chapter 2: The Proposed Development – provides an overview of the Proposed Development, including construction, operation and decommissioning and the draft Order Limits;
- Chapter 3: Alternatives and design iteration - describes the alternatives considered, and provides a narrative on how the Proposed Development has been developed to date;
- Chapter 4: Approach to EIA – sets out the requirements for scoping and where they are addressed in this report, the general approach to EIA, and provides definitions for some of the key terms used within the EIA process;
- Chapters 5-19: Topic chapters - sets out those environmental topics proposed to be included in the scope of the EIA, along with the methodologies and approaches to assessment proposed for those topics.
- Chapter 20: Cumulative and in-combination effects - sets out the proposed approach to the cumulative and in-combination effects assessment;
- Chapter 22: Structure and content of the PEIR - presents the proposed structure of the PEIR; and

- Chapter 22: Conclusion – provides a summary of this EIA scoping report and the issues to be scoped in/scoped out of the EIA.

1.7.1.4 Competent experts have prepared this EIA Scoping Report and will undertake the EIA and prepare the PEIR and ES. The Applicant has engaged Ove Arup and Partners Limited (Arup) to lead the EIA and produce the PEIR and ES and relevant supporting documentation with Reading Agricultural Limited, Tyler Grange Group Limited, Avian Ecology Limited and Treeworks Limited providing specialist services. Arup hold the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark. See section *4.7* of this EIA scoping report for further information.

2. The Proposed Development

2.1 Introduction

2.1.1.1 To inform the scope of the assessment studies, this Proposed Development description (Chapter 2 of this EIA scoping report) provides information on:

- Solar Development Sites which comprise Solar Development Areas for the solar photovoltaic (PV) modules, BESS Development Areas and associated infrastructure (see Figure 1.2) and Retained and/or Environmental Mitigation/Enhancement Areas (see Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan).
- Cable Corridor Options Area within which the cable connections will be required within Cable Corridors between the Solar Development Sites and the existing Monk Fryston Substation where the project will connect to the National Grid (see Figure 1.1 Draft Order Limits). The Cable Corridors would also include areas for environmental mitigation / enhancements /biodiversity net gain as may be required but this has not yet been identified. The Cable Corridors will be identified within the DCO application. The Cable Corridors will allow flexibility for the detailed design process which would follow the DCO should it be granted.
- Construction programme and activities.
- Operational and maintenance activities.
- Decommissioning.

2.1.1.2 This chapter is supported by the following figures: Figure 1.1 Site Location Plan and Draft Order Limits, Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan and Figure 2.1 Environmental Designations.

2.1.1.3 Due to rapidly changing and evolving solar and energy storage technology, and the fact that a number of the design aspects and features of the Proposed Development will not be confirmed until after the tendering process for design and construction has been completed (after the DCO application is determined), design parameters of the DCO are designed to maintain flexibility to allow the latest technology to be installed at the time of construction. For example, enclosure or building sizes may vary within the DCO parameters, depending on the supplier selected and their specific configuration and selection of plant.

2.1.1.4 Therefore, the use of design parameters will be adopted to present a likely worst-case assessment of potential environmental effects of elements of the Proposed Development that cannot be fixed within the DCO application. Wherever an element of flexibility is maintained, the likely worst-case impacts will be reported in the subsequent environmental assessment documents (PEIR and ES).

2.2 Draft Order Limits

2.2.1.1 Figure 1.1 represents the likely maximum extent of the land potentially required for the construction, operation and decommissioning of the Proposed Development (‘draft Order Limits) based on all of the options for the elements of the Proposed Development.

2.2.1.2 The Proposed Development is subject to ongoing design development and the draft Order Limits will be refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. This process will ensure that the Order Limits included in the DCO only includes land which is required to deliver the Proposed Development.

2.3 Site description and environmental designations

2.3.1.1 The draft Order limits are split into two broad areas, the Solar Development Sites and the Cable Corridor Options Area, within which the Proposed Development would be located, as shown on Figure 1.1 Draft Order Limits. The total area within the Solar Development Sites is approximately 1066ha. The Solar Development Sites and Cable Corridor Options Area are indicative at this stage while optioneering is ongoing to finalise the best Cable Corridors that underground electric cable connections would be located within. Therefore, these areas of the draft Order Limits are likely to reduce in size as the design is refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. The entirety of the draft Order Limits is within the administrative area of North Yorkshire Council and falls within what was the Selby district.

2.3.1.2 The Solar Development Sites are split across a total of five separate land parcels, referred to herein as 'Solar Development Sites 1-5' or individually as may be required. The locations and extents of the five Solar Development Sites are shown in Figure 1.1 Site Location and Draft Order Limits.

2.3.1.3 Environmental designations are shown on Figure 2.1. Descriptions of each Solar Development Site 1-5, including current land use and environmental designations are provided in the following sections.

2.3.2 Solar Development Site 1

2.3.2.1 Solar Development Site 1 (Figure 1.1 Site Location and Draft Order Limits) is the most northerly site and is located approximately 430m east of Escrick village, a civil parish, and approximately 9 km south of York. The site is located approximately 20 km north-east of Monk Fryston Substation. There are numerous farm holdings within the site including Tileshed Farm, Manor Farm and Mount Pleasant Farm. There are three Public Rights of Way (PRoW) within the site.

2.3.2.2 The main current land use within site is agricultural with small holdings and plantations covering the site including agricultural fields and clusters of trees.

2.3.2.3 The fields are bounded by hedgerows and sporadic trees with single trees dotted within the site. National Forest Inventory Woodland located within Solar Development Site 1 include Easterby's Plantation, Pallion Wood and an un-named woodland in the south of the site. There are other National Forest Inventory Woodlands located adjacent to the site boundary. There are two areas of ancient woodland (identified from Natural England's Ancient Woodland Inventory) directly adjacent the eastern site boundary known as Gilbertson's Wood.

2.3.2.4 The topography of the site is undulating with a general slope down towards the south from 16m Ordnance Datum (OD) in the north to 5m OD in the south.

2.3.2.5 There are no designated sites located within the site. The Lower Derwent Valley group of designated sites including Ramsar, Special Protection Area (SPA), Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR) are located approximately 2.8 km east of the site. In addition, Skipwith Common SAC, SSSI and NNR are located approximately 2.4km to the south-east of the site. There are SSSI Impact Risk Zones (IRZ) for Derwent Ings SSSI within the site.

2.3.2.6 The site does not fall within Green Belt, though it does border directly against the York / Selby Green Belt to the north.

2.3.2.7 There are no scheduled monuments, Listed Buildings or Conservation Areas within the site. The nearest scheduled monument (Danes Hills square barrow cemetery on Crook Moor) is located approximately 1 km south-east and is enclosed by woodland. The nearest Conservation Area to site is the Escrick Conversation Area which is approximately 50m to the west.

2.3.2.8 There are no main rivers within the site. However, there are several Ouse and Derwent Internal Drainage Board (IDB) watercourses, ordinary watercourses and unnamed watercourses present in the site, including Whinchat Dyke, Chatterton Dyke and Pallion Dike. The site is susceptible to flooding from various sources. This is described in more detail in Chapter 19 Water Resources and Flood Risk.

2.3.2.9 The local transport network consists of Wheldrake Lane which is located along the north of the site and Skipworth Road located along the west side of the site. There is an existing, unnamed track that runs through the centre of the site and provides access to Mount Pleasant Farm and joins onto Wheldrake Lane and Skipwith Road.

2.3.2.10 There is an overhead 33kV line that follows the eastern boundary of the site from Wheldrake Lane and adjacent to Gilbertson's Wood. It runs between Gilbertson's Wood and Keldcarrs Plantation before exiting the site.

2.3.2.11 There is an overhead 11kV line within the site that is routed from the middle of the northern site boundary on Wheldrake Lane to the middle of the western site boundary on Skipworth Road. There are three connections from this line to properties and to a wind turbine.

2.3.2.12 Two large diameter Yorkshire Water mains run across the southern part of site in a north east – south west alignment.

2.3.3 Solar Development Site 2

2.3.3.1 Solar Development Site 2 (Figure 1.1 Site Location and Draft Order Limits) borders the east-bound carriageway of the A63 approximately 1.4 km east of the junction of Water Lane and the A63 in Monk Fryston.

2.3.3.2 The site is located approximately 3.5km north-east of Monk Fryston Substation. Siddle Farm House, Fryston Common Farm and Oak Tree Farm buildings are adjacent to the draft Order Limits of the Solar Development Site 2. The site is predominantly used for its

agricultural land with an existing access track running down the centre and is also surrounded on all sides by agricultural fields. There are no PRoW within the site.

2.3.3.3 There are no designated sites within the site. The nearest designated site is Sherburn Willows SSSI, located approximately 3.8 km north-west.

2.3.3.4 There are no scheduled monuments, Listed Buildings or Conservation Areas within the site. The nearest Listed Building is located adjacent to the southern boundary (Grade II Listed milestone) and the nearest scheduled monument (Steeton Hall medieval magnate's residence and manorial centre) is located approximately 3.7 km north-west.

2.3.3.5 There are no main watercourses in the site. Several Selby Area IDB watercourses, ordinary watercourses and unnamed watercourses are present in the site, including Fleet Dike and Causeway Dyke. The site is susceptible to flooding from various sources. This is described in more detail in Chapter 19 Water Resources and Flood Risk.

2.3.3.6 Local transport network consists of Fryston Common Lane which cuts through the north of the site. The A63 runs parallel to the southern boundary with an unnamed road running vertically through the centre of the site connecting the A63 and Fryston Common Lane. The A63 provides connection between the A1(M) and Selby.

2.3.3.7 There is an overhead 132kV line that crosses the very edge of the south east corner of the site.

2.3.3.8 There is an overhead 11kV line that is routed north-south adjacent to the unnamed road running through the centre of the site. Overhead 11kV continue along the north eastern boundary of the site as well as across the north western part of the site.

2.3.4 Solar Development Site 3

2.3.4.1 Solar Development Site 3 (Figure 1.1 Site Location Draft Order Limits) is located approximately 850 m to the south-east of the junction of Hillam Lane, Lumby Hill and Chapel Street in Hillam. The site is located approximately 3.1km east of Monk Fryston Substation. The site is the smallest area of the five sites. Hillam Common Lane runs along the northern perimeter of the site with Woodlands Lane running along the south. The area within the site is made up of agricultural land. There are no PRoW within the site.

2.3.4.2 There are no designated sites located within the site. The nearest designated site is Fairburn and Newton Ings SSSI located approximately 4.3 km west. However, the site does lie within the Impact Risk Zone (IRZ) of Fairburn and Newton Ings SSSI.

2.3.4.3 There are no scheduled monuments, Listed Buildings or Conservation Areas within the site. The nearest scheduled monument (Danes Hills square barrow cemetery on Crook Moor) is located approximately 4.2 km north-east and is enclosed by woodland. The nearest Listed Building (Grade II listed summerhouse in grounds of Millstone lodge) is located approximately 500 m west. The nearest Conservation Area (Hillam Conservation Area) is approximately 500m to the west.

2.3.4.4 There are no main watercourses in the site. Several Selby Area IDB watercourses, ordinary watercourses and unnamed watercourses are present in and around the site, including

Maspin Moor Drain. The site is susceptible to flooding from various sources. This is described in more detail in Chapter 19 Water Resources and Flood Risk.

2.3.4.5 The A63 provides connection between the A1(M) and Selby and is located approximately 860 m north.

2.3.4.6 No utilities have been identified within the site.

2.3.5 Solar Development Site 4

2.3.5.1 Solar Development Site 4 (Figure 1.1 Site Location and Draft Order Limits) is located approximately 280m north-east of the junction of Main Street, Roe Lane and Haddlesey Road in Birkin. The site is located approximately 4 km east of Monk Fryston Substation. The site comprises numerous agricultural fields which are dissected by Haddlesey Road and Roe Lane. Bowers House Farm sits within the site, as does Woodhouse Farm. The River Aire runs along the southern boundary and Gateforth Common and Gateforth Wood is located adjacent to the northern boundary. There are three PRoW within the site.

2.3.5.2 There are no designated sites located within the site. The nearest designated site is Fairburn and Newton Ings SSSI located approximately 5.3 km west. The site lies within the IRZ of Fairburn and Newton Ings SSSI.

2.3.5.3 There are no scheduled monuments, Listed Buildings or Conservation Areas within the site. The scheduled monument 'Roman fort' is located approximately 1.3km to the south-east of the site. The nearest Grade II Listed Building (Birkin House) is located approximately 90 m south-west. The nearest Grade I Listed Building is Church of St Mary, located approximately 540 m south.

2.3.5.4 There are no main watercourses in the site. Several Selby Area IDB watercourses, ordinary watercourses and unnamed watercourses are present in and around the site, including Moor Drain, Maspin Moor Drain, Mearley Drain and Fleet Drain. The site is susceptible to flooding from various sources. This is described in more detail in Chapter 19 Water Resources and Flood Risk.

2.3.5.5 The local transport network consists of Roe Lane and Haddlesey Road which are located in the western and southern areas of the site respectively. The site also borders around Twinkers Lane. The A63 is the nearest, large transport connection and is located approximately 1.3 km north.

2.3.5.6 A high pressure gas transmission main runs approximately east to west through the centre of the site . There are overhead high voltage power lines belonging to both National Grid and Northern Power Grid crossing the site from north west to south east. These overhead lines also cross the south eastern corner of the site. There are several lengths of overhead 11kV lines in the south and centre of the site including connections to the various properties and infrastructure in the vicinity. Two large diameter Yorkshire Water mains are routed across the south eastern corner of the site in a south west - north east alignment.

2.3.6 Solar Development Site 5

2.3.6.1 Solar Development Site 5 (Figure 1.1 Site Location and Draft Order Limits) is located approximately 500 m east of Chapel Haddersley at the junction with the A19 and

approximately 388m north-west of the junction of Common Lane and Hirst Road in Temple Hirst. The site is located approximately 10.1 km east of Monk Fryston Substation. The A19 is located in close proximity to the western boundary and the River Aire flows along the southern boundary. There is also a branch of the East Coast Mainline railway which passes through the middle of the site and the Selby line branch which is located alongside the eastern boundary. There is one PRoW within the site.

2.3.6.2 There are no designated nature conservation sites located within the site. The nearest designated site is Barlow Common LNR is located approximately 2.9 m north-east.

2.3.6.3 There are no scheduled monuments, Listed Buildings or Conservation Areas within the site. The nearest Listed Building (Grade II listed Temple manor) is located approximately 130 m south. The nearest scheduled monument (roman fort) is located approximately 2.1 km south-west.

2.3.6.4 There are no main watercourses in the site. Several Selby Area IDB watercourses, ordinary watercourses and unnamed watercourses are present in and around the site, including Temple Drain. The site is susceptible to flooding from various sources. This is described in more detail in Chapter 19 Water Resources and Flood Risk.

2.3.6.5 A high pressure gas transmission main runs within the western boundary of the site . There are overhead high voltage power lines belonging to both National Grid and Northern Power Grid crossing the eastern part of the site from north east to south west. There are several lengths of overhead 11kV lines running through the site. A Yorkshire Water sewer runs within the site. There are two communications masts currently located within the site.

2.3.7 Cable Corridor Options Area

2.3.7.1 The land uses within the Cable Corridor Options Area are predominantly agricultural land with local farm holdings. In some areas the Cable Corridor Options Area is crossed by highways (including the A19 and A63), rail lines and the River Ouse.

2.4 Description of the Proposed Development

2.4.1.1 The Proposed Development consists of a proposed solar farm with battery energy storage system (BESS). The Proposed Development's planning boundary (draft Order Limits) includes the Solar Panel Areas, which will include the majority of the Proposed Development, and the Cable Corridors connecting Solar Panel Areas with one another and the National Grid. The Solar Panel Areas have a combined areas of 1066 ha and are located in the north-east of England. The Solar Development Sites will include the solar PV modules, BESS (located within BESS Development Areas within Solar Development Sites 2-4), substations, inverters / transformers, access tracks, fencing, CCTV, and environmental mitigation. There will be underground electrical cable routes (located within Cable Corridors which will be identified in due course) between Solar Development Sites 1-5 and the Monk Fryston Substation. The Cable Corridors will also incorporate works required for the construction of the cables such as access works and works at electrical works at Monk Fryston Substation. Cables will be required within Monk Fryston Substation to connect to the existing infrastructure. The scope of the environmental aspects considered in this EIA scoping report in Chapters 5-20 is based on the description of the Proposed Development provided in this section.

2.4.1.2 Heights provided in the following descriptions are above ground level in Flood Zone 1. If any flood sensitive electrical infrastructure is located within Flood Zone 2 and/or Flood Zone 3 these will need to be elevated to protect the equipment from potential damage caused by the flood plain, increasing the height of the flood sensitive electrical infrastructure.

2.4.2 Overview of solar and BESS infrastructure

2.4.2.1 The principal infrastructure will be as follows:

- Solar PV modules and mounting structures;
- Inverters;
- Transformers;
- High voltage (HV) switchgear and control equipment (housed inside a building);
- Onsite electrical compounds comprising substations and control buildings;
- Onsite cabling;
- A BESS;
- Onsite electrical compounds comprising substations and control buildings;
- Underground electrical cable routes (located within Cable Corridors which will be identified in due course to allow flexibility for the detailed design process which would follow the DCO should it be granted) to connect the solar infrastructure (located within the Solar Development Sites 1-5) to each other and with the National Grid at Monk Fryston Substation;
- A cable connection within the existing Monk Fryston Substation;
- Spare parts storage buildings or enclosures (which may be part of the electrical compounds);
- Fencing and security measures;
- Access tracks; and
- Environmental mitigation / biodiversity net gain; and
- Temporary works will also be required to facilitate construction.

Solar Panels

2.4.2.2 Solar panels generate electrical power by using a solar photovoltaic (PV) module to convert sun light into direct current (DC) electricity. Individual solar PV modules, more commonly known as solar panels, contain several PV cells wired and encapsulated by tempered glass. Solar PV modules are sealed for weatherproofing and held together by a metal frame in a mountable unit.

2.4.2.3 Individual solar PV modules are typically 2m by 1m in width and depth and can vary in height. However, as solar PV modules are rapidly developing due to innovation in technology and processing techniques for the PV cells, the dimensions of the solar PV modules available at the time of construction may vary. The ES will, therefore, consider

a height parameter of 4.5m agl which represents the worst-case scenario in terms of identifying potential environmental effects.

2.4.2.4 It is possible to install the solar PV modules as fixed (Plate 2-1) or as tracking (Plate 2-2) which adjust the position of the solar PV modules to track the sun throughout the day. The exact number and arrangement of modules depends on a range of factors including the size of the system, the type of technology (fixed or tracking), its location and the direction in which the panels are installed. As technology and equipment is evolving, some flexibility in design will be required to accommodate technology advances.

Plate 2-1 Typical photo of fixed solar PV mounted arrays

Plate 2-2 Typical photo of tracking solar PV mounted arrays

2.4.2.5 Table 2.1 presents a summary of the difference between fixed and tracking solar PV modules and the design parameters to be used for the ES. The ES will provide a detailed

summary of the proposed approach and assess the worst-case scenario in terms of identifying likely significant environmental effects.

Table 2.1 Key parameters of solar panel design

Design parameter	Fixed	Tracking
Panel alignment	Rows of solar PV modules aligned in east-west rows with panels proposed to face south	Rows of solar PV modules mounted on a metal tracking system aligned in north-south rows with panels rotation east-west
Angle to horizontal?	+/- 10° to 35° (fixed)	+/- 60° (variable)
Orientation	South	East-west
Separation distance	Minimum 4m and maximum 12m between rows, dependent upon angle and length of slope, to allow for appropriate maintenance and to minimise inter-row shading.	Minimum of 2.5m at the closest point, and a maximum distance of 15.0m between the centrelines of the solar modules.
Height	Maximum height of up to 3.5m agl. Minimum height of the lowest part of the panel would be 0.4m These dimensions are indicative at this stage as the final elevations of the racks will be influenced by various design factors such as local topography, flood risk and configuration.	Maximum height of 4.5m agl at their greatest inclination, but height would vary throughout the day. 2.5m when horizontal. Minimum height of the lowest part of the panel would typically be between 0.4m-1m. These dimensions are indicative at this stage as the final elevations of the racks will be influenced by various design factors such as local topography, flood risk and configuration.
Mounting structure	Metal frame that supports the solar panels, secured by metal posts driven into ground between 1.5 to 4m in depth (dependant on ground conditions). In areas where archaeological protection is required concrete feet or other non-ground penetrative techniques may be used to secure the mounting structures to the ground.	Metal frame that supports the solar panels, secured by metal posts driven into ground between 1.5 to 4m in depth (dependant on ground conditions). In areas where archaeological protection is required concrete feet or other non-ground penetrative techniques may be used to secure the mounting structures to the ground.
Solar panel type	Bifacial monocrystalline panels	Bifacial monocrystalline panels

2.4.2.6 Where relevant, this EIA scoping report and the PEIR and ES will consider the panel design and orientation which represents the worst-case scenario in terms of identifying potential environmental effects. For example, an east-west orientation will result in increased Heavy Goods Vehicle (HGV) traffic movements since more panels are required, whilst north-south oriented tracker panels are typically larger in height than fixed panels. As the design develops, the panel orientation (if fixed) or the most favourable tracking technology will be determined based upon economic, environmental and technical factors. A robust worst-case scenario for each topic will be assessed and presented in the ES.

Battery Energy Storage System (BESS)

2.4.2.7 The Proposed Development will include an associated BESS. This will be designed to provide peak generation and grid balancing services to the electricity grid. The BESS is likely to consist of batteries (type is unknown as technology is evolving) and would allow energy to be stored within the Proposed Development and exported to the grid when required, providing a balance in services where surplus electricity is produced. BESS would be included as part of the hybrid containers.

2.4.2.8 The BESS will be housed within containers with maximum dimensions of 16m by 3m and maximum height of 3.2m agl. Separation between containers will be as per the National Fire Chiefs Council (NFCC) guidelines [18] or National Fire Protection Association (NFPA) guidelines [19]. The BESS compound will be expected to be surrounded by a 3m high metal palisade fence with CCTV. Maximum parameters for the compound layouts will be defined in the DCO application in order to present and assess a worst case in the EIA. A road of approximately 6m wide would be required to access the BESS compound. The batteries will be housed in individual enclosures within each container. Transformers and dedicated switchgear will also be required to connect cables to and from the batteries. It is anticipated that the BESS containers and associated infrastructure would be located within a BESS compound up to an approximate area of 10.5ha at one of the Solar Development Sites 2-4. The total size and location of the BESS will be determined after further environmental assessments have been completed.

2.4.2.9 The BESS will require a heating, ventilation and air conditioning (HVAC) system to ensure the efficiency of the batteries, which are integrated into the containers. This may involve a HVAC system that is external to the containerised unit located either on the top of the unit or attached to the side of the unit, and this will be assessed in the ES for the relevant topics. If this uses air to heat and cool it will have a fan built into it that is powered by auxiliary power.

2.4.2.10 A photo of a typical solar BESS is shown on Plate 2-3.

Plate 2-3 Typical photo of a BESS compound

2.4.2.11 Geotechnical design will determine foundation solutions required for the BESS and sub-stations within the Solar Development Sites. It is possible that a range of foundation solutions may be required depending on the specific ground conditions. Such investigations are not proposed to be undertaken as part of the DCO application and a Requirement will be sought so that these are undertaken at the detailed design stage following the DCO application should it be consented. To allow a reasonable worst case assessment to be undertaken it is assumed that a 'raft and piled' foundation or a 'raft' foundation would be required for BESS and substations. In the event that a raft and piled solution is necessary the following present reasonable worst case piling depths:

- Solar Development Site 1 superficial geology thickness ranges between 23-30m – assumed piling 28-35m depth;
- Solar Development Site 2 superficial geology thickness ranges between 9-18m - piling 14-23m depth;
- Solar Development Site 3 superficial geology thickness ranges between 9-15m - piling 14-20m depth;
- Solar Development Site 4 superficial geology thickness ranges between 6-20m - piling 11-25m depth; and
- Solar Development Site 5 superficial geology thickness ranges between 7-16m - piling 12-21m depth.

Inverters

2.4.2.12 Inverters convert the DC generated by the solar PV modules into AC that can be exported to the National Grid.

2.4.2.13 String inverters are small enough to be mounted underneath the solar PV modules.

2.4.2.14 Central inverters are larger and require their own electrical cabinet enclosures, with an example shown on Plate 2-4. These are usually located at regular intervals amongst the PV modules and they occupy an area that depends on such intervals. Typically, this area is 15m x 5m and can be up to 3.5m in height.

Plate 2-4 Typical photo of a central inverter

On-site underground cabling

2.4.2.15 Cabling from the solar PV modules to the inverters would typically be installed above ground, fixed to the mounting structure of the modules, with a small section placed underground where it leaves the solar PV modules and connects to the inverters.

2.4.2.16 Low voltage on-site electrical cabling is required to connect the solar PV modules and BESS to inverters (typically via 1.5/1.8 kV cables), and the inverters to the transformers on-site (typically via 0.4/1 kV cables). The dimension of the trenches will vary depending on the number of ducts they contain but could be typically up to 1.2m in width and 0.8m to 1.5m in depth.

2.4.2.17 33kV cables are then required between the transformers and the switchgear and from switchgear to the on-site substation. The dimension of the trenches will vary depending on the number of circuits they contain but could be typically up to 1.2m in width and up to 1.5m in depth. Where possible, the higher voltage cables will share trenches with the lower voltage cables on the same route.

On-site substations, switchgear and other electrical equipment

2.4.2.18 The exact electrical arrangement of the substations and associated cables in the following description is indicative at present (meaning it is one possible way the substations, switchgear and other electrical equipment at Sites 1-5 may be connected) and will be refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community.

2.4.2.19 Due to the likely larger export capacities of Solar Development Sites 1 and 5, these two sites possibly could have substation(s) containing 33 kV/275 kV step-up transformer(s) and other electrical equipment such as auxiliary transformers, switchgear, cables, and metering equipment. The substation(s) at Solar Development Sites 1 and 5 possibly could be connected to a central substation(s) at Solar Development Site 4, comprising 33 kV/275 kV step-up transformer(s) and other electrical equipment such as auxiliary transformers, switchgear, cables, and metering equipment. This assumes Solar Development Site 4 is selected as the best location for the central substation(s) which has not yet been determined.

2.4.2.20 Due to the likely lower export capacities of Solar Development Sites 2 and 3, these two sites are unlikely to require substation(s) and could be connected via 33kV cable to the central substations(s) that may potentially located at Site 4. In this event, Solar Development Sites 2 and 3 would require 33kV switchgear to connect the inverters to the 33kV cable connection to Solar Development Site 4.

2.4.2.21 The central substation(s) would be connected to the National Grid at the 275kV Monk Fryston Substation via a 275kV underground electrical cable.

2.4.2.22 The substations would utilise switchgears to control, protect and isolate electrical currents and equipment. Switchgears allow parts of the solar PV system to be de-energised safely, allowing for routine maintenance or faults to be identified and work undertaken. The substations would also contain transformers which are used to monitor, increase and control the voltage of the electricity produced before it reaches the on-site substations.

2.4.2.23 The following description provides heights of the on-site substations. Where substations are proposed to be sited in flood zones the height in m agl will be determined by further design development considering flood risk and will be assessed in the PEIR and ES.

2.4.2.24 For the purposes of the scope of the EIA it is assumed that a substation's maximum footprint would be 300m in length and 130m in width. The equipment within would have a maximum height of 15m (which would only relate to a communications tower, with the highest electrical equipment being approximately 13m agl). There would be an area required within each substation for parking and a turning area.

2.4.2.25 There are a number of different designs that could be explored for each substation and these could be smaller multiple substations of a single larger substation. If smaller multiple substation are chosen (for example, 2-3), they would typically have a maximum footprint of 160m x 125m and the same maximum height as for a single substation. These dimensions are highly dependent on the findings of further work and will be refined through the iterative design process. Maximum design parameters for the substations will be defined in the DCO application, and a robust worst-case scenario will be assessed and presented in the ES.

2.4.2.26 Equipment typical of a 275 kV substation is shown in Plate 2-5.

Plate 2-5 Example of equipment at a typical 275kV substation

Cable connections between solar panel sites and electricity export connection to the National Grid

2.4.2.27 The Cable Corridor Options Area connecting the Solar Development Sites 1-5 and National Grid's Monk Fryston Substation are indicative and will be refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. However, it is expected that a 275 kV cable would run from the 275kV main substation(s) to the existing National Grid 275kV electrical substation at Monk Fryston.

2.4.2.28 To provide an indication of the potential cable lengths, the length of the 275kV underground Cable Corridor Options Area between Solar Development Site 1 and Solar Development Site 4 approximately ranges between 18km to 21km in length at present. The indicative length of the 275kV underground Cable Corridor Options Area between Solar Development Site 4 and Monk Fryston Substation is approximately 5km. The indicative approximate lengths of the 275kV and 33kV underground cable corridors between Solar Development Sites 2, 3, 4 and 5 range from approximately 0.7km to 4.5km.

2.4.2.29 The maximum width of land required for the easement of a 275kV single circuit along the cable where there are no joint bays would be 14m. The overall maximum width of land required for the easement of a 275kV single circuit would be at joint bays and would be approximately 18m in width (comprising 2x3m wide vegetation strips, a 4m wide joint

bay which includes a 1x1m wide cable trench, and 1x 4m wide area to access the joint bay and a 4m wide laydown area for maintenance). Jointing bays are required every 500-1000m (depending on cable size) and are usually concrete lined up to 40m long. A typical 275kV single circuit cable trench is approximately 2m wide and a minimum 750mm below ground level to the top of the cable duct. The maximum depth of the cable trench varies depending on location and ground conditions. It is likely that the cable joint bays would require small scale above ground infrastructure in the form of manholes to allow access to the joint bay and link boxes.

2.4.2.30 The overall maximum width of permanent land required for a 275kV double circuit at a joint bay would increase by 3m to approximately 21m allowing for the extra cable trench and separation of 2m between the two cable trenches.

2.4.2.31 A typical 33kV cable construction working width would be similar to that required for a 275kV cable.

2.4.2.32 Data cables will also be installed, typically alongside electrical cables in order to allow for the monitoring during operation, such as the collection of solar data from pyranometers and inverters.

2.4.2.33 It is anticipated that underground cables would be installed using a cable plough or trenching, wherever possible. This is considered to be the most efficient and least impactful method of cable installation, causing minimal disruption to the ground, by cutting, installing and back-filling in one operation. The underground cables would be located in existing gaps in hedgerows wherever feasible, however the ES would likely assume the loss of some hedgerows as a worst case. The design and final routes will seek to retain trees and hedgerows as far as possible. Trees to be protected during construction will be identified in the Arboricultural Impact Assessment submitted with the DCO application, alongside details of any trees and hedgerows to be removed.

2.4.2.34 In addition to the cable trenches, land will be required within the cable corridor for construction access and soil and cable laydown. Temporary construction compounds along the route will also be required. A typical overall working area width for a 275kV single circuit cable route installation is anticipated to be between 18m to 25m wide but a wider area may be required in some locations such as utility or road and rail crossings. Following installation of the cable the construction working area would be reinstated. A maximum working width of 50m is expected.

2.4.2.35 Horizontal directional drilling (HDD) is only proposed where the cable plough or trenching cannot be used, such as going underneath watercourses, railways and roads. Additional space will be required for launch and reception pits but this will be set out in the PEIR.

Other infrastructure

2.4.2.36 Additional infrastructure would be required to support the operation of the Proposed Development. The following equipment would be installed across the Solar Development Sites as follows:

- Fencing and gates – a perimeter security fence would be installed to enclose the operational areas of the Proposed Development. The fence is likely to be a deer

fence with a maximum height of 2.5m constructed of metal or wooden posts and wire mesh. The fence would be designed in such a way to allow small animals to pass through the Solar Development Areas within Solar Development Sites and would also be gated to allow access to and from the Proposed Development. Typical fencing is shown in Plate 2-6;

Plate 2-6 Photo of typical fencing around Solar Development Areas within Solar Development Sites

- CCTV – pole-mounted, infra-red security detection cameras would be mounted on poles of up to 3m in height located within the perimeter fence. It is anticipated that these cameras would have motion detection technology for recording unauthorised access and would be monitored remotely. They would be pointed directly within the Site boundary and away from any land outside of the draft Order Limits.
- Lighting – in general, it is anticipated that the Proposed Development would not be lit. The exception would be at the BESS and substations, where sensor-triggered lighting will be needed for security/safety reasons. The substations would generally not be occupied by personnel overnight so the lighting would not be on continuously. The lighting infrastructure is expected to be up to 6m in height.
- Access tracks – access to the Proposed Development will be required for construction, operation and decommissioning of the project. A series of access tracks will be included within the Solar Development Sites and accesses provided onto the local highway network. Access tracks within the Solar Development Sites would be permeable to allow water to filtrate through and maintain greenfield runoff rates.
- Drainage – the detailed operational drainage design for the Proposed Development will be developed after development consent is granted but prior to construction, likely to be secured as a Requirement of the DCO. The overarching principle of the drainage strategy for the Proposed Development, which will be developed for the application and inform the EIA, is to provide sustainable drainage solutions (SuDS) at source, ensuring that surface water run-off is managed appropriately.

- Storage containers – it is anticipated that additional storage containers would be installed in the Proposed Development to contain extra equipment to support maintenance activities.

2.5 Environmentally led design

2.5.1.1 Criteria for good design are set out in section 4.6 of the NPS EN-1 and the Applicant is committed to this by ensuring good design is embedded within the design process to maximise good outcomes. To achieve good design the project has embraced an environmentally led design approach which the project refers to as 'environmentally led design'.

2.5.1.2 The design of the Proposed Development is an iterative process, based on environmental assessments and consultation with statutory and non-statutory consultees. Therefore, the design of the Proposed Development will aim to avoid environmental impacts where possible and to integrate the Proposed Development into the wider landscape from the outset. The design will be informed by understanding the environmental constraints within and outside the draft Order Limits and steering development away from sensitive areas, whilst including land suitable for mitigation requirements.

2.5.1.3 A Landscape and Ecology Management Plan (LEMP) will show the proposed approach to management of landscape and ecological mitigation and enhancement measures. An outline LEMP (oLEMP) will be submitted with the DCO application to secure the commitments contained within. This will be developed in collaboration with landscape architects and all topic specialists to ensure a coherent design approach and avoid loss or damage to biodiversity, nature and communities as well as to ensure a biodiversity net gain. A Requirement in the DCO will require the Applicant to develop the outline version into a final version in advance of the construction of the Proposed Development.

2.5.1.4 NPS-1 paragraph 4.6.4 states that "To ensure good design is embedded within the project development, a project board level design champion could be appointed, and a representative design panel used. Design principles should be established from the outset of the project to guide the development from conception to operation." The Applicant will appoint a design champion with a responsibility for championing good design. The Project Level Design Principles handbook published by the National Infrastructure Commission (NIC)[X] contains guidance as to how client side project directors on major infrastructure projects can develop and embed project level design principles. It can be applied to projects of all sizes, across all sectors of economic infrastructure, whether private or public sector.

2.5.1.5 By reference to the Project Level Design Principles handbook, and experience of developing other solar developments, Island Green Power has set out the following overarching set of project principles that it applies to all projects to deliver good design in order to and to achieve sustainable developments that are sensitive to place, limit adverse environmental effects, make efficient use of natural resources and energy in construction and operation. These have been adopted by the Applicant and are as follows:

- Contribute to Decarbonisation and Energy Security - Schemes will be designed to maximise their clean energy generation potential. They will contribute to the ensuring energy security and help deliver the UK's legally binding climate change

target of achieving net zero carbon emissions by 2050, ensuring that the energy supply remains secure, reliable, and affordable.

- Environmentally-led design - Schemes will be sensitively designed to consider the surrounding environment, for example, recognising the intrinsic character of the surrounding landscape, being sensitive to heritage assets and their setting and minimising impacts on best and most versatile land
- Nature Recovery and biodiversity net gain - Schemes will make a positive contribution to the local environment as well as delivering a measurable net gain for biodiversity through strategic habitat creation and enhancement measures along with good management practices through operation.
- Design flexibility - Scheme design will retain flexibility to enable them to adapt over time, be functional and fit for purpose, and respond to innovative and new technologies as well as building resilience to climate change.
- Community benefit and increased social value - Schemes will look for opportunities to deliver benefits. This will include prioritising local recreation, and access, minimising disruption to Public Rights of Way during all project phases and enhancing local walking routes where possible, including exploring options for permissive paths to create longer, circular walks.
- Efficient 'fit for purpose' infrastructure & ethical supply chain - Schemes will be designed to maximise operational efficiency through the use of advanced, ethically sourced technologies and optimised site layout, ensuring consistent energy output with minimal losses.
- Sustainability, Durability, and Reversibility – Schemes will be designed to deliver reliable sustainable energy, ensuring that installations remain temporary and can be fully reversed if necessary.
- Commitment to Mitigation - Adherence to the mitigation hierarchy to reduce impacts and control any adverse effects on the environment throughout the lifecycle of the project from construction through to operation, maintenance and decommissioning.

2.5.1.6 By reference to the Project Level Design Principles handbook, and Island Green Power's overarching project principles above, the Applicant has set out the following Light Valley Solar Design Principles (herein referred to as 'the Design Principles' or 'Design Principles') which are guiding the design of the Proposed Development. These Design Principles will be followed wherever possible, recognising that there may be instances where exceptions will be required which will be reported in the PEIR and ES:

2.5.1.7 Principles (herein referred to as 'the Design Principles' or 'Design Principles') which are guiding the design of the Proposed Development. These Design Principles will be followed wherever possible, recognising that there may be instances where exceptions will be required which will be reported in the PEIR and ES:

- Opportunities to retain grazing / other compatible agricultural uses under panels will be explored and considered alongside other compatible land uses such as measures to maximise biodiversity.
- Construction compounds will be located on low diversity habitat where practicable and will be located as far as practicable from sensitive receptors.

- A 15m buffer will be provided around any construction works and from any infrastructure (including fencing) and to ancient / veteran trees and ancient woodland. Final buffers to ancient / veteran trees and ancient woodland will be informed by an Arboricultural Impact Assessment, which will set out Root Protection Areas.
- Loss of woodland and hedgerow will be kept to a minimum and is likely only to be required to facilitate access points / cable routing / fencing, with reinstatement provided (access tracks and cable routing will be located to pass through existing field gates and gaps in hedgerows where feasible). Where possible, the Applicant will also incorporate a 10m buffer to non-ancient woodland (identified from the National Forestry Inventory and surveys) and a 5m buffer for all non-ancient / non-veteran trees. This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan. Final buffers to retained trees and hedgerows will be informed by an Arboricultural Impact Assessment, which will set out Root Protection Areas.
- A minimum offset of 10m from bank top for all watercourses from all infrastructure (including fencing) and construction works, except where watercourse crossing are required (access tracks / cable routing /fencing will be located to pass across existing watercourse crossings where feasible). This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan.
- Infrastructure and construction works will be located at suitable buffer distances from protected species, (for example, 30m from known badger sett locations etc.) where practicable and mitigation required where this is not practicable.
- Fencing of the Solar Development Areas within the Solar Development Sites (except to allow for access and cable connections between the sites) will be designed to let small mammals pass through where possible.
- Sustainable urban drainage systems (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing site conditions;
- Internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates.
- Existing hedgerows in poor condition will be reinforced with new planting where feasible to strengthen landscape pattern and habitat connectivity which may contribute to historic landscape character.
- Opportunities for connection and extension of woodland and hedgerow will be explored to strengthen landscape pattern, and habitat connectivity which may contribute to historic landscape character.
- During operation only demand responsive motion sense lights will be used.
- Separation distances from Solar Development Areas within the Solar Development Sites to residential properties will be defined to minimise landscape and visual effects through the EIA and design development process.
- A minimum 15m offset from all infrastructure (including fencing) to PRoW. This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept

Layout Plan. The Proposed Development will seek opportunities to enhance PRoW including exploring options for permissive paths to create longer, circular walks.

- Direct physical impact(s) to designated heritage assets will be avoided. Indirect impact(s) to designated heritage assets will be minimised in the design process.
- Where possible, noisy construction works (a term which will be defined in the PEIR and ES) will be avoided within 300m of sensitive receptors (such as residences, schools, hospitals, places of worship, public rights of way and outdoor amenity spaces). Where noisy construction works will be undertaken within 300m of sensitive receptors, other mitigation measures will be identified.
- Where reasonably practicable, routing of construction traffic will be away from sensitive receptors.
- Where reasonably practicable, all sources of operational noise and vibration, will not be located in close proximity to sensitive receptors (such as residences, schools, hospitals, places of worship, public rights of way and outdoor amenity spaces). Where noise sources are necessarily located in close proximity to sensitive receptors, mitigation measures will be identified.
- Avoid locating flood sensitive critical infrastructure within Flood Zones 2, 3a and 3b wherever possible, to avoid or reduce the potential for flood risk to the Proposed Development or to receptors as a result of the Proposed Development.
- The BESS will be located outside of Flood Zone 3a and 3b to minimise loss of flood plain and associated adverse flood risk effects. This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan.
- The BESS will be located a minimum 100m from residential properties for fire safety reasons and to minimise potential human health effects from fire-related toxic emissions to air. This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan.
- The BESS drainage design will allow for fire-water containment.
- The BESS and other infrastructure will avoid historic mine entries and where practicable compressible ground. There are no historic mine entries within the draft Order Limits and therefore part of this Design Principle has been achieved.

2.6 Construction methodology

2.6.1 Construction programme

2.6.1.1 It is estimated that the construction of the Proposed Development would require 24 - 36 months in total. Each individual Solar Development Site 1-5 and the cable connections would likely require a different length of construction and there would be overlap between them, but the construction would be complete at all sites and the cable connections within 24-36 months. Individual assessments provided within the PEIR and ES will describe the worst case peak construction scenarios considered in the assessment as this would vary between particular aspects of the environment, for example, such as Traffic and Movement and Noise and Vibration.

2.6.1.2 The final programme will be dependent on the detailed layout design and potential environmental constraints on the timing of construction activities.

2.6.1.3 It is anticipated that Abnormal Indivisible Loads (AILs) would be required to enable construction of the on-site substations and the Outline Construction Traffic Management Plan would confirm the anticipated number and suggested routing of these movements, likely to be via A19 and A63.

2.6.2 Construction activities

2.6.2.1 The types of construction activities that may be required include (not necessarily in order):

2.6.2.2 Site preparation to include:

- Import of construction materials, plant and equipment to site;
- The establishment of construction compound(s);
- Upgrading of existing site tracks/access roads and construction of new tracks;
- The upgrade or construction of crossing points (bridges/culverts) over drainage ditches; and
- Marking out the location of the infrastructure

2.6.2.3 Solar panel and associated infrastructure construction to include:

- Import of components to site;
- Erection of module mounting structures;
- Mounting of modules;
- Installation of electric cabling;
- Installation of transformer cabins;
- Installation of battery storage units;
- Construction of a substation compound;
- Cable installation;
- The establishment of mobilisation areas and running tracks;
- Temporary construction compounds (to be located on or near cable routes, which are yet to be determined);
- Stripping of topsoil in sections;
- Trenching in sections;
- Appropriate storage and capping of soil;
- Appropriate construction drainage with pumping where necessary;
- Sectionalised approach of duct installation;

- Excavation and installation of jointing pits;
- Cable joint installation;
- Cable pulling;
- Implementation of crossing methodologies for watercourses, infrastructure (including roads and rail), and sensitive habitats (e.g. HDD, cable bridging, etc.);
- Testing and commissioning; and
- Site reinstatement and habitat creation.

2.6.2.4 The Proposed Development would be managed during its construction in accordance with a Construction Environmental Management Plan (CEMP) and various other plans (section 2.8.2). An outline CEMP (oCEMP) will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline version into a final version in advance of the construction of the Proposed Development.

2.6.2.5 Construction staff and hours of work

2.6.2.6 Construction activities are likely to be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays. However, some activities may be required outside of these times (such as the delivery of abnormal loads, concrete pours for foundations, nighttime working for cable construction works in public highways or horizontal direction drilling 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).

2.6.3 Proposed Development access and construction traffic

2.6.3.1 Access into each of the Solar Development Sites 1-5 and the Cable Corridors would be required to facilitate construction, as well as allow ongoing maintenance access from the local highway network. It is anticipated that access would be from existing accesses wherever possible. The proposals will be discussed and agreed within the Local Highway Authority and relevant landowners as part of ongoing design and assessment work.

2.6.4 Construction traffic

2.6.4.1 Table 2.2 provides an estimate of the total number of daily HGV movements expected per site and an estimate of the number of average vehicle movements required per day based on the estimated construction programme per site provided at section 2.6.1.

Table 2.2 Estimated Heavy Goods Vehicle (HGV) Movements per Site

Element	Total daily HGV trips including BESS, cabling and all other building materials required)	Average Annual Daily Traffic (HGV only)
Solar Development Site 1	6	5
Solar Development Site 2	5	5

Element	Total daily HGV trips including BESS, cabling and all other building materials required)	Average Annual Daily Traffic (HGV only)
Solar Development Site 3	3	3
Solar Development Site 4	6	5
Solar Development Site 5	6	5

2.6.4.2 The Proposed Development's construction traffic would be managed during its construction in accordance with a Construction Traffic Management Plan (CTMP). An outline CTMP (oCTMP) will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline version into a final version in advance of the construction of the Proposed Development.

2.6.5 Construction compounds

2.6.5.1 Construction compounds will be required to facilitate construction of the development. This will likely include main compounds at Sites 1, 4 and 5 and satellite compounds at Sites 2 and 3 and potentially satellite compounds along the Cable Corridors.

2.6.5.2 For security and safety purposes, any live construction areas would be closed to the public throughout the construction phase. It is likely that site security staff would patrol the Proposed Development in addition to hazard warning signs and CCTV.

2.6.6 Waste management

2.6.6.1 The Proposed Development is likely to generate waste consisting of general construction waste, including packaging waste from materials and construction materials from access roads and supporting infrastructure. During operation, it is anticipated that waste generation would be minimal, likely to be limited to disposal of equipment that needs to be replaced (e.g. solar panels). Waste from all stages of development would be disposed of responsibly and undertaken in alignment with the principles of recycling available at that time. Construction, operation and decommissioning of the Proposed Development is, therefore, expected to generate minimal waste.

2.6.6.2 The Proposed Development would be managed during its construction in accordance with a CEMP, a Materials and Waste Management Plan (MWMP) and a Soil Resources Management Plan (SRMP). An oCEMP, outline MWMP (oMWMP) and outline SRMP (oSRMP) will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline versions into final versions in advance of the construction of the Proposed Development.

2.6.7 Construction lighting

2.6.7.1 Construction lighting may be used within the Solar Development Sites during night time hours in the winter if works require this. Requirements to minimise light spill, pollution and impacts during construction would be developed and included in the oCEMP.

2.7 Operational and maintenance activities

2.7.1.1 The operational phase of the Proposed Development is proposed to be 60 years. During the operational phase of the Proposed Development on-site activities would be limited and restricted principally to vegetation management, equipment maintenance and servicing activities, replacement of components such as solar PV modules and BESS, periodic fence inspection, and monitoring activities to ensure the continued effective operation of the Proposed Development.

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

- Solar PV modules – 40 years; and
- Batteries – 20 years.

2.7.1.3 It is therefore estimated that the solar PV modules will likely require replacement once, and the batteries twice, during the operational phase of the Proposed Development. The effects of replacement activities are anticipated to be no greater than the construction phase, and would be controlled and managed through appropriate management plans and by the requirements of the DCO.

2.7.1.4 During the schemes operational phase, operational staff would travel to site by four-wheel drive vehicle or medium/large van (LDV) to undertake routine inspection and maintenance. There are anticipated to be around five visits to each of the Solar Development Sites per month in LDV vehicles. The PEIR and ES will include further details of the inspection, maintenance and replacement activities, and appropriate controls will be developed as part of the DCO. An Operational Environmental Management Plan (OEMP) would include control measures to ensure no significant impacts would arise during the inspection, maintenance and replacement activities.

2.7.1.5 The Proposed Development would be managed during its operation in accordance with an Operation Environmental Management Plan (OEMP) and various other plans (section 2.8.2). An outline OEMP (oOEMP) will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline versions into final versions in advance of the operation of the Proposed Development.

2.8 Decommissioning

2.8.1.1 The Proposed Development is proposed to be 60 years, after which the Proposed Development would be decommissioned. Including the likely duration of the construction and decommissioning phases, the land would be required for the Proposed Development for approximately up to 66 years in total.

2.8.1.2 Decommissioning may take between 24-36 months. However, it is possible that decommissioning may take less time and this will be confirmed in the final DEMP.

2.8.1.3 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes

at that time. Therefore, any cable connections within Cable Corridors would remain in place following decommissioning. It is expected that relatively minor decommissioning activities would require the removal of the likely small in scale above ground infrastructure in the form of manholes to allow access to the joint bay and link boxes.

2.8.1.4 The effects of decommissioning are often similar to, or less than the construction effects. The assessment undertaken as part the ES will be based on assumptions as to how decommissioning would take place and these assumptions are likely to change over time as practices for decommissioning evolve but are likely to result in improvements to the decommissioning process so unlikely to result in impacts which will be greater than in the ES.

2.8.1.5 Up to 99% of materials in a solar PV module are recyclable, with the number of solar panel recycling plants in the UK increasing. Companies which are aligned with the Waste Electrical and Electronic Equipment Recycling (WEEE) Regulations 2013 such as Recycle solar in Scunthorpe, Solar Recycling Solutions in Dartford and Waste Experts based in Huddersfield are all Approved Authorised Treatment Facilities for solar waste.

2.8.1.6 The Proposed Development will be decommissioned and reinstated in accordance with a Decommissioning Environmental Management Plan (DEMP). An outline DEMP (oDEMP) will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline versions into a final version in advance of the decommissioning of the Proposed Development.

2.8.2 Management plans and strategies

2.8.2.1 A key control in limiting the impacts upon the environment from the Proposed Development will be to include a suite of management plans and strategies with the DCO application which will be in place throughout construction, operation and decommissioning.

2.8.2.2 The management plans and strategies detailed in Table 2.3 are intended to be prepared and will be submitted in outline form alongside the DCO. Final versions of the management plans will be prepared following a decision on the DCO application and secured as part of the DCO requirements.

2.8.2.3 These management plans and strategies will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.

2.8.2.4 Outline versions of these management plans and strategies will be submitted with the DCO application to secure the commitments contained within. A Requirement in the DCO will require the Applicant to develop the outline versions into final versions in advance of the relevant phase of development.

Table 2.3 Management plans and strategies

Management plan	Purpose	Stage
Outline Construction Environmental Management Plan	Sets out how negative environmental impacts will be minimised and managed during construction (including on Public Rights of Way).	Construction
Outline Materials and Waste Management Plan	Sets out how excavated materials that will be generated during construction of the Proposed Development will be re-used, recycled or disposed of in a manner that is compatible with the Waste Framework Directive and associated regulations.	Construction
Outline Soil Resources Management Plan	Sets out the overall approach to managing soil resources affected by the Proposed Development.	Construction
Outline Archaeological Remains Management Plan	Sets out how archaeological remains, both known and currently unknown, will be managed during construction.	Construction
Outline Construction Traffic Management Plan	Sets out how construction traffic and staff vehicles will be managed during construction.	Construction
Outline Drainage Strategy	Sets out the how runoff from the Proposed Development will be managed during construction and operation.	Construction Operation Decommissioning
Outline Battery Fire Safety Management Plan	Sets out the key measures to minimising the chances of a battery fire event and fire spread in the event of a fire. Sets out the proposed operational response to a fire event.	Operation
Arboricultural Impact Assessment (AIA)	Sets out the protection measures to be implemented during the construction phase, including activity supervision by a suitably qualified arboriculturist where appropriate.	Construction
Outline Landscape and Ecology Management Plan	Sets out the management of the landscape and ecological features of the Proposed Development (including Public Rights of Way).	Construction Operation Decommissioning
Outline Operational Environmental Management Plan	Set out a clear and consistent approach to the control of operational and maintenance activities within the Order Limits. This document does not address construction or decommissioning activities, which are subject to separate environmental management plans and procedures	Operation
Outline Decommissioning Environmental Management Plan	Sets out how negative environmental impacts will be minimised during decommissioning (including on Public Rights of Way).	Decommissioning

3. Alternatives and design integration

3.1 Introduction

3.1.1.1 This chapter sets out the alternatives that have been considered for the Proposed Development at the EIA Scoping stage and the approach to alternatives in the ES.

3.1.1.2 To date the Applicant has considered reasonable alternatives in relation to three key aspects of design: site selection, initial layouts and cable route options.

3.1.1.3 The design principles set out the targets that have been adopted to enable the development of the design to progress whilst seeking to avoid or minimise significant environmental effects.

3.2 Legislation, Policy, and Context

3.2.1.1 The consideration of alternatives is undertaken within the context of legislative requirements and the national policy context for nationally significant energy projects.

3.2.1.2 Regulation 14(2)(d) of the EIA Regulations [1] states that the ES must 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."*

3.2.1.3 Paragraph 2 of Schedule 4 to the EIA Regulations further states that the following information must be included in the ES:

> *"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".*

3.2.1.4 The NPS EN-1 [8] states at paragraph 4.3.9:

> *"As in any planning case, the relevance or otherwise to the decision making process of the existence (or alleged existence) of alternatives to the proposed development is, in the first instance, a matter of law. This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective. Although there are specific requirements in relation to compulsory acquisition and habitats sites, the NPS does not change requirements in relation to compulsory acquisition and habitats sites."*

3.2.1.5 It confirms that there is no general requirement within the NPS to consider alternatives, or to establish that the Proposed Development represents the best option.

3.2.1.6 NPS EN-1 goes on to state at paragraphs 4.3.22 to 4.3.25:

"Given the level and urgency of need for new energy infrastructure, the Secretary of State should, subject to any relevant legal requirements (e.g. under the Habitats Regulations) which indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives:

- *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.*

The Secretary of State should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals.

Alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the Secretary of State thinks they are both important and relevant to the decision."

3.2.1.7 This chapter has been prepared in compliance with the requirements of the EIA Regulations to provide a description of the reasonable alternatives studied by the Applicant at this EIA scoping stage of the design development process, as well as the proposed approach for the assessment of alternatives as part of the ES. This approach is also in accordance with NPS EN-1.

3.3 Approach to alternatives at EIA scoping stage

3.3.1.1 The location of the Proposed Development was selected through a staged process to ensure that the Solar Development Sites could be identified which would be suitable for solar energy generation and feasible to deliver, whilst avoiding and minimising the potential for harm to the environment and communities.

3.3.1.2 The key stages for site selection for identification of the Solar Development Sites (and within these the Solar Development Areas and BESS Development Areas) were:

- Stage 1: Identifying the search area.
- Stage 2: Consideration of environmental and planning constraints.
- Stage 3: Land assembly.
- Stage 4: Consideration of environmental and planning constraints.
- Stage 5: Initial identification of Solar Development Sites.
- Stage 6: Design development leading to an initial concept layout plan (shown on Figure 1.2).

3.3.1.3 The staged assessment process defined the location and maximum extent of the Proposed Development, taking into account irradiance and yield, grid connection capacity, environmental and planning constraints, the availability of land through agreement and initial identification of Solar Development Sites.

3.3.1.4 The key stages for identification of initial Cable Corridor Options Area were:

- Stage 1: Identifying the search area between Solar Development Areas and the Monk Fryston Substation.
- Stage 2: Consideration of environmental and planning constraints.
- Stage 3: Land assembly.
- Stage 4: Consideration of environmental and planning constraints.
- Stage 5: Initial identification of the Cable Corridor Options Area (see Figure 1.1).
- Stage 6: Further analysis and comparison of options.

3.3.1.5 The process above led to identification of the Cable Corridor Options Area presented in this EIA scoping report. The Cable Corridor Options Area will refined to identify Cable Corridors in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community, which would be submitted with the DCO, within which electrical underground cable connections would be located. It is possible that in doing so further alternative routes will be identified that are outside the areas identified. Given that the developments are underground cables, would be routed to avoid sensitive locations wherever possible, and would be in a similar geographic area, it is not considered likely that locating the cable in a different location would alter the scope of assessment as set out in this EIA scoping report.

3.3.1.6 A detailed account of the site selection process will be provided in the PEIR and ES.

3.4 Approach to consideration of alternatives in the ES

3.4.1.1 Regulation 14(2)(d) of the EIA Regulations outlines the approach that an ES must take to consideration of alternatives. The ES will therefore describe the reasonable alternatives that the Applicant has considered in developing the design of the Proposed Development. In describing the staged process set out above, it will explain the main reasons for the options selected and how the effects of the development on the environment and sensitive receptors were taken into account as part of the options selection process.

3.4.1.2 The analysis of alternatives will focus on the following aspects of option selection:

- Site selection;
- Alternative site layouts;
- Alternative Cable Corridors; and
- Alternative technologies.

3.4.1.3 A ‘no development’ alternative would not provide the additional renewable electricity generation that would be delivered by the Proposed Development and has therefore not been considered further and will not be assessed in the ES.

3.4.1.4 In providing an appraisal of reasonable alternatives studied by the Applicant, the ES will demonstrate the rationale for the preferred design of the Proposed Development, taking into account its effects on the environment and sensitive receptors.

4. Approach to EIA

4.1 Introduction

4.1.1.1 An EIA assesses the likely significant environmental effects of a proposed development, either beneficial or adverse. The EIA process is reported in an ES for consideration by the determining authority (in this case, the SoS) when determining a planning application.

4.1.1.2 The EIA process includes the following key characteristics which will be undertaken for the Proposed Development:

- Systematic – the EIA comprises a series of tasks that are defined by regulation, guidance and accepted industry practice;
- Analytical – the EIA must be used to inform the decision-making rather than promote the project itself;
- Consultative – the EIA process must allow for and provide opportunity for interested parties and statutory consultees to provide feedback on the project and assessments undertaken; and
- Iterative – the EIA process must allow for environmental concerns to be addressed during the planning and design stages of the project.

4.1.1.3 This chapter of the EIA scoping report outlines the general approach to EIA for the Proposed Development.

4.2 EIA Guidance

4.2.1.1 The EIA will be carried out in accordance with the requirements of the EIA Regulations [9]. In addition, the approach to the EIA will have regard to the guidance and advice provided within the following:

- Overarching National Policy Statement for Energy (NPS EN-1) [7];
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) [20];
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) [21];
- National Planning Policy Framework [13];
- Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development [22];
- Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation [23];
- Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application [24];
- PINS Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements [2];
- PINS Advice Note Nine: Rochdale Envelope [25];

- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment [26];
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive [27];
- Nationally Significant Infrastructure Projects: Commitments Register [28]; and
- Topic specific guidance as set out in the relevant chapters of this EIA scoping report.

4.3 The Purpose and Process of EIA

4.3.1 Purpose

4.3.1.1 The purpose of the EIA process is to identify, describe and assess the direct, indirect, cumulative, transboundary, temporary, permanent, beneficial and adverse likely significant effects of a project on the environment. This is achieved by establishing the baseline conditions and undertaking an assessment to identify the significance of the likely environmental effects of the Proposed Development, which considers the magnitude of the impact (degree of change) and the importance, sensitivity or value of the impacted receptor or resource. Mitigation is considered and applied to avoid, prevent or reduce any potential effects, where appropriate, and an assessment of the residual effects (after mitigation) is carried out.

4.3.1.2 As the Proposed Development is categorised as an 'EIA development' under Paragraph 3(a) Schedule 2 of the EIA Regulations [8], an EIA is required, and an EIA Scoping Opinion is being sought from SoS on this basis.

4.3.1.3 Based on information contained in this EIA scoping report and taking into account representations made by stakeholders, the Scoping Opinion will confirm the expected basis upon which an EIA will be undertaken for the Proposed Development. The EIA will identify the likely significant environmental effects of the Proposed Development and report these within an ES.

4.3.2 Process

4.3.2.1 The EIA process, as outlined in Regulation 5 of the EIA Regulations [9] and PINS Advice Note Seven [2], is used to identify the likely significant effects on the environment that could occur as a result of a proposed development. The information gathered through EIA is taken into account by the decision-making body (the SoS) when determining an application for consent.

4.3.2.2 The main stages of the EIA process are as follows:

- EIA Screening: screening is normally undertaken to determine whether a proposed development constitutes 'EIA development', where it is unclear if a project requires an EIA to be undertaken;
- EIA scoping: the EIA scoping report (this document) sets out the proposed scope of the Proposed Development's EIA. It also presents the data collected and the proposed assessment methodology and approach that will be used for the EIA. The

EIA scoping report is issued to consultees by PINS on behalf of the SoS for comment on the scope, methodology and approach proposed;

- PEIR: the PEIR sets out the information that "is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development" (Regulation12(2)(b) of the EIA Regulations) as set out in PINS Advice Note Seven [2], Section 8.3); and
- ES: the ES presents the results of the EIA undertaken for the proposed development. It sets out the likely significant effects that would result if the proposed development was implemented, and any proposed mitigation to reduce those significant effects. The ES is submitted as part of the application for development consent and is taken into account during the decision-making process.

4.3.2.3 The EIA process will be undertaken in accordance with the requirements of the EIA Regulations and PINS Advice Note Seven [2]. The ES will provide the following relevant information as outlined in Part 14(2)(a)-(f) EIA Regulations and Schedule 4. A summary is listed below:

- A description of the Proposed Development comprising information on the site, design, size and other relevant features of the development;
- A description of the reasonable alternatives;
- A description of the baseline environment and likely evolution without the implementation of the development;
- A description of the factors likely to be significantly affected by the development: population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage, and landscape;
- A description of the likely significant effects of the development on the environment;
- A description of the forecasting methods or evidence used to identify and assess effects on the environment;
- A description of any measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- A description of adverse effects of the development on the environment from added risk of major accidents and/or disasters; and
- A non-technical summary of the information above, and a list of references.

4.3.3 Approach

4.3.3.1 The ES will set out details on the methodology and approach, along with the overall conclusions of the EIA process. It will also outline the main parameters and detailed design aspects of the Proposed Development against which the assessment will be undertaken.

4.3.3.2 Development parameters will be determined and fixed for the purposes of the EIA through an iterative approach taking into account baseline environmental information, the evolving design and any associated technical requirements.

4.3.3.3 The EIA will assess the construction, operational and decommissioning phases of the Proposed Development.

4.3.4 EIA Scoping

4.3.4.1 This section summarises the key requirements of scoping under the EIA Regulations [9].

4.3.4.2 Regulation 10(1) of the EIA Regulations provides that any 'person who proposes to make an application for an order granting development consent may ask the SoS to confirm in writing its opinion as to the scope and level of detail of the information to be provided in the environmental statement'. The request made under Regulation 10(3) must include the following (more information is provided in Table 4.1):

- *"a plan sufficient to identify the land" (Refer to Figure 1.1 Draft Order Limits);*
- *"a description of the proposed development, including its location and technical capacity" (see Chapter 2 The Proposed Development);*
- *"an explanation of the likely significant effects of the development on the environment" (See Chapters 5-20); and*
- *"such other information or representations as the person making the request may wish to provide or make".*

4.3.4.3 The Planning Inspectorate has published Technical Guidance for Scoping Solar NSIP Development [22]. The guidance states that by applying a comprehensive, evidence-based approach to EIA scoping, certain aspects or matters can be scoped out of the EIA, ensuring that the emphasis of the Environmental Statement is on the likely 'main' or 'significant' environmental effects anticipated.

4.3.4.4 The Solar Scoping Table included in the advice, provides examples of supporting information that can assist the Planning Inspectorate when considering whether to agree to scope aspects (as defined within the EIA Regulations and sometimes referred to as environmental 'factors' or ' topics') and / or matters (a sub-division of an aspect, such as a specific impact or receptor type) out of the EIA for solar NSIP developments.

4.3.4.5 As recommended in the advice note all assumptions that underpin the case to scope aspects / matters out of the EIA should be clearly set out in the scoping request in a tabular format that can then be tracked throughout the process. Subsequent iterations of the table will be produced within the PEIR and the ES submitted alongside the DCO application.

4.3.4.6 From EIA scoping and drafting of application documents at the pre-application stage of the NSIP process through to the end of examination, commitments to a number of measures are required to ensure that good design objectives will be secured and implemented. This is to ensure that potential environmental effects arising from the project are mitigated as far as possible and in accordance with the mitigation hierarchy. The Planning Inspectorate has published guidance on Nationally Significant Infrastructure Projects: Commitments Register [28] and recommends that these commitments should be recorded on a Commitments Register. The purpose of a Commitments Register is to track commitments made by the applicant throughout the NSIP planning process, including post decision, including, detailed design, procurement, construction, operation and decommissioning. To maximise the benefits of the Commitments Register, the Planning

Inspectorate recommends that versions of the register are agreed with relevant stakeholders and submitted to the Planning Inspectorate at the following milestones of the planning process:

- EIA Scoping – the first iteration is submitted with a scoping request setting out where applicants rely on commitments as the basis for scoping matters out or refining the scope of assessment;
- PEIR;
- draft document review; and
- submission of DCO application.
- *"…and any updates as required by an Examining Authority within an examination."*

4.3.4.7 The Commitments Register should be a 'live' document that is updated throughout the NSIP planning process and will ensure that all commitments are up to date at the time the NSIP application is decided by the Secretary of State. If the DCO is granted, the Commitments Register should then be further updated to incorporate any additional or modified commitments imposed as part of the decision. It can then be used during the post-DCO consent phase as a tool to demonstrate compliance with commitments."

Table 4.1 The location of key information provided in this EIA scoping report

Information provided	Location information provided in this EIA scoping report
The Proposed Development	
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g. design parameters	Chapter 2: The Proposed Development
Reference plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development	Figure 1.2 Solar Development Sites 1-5 Concept Layout Plan
EIA approach and topic areas	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option	Chapter 3: Alternatives and design iteration
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspect or matter	Chapters 5 to 19
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	Chapters 5 to 19
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification	Chapters 5 to 19

Information provided	Location information provided in this EIA scoping report
provided, including assumptions relied upon. A summary table is also provided at the end of each chapter including the assumptions relied upon.	
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues	At the end of each Chapter 5-19, and in one table at Chapter 22 Conclusion
References to any guidance and best practice to be relied upon	Chapters 5 to 19
Evidence of agreement reached with consultation bodies e.g. the statutory nature conservation bodies or local authorities	Chapters 5 to 19
The approach to cumulative and in-combination effects	Chapter 20
An outline of the structure of the proposed PEIR and ES	Chapter 21
Commitments Register A central single register containing all of the mitigation measures relied upon in the chapters of this EIA scoping report to scope out aspects from the assessment that the Applicant has committed to deliver	Appendix 2.1

4.4 Overview of Approach to Assessment

4.4.1.1 This section of the EIA scoping report sets out further detail on certain aspects of the assessment methodology that will be adopted in the EIA. The following general methodology will apply to all assessments undertaken unless otherwise specified within the individual topic methodologies.

4.4.2 Baseline Conditions and Data Collection

4.4.2.1 An important step in the EIA process is to establish a baseline against which to assess the effects of the Proposed Development.

4.4.2.2 The ES will include a description of the current baseline and the future baseline for each environmental topic.

4.4.2.3 The future baseline scenario will describe the changes from the current baseline scenario as far as natural changes can be established, although it is noted without the Proposed Development that the draft Order Limits could continue to be used for agricultural purposes. Information relating to the existing environmental baseline will be collected through field and desktop study, including:

- online/digital resources;
- data searches, e.g., Local Biological Record Centres, Historic Environment Record, etc.;

- baseline field surveys; and
- available environmental information submitted in support of other planning applications for development in the vicinity.

4.4.2.4 For each environmental topic chapter, the methods of baseline data collection will be discussed with the relevant consultees.

4.4.3 Spatial and Temporal Scope

4.4.3.1 Spatially, the area over which effects could occur may be wider than the draft Order Limits. The appropriate study area will be determined for each environmental topic individually. Specific study areas will be defined in each topic section and will allow for assessment of indirect as well as direct effects, together with off-site factors such as traffic routes, where relevant.

4.4.3.2 Specific temporal periods will be defined for the assessment of baseline conditions and the impacts of the Proposal Development. In doing so, consideration will be given to the likely durations of construction, operational and decommissioning activities. Where relevant, consideration will be given to the duration for environmental design measures to become established and effective. Timeframes for which mitigation measures are likely to have achieved their desired outcome will be defined within the ES.

4.4.3.3 The assessment will consider effects at the construction, operation and decommissioning phases. The definitions of these are presented below and in Table 4.2:

- Construction phase: this relates to all works associated with construction (site preparation and installation);
- Operational phase: this relates to effects once the Proposed Development is installed and in use; and
- Decommissioning phase: this relates to effects after operation has ceased.

4.4.3.4 The potential effects arising as a result of the Proposed Development will be assessed against three baseline scenarios as shown in Table 4.2.

Table 4.2 Baseline scenarios

Baseline scenarios	Description
Construction phase (current baseline)	The construction phase is proposed to take place over 24-36 months, commencing once the DCO application has been granted. The baseline environment is assumed to be as per existing at the commencement of construction.
Operation phase (future baseline)	The opening year when the Proposed Development is to become operational, and a future operational year scenario (if relevant to topic) after the opening year when mitigation measures are likely to have achieved their desired outcome. The Proposed Development is assumed for purposes of assessment to be operational for around 60 years, although it could be longer.

Baseline scenarios	Description
Decommissioning phase (future baseline)	The decommissioning year following the operation of the Proposed Development. Decommissioning is expected to take approximately 24-36 months.

4.4.4 Identification of Receptors

4.4.4.1 Receptors are defined as the physical resource or 'user group' that would experience an effect. The environmental effect would depend on the spatial relationship between the source of the effect and the receptor. Some receptors will be more sensitive to certain environmental effects than others. The baseline studies will identify the potential environmental receptors.

4.5 Assessment of Effects

4.5.1 Effect Prediction

4.5.1.1 Some environmental topic assessments will use calculations and modelling to determine the predicted impacts of the Proposed Development on receptors in order to assess the significance of effects. Others will be based on the expert judgement of the assessment team and initial assessments, taking into account relevant technical advice and guidance.

4.5.1.2 Each environmental topic assessment will present a clear justification for the strategy adopted and state all relevant assumptions to allow independent review.

4.5.2 Significance of effects

4.5.2.1 The EIA will identify the significance of environmental effects (beneficial or adverse) arising from three phases (construction, operation and decommissioning) of the Proposed Development. The significance of effects will be determined by reference to the criteria set out for each environmental topic.

4.5.2.2 Residual effects are the effects that remain following the implementation of proposed mitigation measures.

4.5.2.3 The approach to assessing and assigning significance to an environmental effect is derived from a variety of sources including:

- Legislative requirements, including the EIA Regulations [9];
- National policy, including Overarching National Policy Statement for Energy (NPS EN-1) [7], National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) [20]; National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) [21] and National Planning Policy Framework [13];
- Local planning policy and relevant planning practice guidance;
- Topic specific guidelines, standards and codes of practice;
- Advice from statutory consultees and other stakeholders; and

- Expert judgement of the EIA team.

4.5.2.4 The likely effect that the Proposed Development may have on identified environmental receptors will be influenced by a combination of the sensitivity or value of the receptor and the predicted magnitude of impact from the baseline conditions.

4.5.2.5 Assignment of environmental sensitivity of a receptor will generally depend on the vulnerability, recoverability and value of the receptor. The environmental sensitivity (or importance) will be determined using the categories set out in Table 4.3, or as stipulated in individual topic chapters.

Table 4.3 Indicative environmental sensitivity of a receptor

Sensitivity	Criteria
High	High importance and rarity, international level and very limited potential for substitution
Medium	High or medium importance and rarity, regional level and limited potential for substitution
Low	Low or medium importance and rarity; and local level
Negligible	Very low importance or rarity and local level

4.5.2.6 Where other categories of sensitivity have been used, this will be set out in the individual environmental topic assessment.

4.5.2.7 The categorization of the magnitude of impact will take into account the following factors, or as stipulated in individual topic chapters:

- scale of alteration /change;
- geographical extent;
- duration and reversibility (for example: temporary, short term and reversible; or temporary long term and reversible; or permanent and irreversible); and
- frequency.

4.5.2.8 Impacts will be defined as either beneficial or adverse. The magnitude of impact will be assigned using the categories outlined in Table 4.4, or as stipulated in individual topic chapters.

Table 4.4 Indicative magnitude of impact

Sensitivity	Criteria
High	Total loss or major alteration to key elements / features of the baseline (i.e. pre-development) conditions
Medium	Partial loss or alteration to one of more key elements / features of the baseline (i.e. pre-development) conditions
Low	Minor shift away from baseline (i.e. pre-development) conditions
Negligible	Very slight change from the baseline (i.e. pre-development) conditions

4.5.2.9 Further details of the topic-specific methodologies adopted for the EIA will be defined within the methodology section of each of the topic chapters.

4.5.2.10 The level of an environmental effect will be assigned by the interaction of both sensitivity of the receptor and magnitude of impact. Levels of environmental effects will generally follow the matrix outlined in Table 4.5 but will be confirmed in each technical assessment which will consider relevant topic-specific legislation, planning policy and guidance.

Table 4.5 Environmental effects matrix

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

4.5.2.11 Significant effects are generally defined as those that are Moderate or Major.

4.5.3 Cumulative Effects

4.5.3.1 The EIA Regulations require that the ES includes a description of the cumulation of effects as a result of 1) more than one effect on a receptor from the Proposed Development (intra-project effects) and/or 2) with other existing or approved projects (inter-project effects); which in-combination with each other, may be more (or less) than the sum of the individual effects.

4.5.3.2 In-combination effects, or intra-project effects, occur when a resource, receptor or group of receptors are potentially affected by more than one source of direct environmental impact resulting from the same development. For example, a community may be affected

by noise and dust effects resulting from the construction phase activities of a single development.

4.5.3.3 Inter-project cumulative assessment is undertaken to identify whether other developments may lead to an elevated effect on the environment during construction, or once a development is built and in use. Other developments need to be of a sufficient scale and/or proximity to the Proposed Development for potential cumulative effects to be likely. Other developments may also precede the development being assessed thereby changing future baseline conditions, or in some cases introducing new sensitive receptors.

4.5.3.4 Chapter 21 provides an overview of the approach to undertaking the cumulative effects assessment. Cumulative effects where these are scoped into the assessment will be assessed within technical topic chapters, aligned with guidance in PINS Advice Note on Cumulative Effects Assessment [26].The zone of influence for cumulative effects will vary on a topic-by-topic basis and will be defined in the assessments as may be relevant where cumulative effects are scoped into the assessment.

4.5.4 Limitations and assumptions

4.5.4.1 In accordance with the EIA Regulations, any difficulties encountered during assessment work that could affect the assessment and limitations and assumptions used for individual assessment areas will be set out in the ES.

4.5.5 Standalone assessments

4.5.5.1 In addition to the ES, a number of standalone assessments will accompany the DCO application for the Proposed Development, these include:

- Agricultural Land Classification Report;
- Arboricultural Impact Assessment;
- Biodiversity Net Gain Report;
- Outline Drainage Strategy;
- Water Environment Regulations (WER) Assessment;
- Flood Risk Assessment;
- Glint and Glare Assessment;
- Habitats Regulations Screening (and further Habitats Regulations Assessment should this be required); and
- Preliminary Geo-environmental Risk Assessment.

4.5.5.2 The findings of these will support the ES where applicable, and feed into the mitigation proposals for the Proposed Development.

4.6 Mitigation measures and monitoring

4.6.1.1 Where adverse effects can be reduced to acceptable levels through incorporation of appropriate design or management measures, these will be identified within the ES along with an explanation as to how such measures will be secured.

4.6.1.2 Where appropriate, monitoring procedures will be identified to address any likely residual significant adverse effects in order to measure the effectiveness of the mitigation proposed.

4.6.1.3 A list of supporting management plans to secure mitigation in the DCO application are identified in Section *2.8.2*.

4.7 Competent experts

4.7.1.1 In accordance with the EIA Regulations, as amended, paragraph (14), a Statement of Competence will be included within the ES, outlining the relevant expertise or qualifications of the experts who undertook the EIA.

4.7.1.2 The introductory and summary chapters of this EIA scoping report (Chapters 1 to 4, and 19 to 21) have been prepared by Arup, drawing on material provided by the Applicant, which includes engineers, designers and external consultants. The design details contained in this document have been approved by the Applicant.

4.7.1.3 The topic-specific chapters of this EIA scoping report (Chapters 5 to 18) and their corresponding appendices have been prepared by Arup, Reading Agricultural Consultants and Tyler Grange, as summarised in Table 4.6.

4.7.1.4 Arup is a member of the IEMA EIA Quality Mark. The EIA Quality Mark is a scheme operated by IEMA that allows organisations that lead the co-ordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed. The EIA Quality Mark is a voluntary scheme.

Table 4.6 Competent Authors

Chapter	Author
Chapter 1: Introduction	Arup
Chapter 2: The Proposed Development	Arup
Chapter 3: Alternatives and design iteration	Arup
Chapter 4: Approach to EIA	Arup
Chapter 5: Agricultural land and soils	Reading Agricultural Consultants
Chapter 6: Air quality	Arup
Chapter 7: Biodiversity	Tyler Grange

Chapter	Author
Chapter 8: Climate change	Arup
Chapter 9: Greenhouse Gas Emissions	Arup
Chapter 10: Cultural heritage	Arup
Chapter 11: Electric, magnetic and electromagnetic fields	Arup
Chapter 12: Ground conditions	Arup
Chapter 13: Human health	Arup
Chapter 14: Landscape and visual	Arup
Chapter 15: Major accidents and disasters	Arup
Chapter 16: Noise and vibration	Arup
Chapter 17: Population	Arup
Chapter 18: Traffic and transport	Arup
Chapter 19: Water resources and flood risk	Arup
Chapter 20: Cumulative effects	Arup
Chapter 21: Structure and content of the PEIR	Arup
Chapter 22: Conclusion	Arup

4.8 Consultation

4.8.1.1 Effective and meaningful engagement and consultation with stakeholders is an essential aspect of developing the design of the Proposed Development and of undertaking a comprehensive EIA.

4.8.1.2 As advised in Department for Communities and Local Government (DCLG) (now Department for Levelling Up, Housing and Communities (DLUHC)) guidance on pre-application consultation for major infrastructure projects [29] the Applicant's approach to engagement and consultation will be iterative to enable stakeholders to gain understanding of the proposals early on in the process and to have genuine opportunities for influence.

4.8.1.3 The Applicant will have regard to the guidance provided in PINS Advice Note on EIA Notification and Consultation [30] in taking a precautionary approach to identifying relevant consultees for the Proposed Development and ensuring compliance with the requirements of the EIA Regulations, the Act and the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (as amended).

4.8.1.4 The Applicant will also ensure that reporting on engagement and consultation activities is carried out in accordance with PINS Advice Note on the Consultation Report [31] and PINS NSIP 2024 Pre-application Prospectus [32], with the submission of a Consultation Report as part of the DCO application which will evidence how consultation has been carried out and how feedback has been taken into account in developing the proposals.

4.8.1.5 Stakeholder engagement for the Proposed Development will seek to achieve the following aims:

- engage early to allow stakeholders and the public to shape the project's design at a formative stage;
- commit to understanding local issues that are important for communities;
- ensure community involvement is central to the project's ongoing design; and
- create a project that benefits the local area for the next 60 years (the design life).

4.8.1.6 Consultation with stakeholders will be undertaken throughout the EIA process to gather feedback on the emerging project proposals, baseline survey methodologies and results and assessment methodology. It is intended that non-statutory consultation and engagement activities will be undertaken to inform the design of the Proposed Development and its environmental assessment ahead of commencing pre-application statutory consultation as required under the Act and the EIA Regulations.

4.8.1.7 Compliance with the requirements of the Act and the EIA Regulations will be evidenced in the Consultation Report and ES submitted with the DCO application, in addition to details of the non-statutory engagement undertaken throughout the design and assessment of the Proposed Development.

4.8.2 Consultation to date

4.8.2.1 Consultation with statutory consultees and stakeholders has already commenced to help inform the content of this EIA scoping report and the design of the Proposed Development.

4.8.2.2 Engagement has commenced with the following stakeholders to provide an introduction to the Proposed Development and to seek initial views:

- Environment Agency;
- Historic England;
- National Highways;
- Natural England;
- North Yorkshire Council;
- Ouse and Derwent Area Internal Drainage Board (IDB) and Selby Area IDB; and
- The Planning Inspectorate.

4.8.2.3 In addition to engagement with relevant statutory consultees, the Applicant has been in regular discussions with local landowners within the Solar Development Sites 1-5.

4.8.2.4 A period of non-statutory consultation commenced on the 24 October 2024 and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and to invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

5. Agricultural land and soils

5.1 Introduction

5.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of agricultural land and soils.

5.1.1.2 It sets out agricultural land and soils receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

5.1.1.3 The following aspects have been considered as part of the scope and methodology for agricultural land and soils:

- Temporary and permanent loss of agricultural land, including that of Best and Most Versatile (BMV) quality; and
- Loss of or damage to soil resources.

5.1.1.4 This chapter is supported by:

- Figure 5.1: Provisional Agricultural Land Classification; and
- Figure 5.2 Soil associations and likelihood of BMV land.

5.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction; and
- Chapter 2: The Proposed Development.

5.2 Relevant legislation, policy, standards and guidance

5.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for agricultural land and soils and have informed the scope of the assessment.

5.2.2 Legislation

Table 5.1 Agricultural land and soils - Legislation

Legislation	Relevance to assessment
None applicable	N/A

5.2.3 Policy

Table 5.2 Agricultural land and soils - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024, Department for Energy Security & Net Zero **[33]**	Paragraph 5.11.12 indicates that applicants should seek to minimise impacts on the BMV agricultural land and preferably use land in areas of poorer quality (grades 3b, 4 and 5). Paragraphs 5.11.13 and 5.11.14 state that applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed, principally through a Soil Management Plan to encourage the sustainable reuse of soils. Paragraph 5.11.15 states that developments should contribute to and enhance the natural and local environment by preventing new and existing developments from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil pollution (amongst other matters). In respect of mitigation, paragraph 5.11.23 indicates that applicants should seek to minimise effects on the existing use of the proposed site and on uses near the site by applying good Design Principles, including the protection of soils during construction. Paragraph 5.11.34 indicates thar the Secretary of State should ensure that applicants do not site their scheme on BMV agricultural land without justification. Where schemes are to be sited on BMV agricultural land, the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024, Department for Energy Security & Net Zero **[34]**	Paragraph 2.10.10 indicates that solar power has an important role in delivering the government's goals for greater energy independence, and that the government is supportive of solar that is co-located with other functions, such as agriculture, to maximise the efficiency of land use. Paragraph 2.10.29 indicates that, while land type should not be a predominating factor in determining the suitability of the solar sites, applicants should, where possible, use previously developed land, brownfield land, contaminated land and industrial land. Where the use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land, avoiding the use of BMV agricultural land where possible. Paragraph 2.10.30 confirms that the development of solar farms is not prohibited on BMV agricultural land but the impacts will need to be considered in line with paragraphs 2.10.73-92 and 2.10.107-126 of EN-3. However, within these sections, only paragraph 2.10.81 is relevant in respect of impacts on soils (paragraphs 2.10.107-126 are concerned with cultural heritage and traffic and transport noise and vibration). Paragraph 2.10.31 recognises that it is likely that developments at this scale will use some agricultural land. Applicants should explain their choice of site, noting the preference for development to be on suitable brownfield, industrial and low and medium grade agricultural land. Paragraph 2.10.32 states that where sited on agricultural land, consideration should be given to whether the proposal allows for

Policy	Relevance to assessment
	continued agricultural use and/or can be co-located with other functions. Paragraphs 2.10.33 and 2.10.34 indicate that Agricultural Land Classification (ALC) surveys should be carried out if necessary to establish the grade of land and inform a Soil Resources and Management Plan to use and manage soils sustainably throughout the various stages of a project. Mitigation measures for soils are set out in paragraph 2.10.127.
National Policy Statement for electricity networks infrastructure (EN-5), 2024 **[35]**	NPS EN-5 addresses policy for energy transmission, including the routing of overhead lines and undergrounding cables, and general requirements for 'good design' in accordance with the Holford and Horlock Rules (paragraphs 2.9.16 – 2.9.19) and with reference to undergrounding cables (paragraph 2.9.25). In respect of undergrounding cables, paragraph 2.9.25 (bullet 5) sets out that the Secretary of State should only grant consent for underground lines on the basis of the applicant's commitment to mitigate the potential detrimental effects on agricultural land (particularly BMV land) and soils (including peat soils), which would include developing and implementing a Soil Resources and Management Plan. There should be a commitment to guarantee appropriate handling of soil, backfilling, and return of the land to the baseline ALC, thus ensuring no loss or degradation of agricultural land.
Written Ministerial Statement Solar projects must fit in with food security, 15 May 2024 **[36]**	The written ministerial statement published under the previous Government indicated that developers should demonstrate the that use of BMV land is necessary. It also noted that, whilst the need for energy security and food security need to be balanced, even the most ambitious scenarios for solar would occupy less than 1% of the UK's agricultural land.
Planning Practice Guidance, 2024, Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities and Local Government **[37]**	Natural Environment paragraphs 001, which relates to how planning takes account of agricultural land, and 002, which relates to how planning can safeguard soils. Paragraph 013 sets out the particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms, and indicates that factors to be considered include encouraging the effective use of land by focussing large scale solar farms on previously developed and non-agricultural land, provided that it is not of high environmental value; demonstrating that the proposed use of any agricultural land is necessary and that poorer quality land has been used in preference to higher quality land; demonstrating that the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements; and recognising that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use.
National Planning Policy Framework: draft text for consultation (2024) **[38]**	The new Government's proposed revisions to the NPPF maintain the policy that areas of poorer quality agricultural land should be preferred to those of a higher quality, but no longer require consideration of the availability of agricultural land for food production when deciding which sites are most appropriate for development.

Policy	Relevance to assessment
Selby District Core Strategy Local Plan (2013 **[39]**)	There are no relevant policies regarding BMV agricultural land and soils.
Selby District Local Plan (adopted 2005) **[40]**	There are no relevant policies regarding BMV agricultural land and soils.
Environment Environmental Improvement Plan (EIP) 2023 **[41]**	The plan is the first revision of the 25 Year Environment Plan and includes a commitment to bring at least 40% of England's agricultural soil into sustainable management by 2028 and 60% by 2030.

5.2.4 Standards and guidance

Table 5.3 Agricultural land and soils - Standards and guidance

Standards and legislation	Relevance to assessment
Agricultural Land Classification of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land, 1988, Ministry of Agriculture, Fisheries and Food **[42]**	Sets out the methodology for classifying agricultural land, as referenced in paragraph 2.10.33 of EN-3.
Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009, Department for Environment, Food and Rural Affairs **[43]**	The Code provides advice on the use of soils in construction projects including best practice guidance for handling.
Agricultural Land Classification: Protecting the best and most versatile land, 2012, Natural England Technical Information Note 049 **[44]**	Summarises the ALC system, available data and methodology
Guide to assessing development proposals on agricultural land, 2021, Natural England **[45]**	Sets out how the National Planning Policy Framework and the 25 Year Environment Plan aim to protect agricultural land and soils, with a focus on using ALC to inform planning decisions.
A New Perspective of Land and Soil in Environmental Assessment, 2022, Institute of Environmental Assessment and Management **[46]**	Provides guidance and an approach to assessing the impacts of development proposals on agricultural land and soil properties and functions.
Benefitting from Soil Management in Development and Construction, 2022, British Society of Soil Science, Working with Soil Guidance Note Document 3 **[47]**	Provides guidance on Soil Resource Surveys and Soil Management Plans.
Building on soil sustainability: Principles for soils in planning and construction, 2022, Soils in Planning and Construction Task Force **[48]**	Sets out guiding principles for soils in planning and construction.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[49]**	The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. The guidance recommends that information is included to identify agricultural and soils receptors and the anticipated

Standards and legislation	Relevance to assessment
	impacts. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections of this chapter. Receptors are illustrated on Figure 5.1 (Provisional Agricultural Land Classification) and Figure 5.2 (Soil associations and likelihood of BMV land). The guidance recommends that evidence and assumptions relied upon in scoping out aspects of the assessment are provided within the EIA scoping report. Therefore, the evidence relied upon in scoping out aspects of the assessment are provided within sections 5.7 and 5.8. In addition, evidence for scoping out any aspects of the assessment are listed in one location at section 5.10. Mitigation and commitments register: The guidance recommended that mitigation measures to be relied upon in scoping out aspects from the assessment should be provided in the EIA scoping report chapter and in a commitments register. The guidance does not provide any specific examples of the types of proposed mitigation for agricultural land and soils. Nevertheless, section 5.7 provides further details of the proposed mitigation measures. The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

5.3 Consultation

5.3.1.1 The following stakeholders have been consulted as part of preparing this chapter of the EIA scoping report:

- Natural England, to discuss the available baseline information on soils and agricultural land quality, and seek agreement on the soil and ALC survey scope and methodology to be used.

5.3.1.2 The Applicant will consult with the following stakeholders with regards to ground conditions as part of the assessment process and non-statutory and statutory consultation:

- Natural England: as survey results become available and as the outline Soil Resource Management Plan (oSRMP) is developed (see section 5.7).

5.3.1.3 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to agricultural land and soils.

5.3.1.4 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

5.4 Study area

5.4.1.1 The draft Order Limits comprise two areas: the Cable Corridor Options Area and Solar Development Sites 1-5 within which the Proposed Development would be located as described in Chapter 2 (The Proposed Development), and as shown on Figure 1.1 (Site Location and draft Order Limits).

5.4.1.2 The study area for agricultural land and soils comprises all agricultural land within the draft Order Limits, as shown on Figure 1.1 (Site Location and draft Order Limits).

5.4.1.3 The Cable Corridor Options Area is indicative at this stage while optioneering is ongoing to finalise the best Cable Corridors that underground electric cable connections would be located within. Therefore, these areas of the draft Order limits are likely to reduce in size as the design is refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. Therefore, as the draft Order Limits are refined the agricultural land and soils study area will reduce accordingly which will be described in the PEIR and ES.

5.5 Baseline conditions

5.5.1 Desktop sources used

5.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Mapping of bedrock and superficial geology [50];
- Mapping of soil associations (1:250,000 scale) [51];
- Soil survey bulletin [52]; and
- Provisional ALC mapping [53], shown as Figure 5.1 (Provisional Agricultural Land Classification).

5.5.2 Surveys undertaken and proposed

5.5.2.1 The following surveys have been completed at the time of writing:

- Existing survey data covering 77ha of Solar Development Site 1 [54].
- Existing survey data covering approximately 3ha of Solar Development Site 5 [55]

5.5.2.2 The following surveys are planned to be undertaken, and will inform the PEIR and ES:

- Semi-detailed soil and ALC survey of Solar Development Sites 1 to 5, with the scope and findings of the survey to be agreed with Natural England.

5.5.2.3 No detailed surveys are planned to be undertaken in the Cable Corridor Options Area because the corridor options can be appraised on the basis of existing published and survey data without the need to undertake abortive survey work over an extensive area of land. The final cable corridor will be surveyed prior to submission of the draft DCO at an

appropriate density of sampling to be agreed with Natural England and taking into account that the installation of underground cables is short-term and can be completed without likely significant effects on the quality of agricultural land and without impacting its future use for agriculture. The justification for this is provided in the range of design, mitigation and enhancement measures described in Section 5.7, and which are also contained in the Commitments Register (Appendix 2.1), which will be secured through DCO Requirements.

5.5.3 Existing baseline

5.5.3.1 The Solar Development Sites 1-5 are primarily in arable use.

5.5.3.2 The Solar Development Sites 1-5 are mainly underlain by bedrock belonging to the Sherwood Sandstone Group. Calcareous mudstone and siltstone of the Roxby Formation is mapped in the west of Solar Development Site 2, all of Solar Development Site 3 and the north of Solar Development Site 4.

5.5.3.3 Superficial deposits cover the bedrock across most of the Solar Development Sites 1-5 and mainly belong to the Hemingbrough Glaciolacustrine Formation and the Breighton Sand Formation. Gravelly sandy clay of the Escrick Moraine Member of the Vale of York Formation is mapped in the north-west of Solar Development Site 1.

5.5.3.4 The mapped soil information shows seven associations present across the Solar Development Sites 1-5. These are shown on Figure 5.2 (Soil associations and likelihood of BMV land), together with the likelihood of BMV land being present. In order of prevalence these are:

- Sessay – generally fine and coarse loamy soils affected by groundwater; variable Wetness Class (WC) and ALC grades;
- Foggathorpe 2 – clayey and fine loamy over clayey with slowly permeable subsoils and seasonal waterlogging; imperfectly to poorly drained (WC III – IV) and unlikely to be BMV land;
- Enborne – fine loamy and clayey affected by groundwater; imperfectly to poorly drained (WC III – IV) and unlikely to be BMV land;
- Everingham – fine sandy soils overlying clay; well or moderately well drained (WC I – II) and likely to be BMV;
- Bishampton 1 – fine loamy soils with slowly permeable subsoils; moderately well drained (WC II) and likely to be BMV;
- Arrow – coarse loamy soils affected by groundwater; well to imperfectly drained (WC I – III) and likely to be BMV; and
- Blackwood – sandy and coarse loamy soils, variably affected by groundwater; variable WC (I – IV) but likely to be BMV.

5.5.3.5 More detailed soil series mapping is available for Solar Development Site 1 and shows a total of 12 different soil series indicating a complex pattern of soil types to be present.

5.5.3.6 The Provisional ALC mapping (Figure 5.1 Provisional Agricultural Land Classification) shows most of the agricultural land within Solar Development Sites 1-5 to be Grade 2 which is very good quality land. Good to moderate quality Grade 3 land is mapped in Solar Development Site 1, south of Birkin Road in Solar Development Site 4 and in the south-western corner of Solar Development Site 5.

5.5.3.7 The existing detailed survey data available for Solar Development Site 1 classified 27ha as Subgrade 3a and 50ha as Subgrade 3b, within an area of Provisional Grade 3 land, and identified two different soil types. The most prevalent soil profile includes clay throughout. In the south of the area surveyed, the profiles mostly include sandy clay loam topsoil, overlying variably clayey or sandy silt loam subsoils. The subsoils are slowly permeable in all profiles which are imperfectly drained in WC III and limited by wetness.

5.5.3.8 The available mapped and published data has been interpreted to create a map of the likelihood of a survey classifying the land as BMV quality (Figure 5.2 Soil associations and likelihood of BMV land), broadly:

- Solar Development Site 1 – likely BMV in the north, centre and south; unlikely BMV in the north-east, west and south-east;
- Solar Development Site 2 – variable;
- Solar Development Site 3 – variable;
- Solar Development Site 4 – mostly variable; likely BMV in the west; unlikely BMV in the south; and
- Solar Development Site 5 – unlikely BMV in the north and south-west; variable across the remainder.

5.5.3.9 Until detailed survey data is available, it is estimated that approximately one-quarter of the agricultural land is likely to be of BMV quality in Grade 2 and Subgrade 3a; half of the land is variable between BMV and non-BMV; and one-quarter is unlikely to be of BMV quality in Subgrade 3b.

5.5.4 Future baseline

5.5.4.1 The future baseline for agricultural land and soils are expected to remain largely as the current existing baseline in the absence of the Proposed Development proceeding due to the very long-term timescales over which soil and land characteristics naturally evolve. However, it is possible that other committed developments may arise in the future which could change the baseline conditions.

5.6 Potential impacts

5.6.1 Construction

5.6.1.1 Potential impacts relating to agricultural land and soils are the temporary or permanent loss of agricultural land and loss of or damage to soil resources.

5.6.1.2 The land would be removed from primarily arable agricultural production at the start of the construction phase and would remain largely unavailable for potential agricultural

production during the lifetime of the Proposed Development. However, as this occurs at the commencement of the construction phase, it is considered an impact arising from the construction rather than arising from the operation of the Proposed Development.

5.6.1.3 Construction impacts on soils relate to the potential damage (from compaction) to soils from installing solar panels and cables, and potential loss of or damage to soils that need to be stripped and stored for access tracks, construction compounds and necessary infrastructure.

5.6.1.4 All landowners with farm businesses who are involved in the solar and battery elements of the Proposed Development have agreed to be involved in the project on a voluntary basis and have therefore considered the potential effects on the overall viability, diversity and resilience of their farm businesses. Agreements will also be in place between the landowners and occupiers of the land should the Proposed Development proceed.

5.6.2 Operation and maintenance

5.6.2.1 The proposed replacement of the solar PV modules once and batteries twice during the operational phase of the Proposed Development is not expected to result in loss of or damage to soil resources for Solar Development Sites 1-5 greater than those likely during construction. The approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

5.6.2.2 However, the ongoing management of land in a mostly grassland rather than arable use during the operational phase would affect soil health, particularly in respect of soil organic matter and soil structures.

5.6.3 Decommissioning

5.6.3.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes at that time. Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2mbgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay. Decommissioning might cause disturbance to the land, potentially affecting soil and agricultural land quality, for example from compaction but the scale of impact would be no worse than that arising during the construction phase.

5.6.3.2 Potential benefits to soil structures may arise due to the continued and undisturbed grass coverage of land previously under an arable rotation, although the longevity of any benefits after decommissioning would depend upon the reinstated land use.

5.6.4 Cumulative

5.6.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20 Cumulative and in-

combination effects. Cumulative impacts may arise where other committed developments are proposed in the local area which result in a combined greater loss of agricultural land and soil. It is not considered proportionate to consider committed developments and cumulative impacts at larger geographic scales, such as the regional area or the UK as a whole. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment.

5.7 Design, mitigation and enhancement measures

5.7.1 Embedded measures

5.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

5.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimize impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures.

5.7.1.3 Embedded measures are taken into account in the assessment of the likely significant effects.

5.7.1.4 Embedded measures for the Proposed Development relevant to agricultural land and soils are likely to include:

- The siting of permanent infrastructure on lower quality land available where practicable and where this does not conflict with other environmental objectives or affect delivery of the benefits of the Proposed Development;
- Avoiding or reducing fragmentation of residual agricultural land, where possible;
- Where possible, underground cables would be installed using a cable plough or trenching. These are considered the most efficient and least impactful methods of cable installation, causing minimal disruption to the ground by cutting, installing and back-filling in one operation;
- SuDS will be provided at source, ensuring that surface water run-off is managed consistently with existing Solar Development Site conditions;
- The preparation and implementation of a Soil Resource Management Plan including adopting and implementing good practice measures for all phases of the Proposed Development to minimise damage to soils that remain in place and those that are stripped, stockpiled and reinstated so as to avoid the permanent loss of soil; minimise soil carbon losses; maintain water infiltration; and enhance soil biodiversity; and
- Consider the potential for continued agricultural use within the Solar Development Sites 1-5.

5.7.2 Management plans

5.7.2.1 A suite a management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to agricultural land and soils include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Landscape and Ecological Management Plan (oLEMP), including general operational measures alongside those specific to landscape and ecology;
- Outline Decommissioning Environmental Management Plan (oDEMP); and;
- Outline Soil Resource Management Plan (oSRMP).

5.7.3 Further mitigation

5.7.3.1 Further mitigation is action that requires further activity in order to achieve a reduction in significance of effect, and/or anticipated outcome.

5.7.3.2 Further mitigation for agricultural land and soils will be defined through the PEIR and ES once the level of significance of effects is known.

5.7.3.3 Options for further mitigation for the Proposed Development relevant to agricultural land and soils may include:

- Co-location of solar panels and food production and other functions; and
- Regenerative soil management practices.

5.8 Likely significant effects

5.8.1 Construction

5.8.1.1 The inability to use approximately 1,066ha of land for agricultural purposes across Solar Development Sites 1-5 for a period of approximately 66 years (3 years construction, 60 years operation and 3 years decommissioning) would be a temporary, long-term, reversible change in land use. Assuming approximately half of the land across Solar Development Sites 1-5 is BMV quality, the Proposed Development would remove an estimated 500ha of BMV land in Grades 2 and 3a from agricultural use. Therefore, at this stage in the EIA process there is the potential for likely significant effects due to the scale of the change in land use and as a result this is **scoped in** for further assessment.

5.8.1.2 The inability to use agricultural land during the installation of cables in the Cable Corridor would be for a short duration in a defined working width and with the land reinstated following the installation of the cable, such that it will be unlikely to lead to a significant loss of agricultural production. Agricultural uses would be able to continue on the land used for the cable connections for the lifetime of the Proposed Development. Furthermore, the inability to use agricultural land to remove the cables (if required) would also be temporary and short-term and would not be expected to lead to a significant loss of agricultural production. Therefore, the impacts of installing the cables in the Cable Corridor are **scoped out** for the construction, operation and decommissioning phases.

5.8.1.3 The extent of soil disturbance during the construction phase would relate to the locations of compounds, access tracks and built structures which may require topsoil stripping and storage. Soil disturbance would also occur potentially within the Cable Corridors (once these are subsequently identified through the consultation and EIA process from within the currently identified wide Cable Corridor Options Area). Clay and heavy loam topsoil textures have been found in Solar Development Site 1 and are likely to present elsewhere, and could be susceptible to damage. Impacts on soil resources are therefore **scoped in** for further assessment.

5.8.1.4 As stated in section 5.6 effects to agricultural holdings / farm businesses are not likely because all landowners with farm businesses who are involved in the solar and battery elements of the Proposed Development have agreed to be involved in the project on a voluntary basis and have therefore considered the potential effects on the overall viability, diversity and resilience of their farm businesses. Agreements will also be in place between the landowners and occupiers of the land should the Proposed Development proceed. Therefore, further consideration of effects to agricultural holdings / farm businesses is not needed and are **scoped out** of assessment. This approach is supported by the fact that there is no relevant policy and guidance to support or maintain the viability of individual farms affected by development.

5.8.2 Operation

5.8.2.1 The proposed replacement of the solar PV modules once and batteries twice during the operational phase of the Proposed Development is not expected to result in loss of or damage to soil resources for Solar Development Sites 1-5 greater than those likely during construction. The assessment of replacement activities is **scoped in**. However, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

5.8.2.2 The changes in land management during the operation of the Proposed Development have to potential to result in likely significant effects for soil health and are **scoped in** for further assessment.

5.8.3 Decommissioning

5.8.3.1 Decommissioning would mean that land would be returned to landowners and it is assumed that this land would be used mostly for agriculture , with the soils having been largely fallow for a period of 66 years, or where the land has been used for landscape or ecological enhancement, retained in the same form of land management. The removal of infrastructure at decommissioning to 1.2m bgl would be likely to result in similar impacts to soils as during construction, so the assessment of decommissioning would cross refer to the relevant part of the construction assessment, including the measures contained within the oSRMP, and would not be repeated in the PEIR and ES for reasons of proportionality and brevity. There would be potentially significant beneficial effects for agricultural land and soils on completion of decommissioning. Therefore, the assessment of decommissioning effects is **scoped in** for further assessment.

5.8.4 Cumulative

5.8.4.1 As stated at section 5.6.4.1, the assessment will consider the potential for cumulative effects.

5.9 Proposed assessment methodology

5.9.1.1 The assessment methodology is based on determining the sensitivity and magnitude of change on the relevant receptors of agricultural land and soil resources. The sensitivity of the agricultural land and soil receptors has been taken from the IEMA guidance [56] and is set out in Table 5.4.

Table 5.4 Criteria for receptor sensitivity

Sensitivity	Agricultural Land	Soil Resources
High	Grades 1 and 2	Peat soils
Medium	Subgrade 3a	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the Field Capacity Days (FCD) are 150 or greater. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater. All soils in wetness class (WC) V or VI
Low	Subgrade 3b	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils where the FCDs are fewer than 150. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225. Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in WCIII and WCIV
Negligible	Grades 4 and 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in WCI and II

5.9.1.2 The magnitude of change is also taken from the IEMA guidance and set out in Table 5.5. The guidance may not have envisaged the scale of the Proposed Development but, as a temporary reversible development, the IEMA guidance categorises the magnitude of change as minor. As can be seen from Table 5.5, major and moderate magnitudes of change apply only to permanent, irreversible losses of one or more soil functions, such as the production of food.

Table 5.5 Criteria for determining magnitude of change

Magnitude	Agricultural Land and Soils
Major	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20ha or loss of soil-related features (e.g. biomass production, habitat support, soil carbon, soil hydrology) or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha, or gain in soil-related features

Magnitude	Agricultural Land and Soils
Moderate	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features or Potential for improvement in one or more soil functions or soil volumes due to re-mediation or restoration over an area of between 5 and 20ha, or gain in soil-related features
Minor	Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil-related features or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use

5.9.1.3 The overall significance of effect is then determined according to the standard significance criteria, provided in Chapter 4 Approach to EIA.

5.10 Assumptions, limitations and uncertainties

5.10.1 Assumptions

5.10.1.1 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. No surveys have been undertaken by the Applicant for the purpose of this EIA scoping report. However, there is existing survey data available for parts of Solar Development Sites 1 and 5.

5.10.1.2 It is assumed that the data collated is accurate. The data will be supplemented with additional data as part of the EIA process. It is assumed that the data, information, and primary and secondary sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

5.10.1.3 This EIA Scoping Report also assumes that all data and information will be refreshed and re-examined in the PEIR and ES. It is assumed that any open access data and information would be enhanced and supplemented by the acquisition of additional data and information from existing and new sources and by the findings more extensive desk-based research and assessment and the results of field surveys and investigation(s).

5.10.2 Limitations

5.10.2.1 The ability to conduct site visits is subject to permission from landowners. Limitations will be reported in the PEIR and ES.

5.10.3 Uncertainties

5.10.3.1 There are no uncertainties that have been identified as part of this EIA scoping report chapter. Any uncertainties associated with the assessment will be reported in the PEIR and ES.

5.11 Summary

Table 5.6 Agricultural land and soils scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Soil and ALC survey	N/A	Scoped in	Soil and ALC survey across all Solar Development Sites 1-5. Required density of survey to be confirmed following consultation with Natural England.
Loss of use of land for agriculture, including that of BMV quality for Solar Development Sites	Construction	Scoped in	N/A
	Operation	Scoped out	The impact of the loss of land for agricultural production would occur in the construction phase. The operation of the Proposed Development would not lead to any further impacts. This aspect is provided in paragraph 5.6.1.2.
	Decommissioning	Scoped in	N/A
Loss of or damage to soil resources for Solar Development Sites 1-5	Construction	Scoped in	N/A
	Operation (including replacement)	Scoped in	N/A
	Decommissioning	Scoped in	N/A
Loss of agricultural land for Cable Corridors	Construction	Scoped out	The loss of land to agriculture to install the cables would be temporary, short-term and within a defined cable corridor, and would not be expected to lead to significant loss of agricultural production.
	Operation	Scoped out	Agricultural uses would be able to continue on the land required for the cable connections for the lifetime of the Proposed Development.
	Decommissioning	Scoped out	The loss of land to agriculture to remove the cables (if required) would be temporary, short-term and within a defined cable corridor, and

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			would not be expected to lead to significant loss of agricultural production.
Damage to soils for Cable Corridors	Construction	Scoped in	N/A
	Operation	Scoped out	The impacts on soils would occur during the construction and decommissioning phases only at the Solar Development Sites. There would be no disturbance to soils over the cable connections between the Solar Development Sites during the operation of the Proposed Development as set out in paragraph 5.6.1.3. There would be very limited disturbance to soils over the cable connections between the Solar Development Sites during the decommissioning of the Proposed Development as set out in paragraph 5.6.1.3.
	Decommissioning	Scoped in	N/A

6. Air Quality

6.1 Introduction

6.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 (The Proposed Development), in respect of air quality.

6.1.1.2 It sets out air quality receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

6.1.1.3 The following aspects have been considered as part of the scope and methodology for air quality:

- Dust, particulate matter and non-road mobile machinery emissions generation during the construction, operational and decommissioning phases; and
- Impact of emissions from development-generated traffic in the construction, operational and decommissioning phases. Consideration has also been given to the fire risk posed by the Battery Energy Storage System (BESS) and the potential that unplanned air emissions may occur as a result.

6.1.1.4 This chapter is supported by the following figures:

- Figure 6.1: Industrial Installations; and
- Figure 6.2: Air Quality Monitoring Sites and AQMAs.

6.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 7: Biodiversity, including:
  - Figure 7.1: Statutory Designated Sites - International Designations within 20km
  - Figure 7.2: Statutory Designated Sites – National Designations within 2km
  - Figure 7.3: SSSI Impact Risk Zones within 2km
  - Figure 7.4: Non-Statutory designated sites within 2km
  - Figure 7.5: Priority Habitats within 2km
  - Figure 7.6: Priority Species within 2km.
- Chapter 16:Noise and Vibration, including:
  - Figure 16.1: Noise and Vibration Study Area; and
- Chapter 18: Traffic and Movement.

6.2 Relevant legislation, policy, standards and guidance

6.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines specific to this chapter which underpin the assessment methodology for air quality and have informed the scope of the assessment.

6.2.2 Legislation

Table 6.1 Air quality - Legislation

Legislation	Relevance to assessment
The Environment Act 2021 **[57]**	The Environment Act 2021 required the UK government to prepare a national Air Quality Strategy which is updated every 5 years. The latest strategy was published in 2023. The Environment Act will implement key parts of the government's Clean Air Strategy and include targets for tackling air pollution in the UK. The Environment Act 2021 also provides a framework for air quality management at a local level: for local authorities to undergo a process of local air quality management and declare an Air Quality Management Area (AQMA) where pollutant concentrations exceed the national air quality objectives. Where an AQMA is declared, the local authority needs to produce an Air Quality Action Plan (AQAP) which outlines the strategy for improving air quality in these areas.
The Air Quality Standards Regulations 2010 (Amended in 2016) **[58]**	The Air Quality Standards Regulations 2010 (amended in 2016) defines the policy framework for 12 air pollutants known to have harmful effects on human health or the natural environment. The Secretary of State for the Environment has the duty of ensuring compliance with the air quality limit values. Some pollutants have standards expressed as annual average concentrations due to the chronic way in which they affect health or the natural environment, i.e., effects occur after a prolonged period of exposure to elevated concentrations. Other pollutants have standards expressed as 24-hour or 1-hour average concentrations due to the acute way in which they affect health or the natural environment, i.e., after a relatively short period of exposure. Some pollutants have standards expressed in terms of both long and short-term concentrations. Air quality limit values and objectives are quality standards for clean air. The regulation sets out the national air quality standards for NO_2, PM_{10} and $PM_{2.5}$. In this assessment, the terms 'air quality standard' or 'air quality objective' have been used to refer to the national limit values. Table 6.2 below sets out the national air quality standards for NO_2, PM_{10} and $PM_{2.5}$, the main pollutants of concern in the UK and the local area.
The Environmental Targets (Fine Particulate Matter) Regulations 2023 **[59]**	The Environmental Targets (Fine Particulate Matter) Regulations 2023 [59] builds on the Environment Act 2021 and sets lower targets for $PM_{2.5}$ of 12µg/m^3 for 2028 and 10µg/m^3 2040 [60].
Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[61]**	5(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors: (c) land, soil, water, air and climate.

6.2.2.1 The standards included in the Air Quality Standards Regulations 2010 (Amended in 2016) [58] outlined above, are shown below in Table 6.2.

Table 6.2 Air quality standards

Pollutant	Averaging Period	Limit value / objective
Nitrogen dioxide (NO_2)	Annual mean	40µg/m^3
	1-hour mean	200µg/m^3 not to be exceeded more than 18 times a year (99.79th percentile)
Particulate matter (PM_{10})	Annual mean	40µg/m^3
	24-hour mean	50µg/m^3 not to be exceeded more than 35 times a year (90.41st percentile)
Fine particulate matter ($PM_{2.5}$)	Annual mean	20µg/m^3
		12µg/m^3 to be achieved by 2028*[1]
		10µg/m^3 to be achieved by 2040*
Note: * The Environmental Targets (Fine Particular Matter) (England) Regulations 2023 updated in 2023, to state that the *"the annual mean level of $PM_{2.5}$ in ambient air must be equal to or less than 10 µg/m^3 ("the target level")"* by 31st December 2040 **[60]**. The Environmental Improvement Plan (2023) sets an interim target of 12 µg/m^3, to be achieved by 31 January 2028 **[41]**. [1] For the purpose of this assessment, a limit value of 12µg/m^3 for $PM_{2.5}$ has been used.		

6.2.3 Policy

Table 6.3 Air quality - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[62]**	Sets broad national policy approach. Section 5.2 addresses air quality outlining approach to assessment of impacts and determining requirement for mitigation (if required). The policy states that energy infrastructure can have adverse impacts on air quality through the construction, operation and decommissioning phases. As a result, impacts on human health from NO_x and particulate matter and impacts on ecology through eutrophication from NO_X and ammonia should be considered. As a result, the policy indicates that an ES should describe, existing air quality concentrations and the relative change in air quality from existing levels, any significant air quality effects, mitigation action taken and any residual effects, the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project and any eutrophication impacts to aid in Secretary of State decision making. In addition, the mitigations identified in Section 5.14 of the policy on traffic and transport impacts will also help mitigate the effects of air emissions from transport
National Policy Statement for Renewable Energy	Establishes policy specific to renewable energy schemes (including solar). EN- 3 does not include further requirements for

Policy	Relevance to assessment
Infrastructure (EN-3), 2024 **[63]**	air quality in relation to solar schemes, beyond those general requirements of EN-1 for all energy infrastructure schemes.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[64]**	Addressed policy for energy transmission. EN-5 does not include further requirements for air quality, beyond those general requirements for good design for the siting of substations in accordance with the Horlock Rules.
National Planning Policy Framework (NPPF), 2023 **[38]**	Defines how air quality is considered in relation to the planning process. Paragraph 109 of the NPPF states that: *"The planning system should actively manage patterns of growth in support of these objectives [set out in paragraph 108 relating to sustainable transport]. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."* Paragraph 180 discusses how planning policies and decisions should contribute to and enhance the natural and local environment. In relation to air quality, the NPPF notes that this can be achieved by: *"e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."* In addition, Paragraph 192 states that: *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*
Clean Air Strategy 2019 **[65]**	The Department for Environment, Food and Rural Affairs' (Defra) Clean Air Strategy was published in 2019 and sets targets for improving air quality across the country. It includes actions for reducing emissions from various sources, such as transport, domestic activities, farming and industry. There is also a long-term target for reducing population exposure to $PM_{2.5}$ concentrations to

Policy	Relevance to assessment
	meet the World Health Organisation's (WHO) target of 10µg/m^3 as an annual mean. In particular, the Clean Air Strategy states: *'New legislation will create a stronger and a more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanism.'*
North Yorkshire Council, Air Quality Management Plan 2023 **[66]**	Outlines the air quality action plan for the area, as well as responsibilities, commitments, monitoring programmes, and goals.
Department of Environment, Food and Rural Affairs, Air Quality Strategy: Framework for Local Authority Delivery, August 2023 **[67]**	Establishes the framework for air quality management in England. Air quality standards and objectives are set out for eight pollutants which may potentially occur at levels that give cause for concern. The strategy also provides details of the role that local authorities are required to take in working towards improvements in air quality, known as the Local Air Quality Management (LAQM) regime. The current strategy supersedes the previous 2007 strategy in England only and provides a framework to enable local authorities to make the best use of their powers and make improvements for their communities. It also includes guidance on the new fine particulate matter targets for England.
North Yorkshire Council, Annual Status Report, 2023 **[68]**	The North Yorkshire Council 2023 Annual Status Report (ASR) is produced annually in fulfilment of Part IV of the Environment Act 1995 (Local Air Quality Management) as amended by the Environment Act 2021. The report provides information surrounding the air quality monitoring network installed around North Yorkshire and the performance compared to air quality standards and targets, particularly for NO_2, PM_{10} and $PM_{2.5}$.
Selby District Core Strategy Local Plan, adopted 2013 **[69]**	Relevant policies to the air quality assessment will be adopted, including Policy SP18 Protecting and Enhancing the Environment. Paragraph 7.67 states that air quality is an element of the diverse range of environmental assets that the policy seeks to protect and enhance. The policy is considered to be relevant and is considered in this EIA scoping report chapter.
Selby District Local Plan, adopted 2005 **[70]**	Paragraph 4.41 states that "*Potential for pollution also exists where development would affect air quality perhaps through smoke or dust. Although there is a myriad of existing pollution controls, which the planning system should not seek to duplicate, the effect on other land uses and loss of amenity are material considerations.*" Policy ENV6 states that "*Proposals for the development of renewable energy will be permitted provided that:* *… 3) The proposal would not give rise to nuisance by virtue of noise, vehicular movements, emissions and electromagnetic interference; …"* Therefore, the potential effects of air quality emissions are relevant and are considered in this EIA scoping report chapter.

Policy	Relevance to assessment
The Environmental Improvement Plan (EIP) **[41]**	The Environmental Improvement Plan is a 25-year plan that looks to improve all parts of the environment including air quality. The key areas of focus include tackling key emission sources such as domestic burning and reducing ammonia emissions to protect sensitive natural habitats. Despite not specifically mentioning air quality effects from dust, the EIP is considered to be broadly relevant and is considered in this EIA scoping report chapter.

6.2.4 Standards and guidance

Table 6.4 Air quality - Standards and guidance

Standards and guidance	Relevance to assessment
Department for Communities and Local Government, Planning Practice Guidance: Air Quality (November 2019) **[71]**	States that whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impacts in an area where air quality is known to be poor, or where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of legislation (including that applicable to wildlife). Where a proposed development is anticipated to give rise to concerns about air quality, an appropriate assessment needs to be carried out. Where the assessment concludes that the proposed development (including mitigation) will not lead to an unacceptable risk from air pollution, prevent sustained compliance with national objectives or fail to comply with the requirements of the Habitats Regulations, then the local authority should proceed to decision with appropriate planning conditions and/or obligations.
Department for Environment, Food and Rural Affairs, Local Air Quality Management Policy Guidance (LAQM.PG(22)) **[72]** and Technical Guidance, August 2022 (LAQM.TG(22)) **[73]**	The 2022 policy guidance note from Defra, LAQM.PG(22), provides additional guidance on the links between transport and air quality and guidance on the links between air quality and the land-use planning system. It summarises the main ways in which the land-use planning system can help deliver compliance with the air quality objectives. This guidance is relevant to any external organisations who may wish to engage with the local authority to assist in the delivery of their statutory duties on managing air quality. The LAQM Technical Guidance, TG(22) is designed to support local authorities in carrying out their duties to review and assess air quality in their area. It provides detailed guidance on how to assess the impact of measures using existing air quality tools.
Institute for Air Quality Management (IAQM), Guidance on the Assessment of Dust from Demolition and Construction (January 2024) **[74]**	The 2024 Institute of Air Quality Management (IAQM) guidance provides guidance to development consultants and environmental health officers on how to assess air quality impacts from construction. The IAQM guidance provides a method for classifying the significance of effect from construction activities based on the 'dust magnitude' (high, medium or low) and proximity of the site to the closest receptors. The guidance recommends that once the significance of effect from construction is identified, the appropriate mitigation measures are implemented.

Standards and guidance	Relevance to assessment
EPUK / IAQM, Land-Use Planning and Development Control: Planning for Air Quality (January 2017) **[75]**	The 2017 Land-Use Planning and Development Control guidance document produced by Environmental Protection UK (EPUK) and the IAQM provides a framework for professionals operating within the planning system to provide a means of reaching sound decisions, with regard to the air quality implications of development proposals. The document provides guidance on when air quality assessments are required by providing screening criteria regarding the size of a development, changes to traffic flows/composition, energy facilities or combustion processes associated with the proposed development.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[76]**	The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar developments. The guidance recommends that information is included on air quality receptors and the anticipated impacts. This is discussed further within 'Baseline conditions', 'Potential impacts', and 'Likely significant effects' sections below. Receptors are illustrated on Figure 6.1 and Figure 6.2. The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows: • anticipated number, type of vehicle movements, and vehicle routing for all phases • anticipated duration of activities (including earthworks) • typical plant and non-road mobile machinery to be used and expected locations for all phases • location and characterisation of roads that construction traffic is to be routed along • identification of the locations of any sensitive receptors (such as air quality management areas) • likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (such as Institute of Air Quality Management (IAQM) guidance) The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register: • dust management measures set out in a draft control document • traffic management measures set out in draft control document • buffer zones and / or screening. Evidence and assumptions provided in this chapter: Evidence and assumptions relied upon in scoping out aspects of the assessment are provided within Section 6.7 and 6.8. **Scoped out** aspects and associated assumptions are listed in one location within section 6.10. Mitigation and commitments register: Section 6.7 provides further details of the proposed mitigation measures taking into account the above examples, as may be relevant.

Standards and guidance	Relevance to assessment
	The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

6.3 Consultation

6.3.1.1 The Environmental Health Officer (EHO) at North Yorkshire Council (NYC) will be consulted with regards to air quality as part of the assessment process and non-statutory and statutory consultation.

6.3.1.2 Consultation will be undertaken to agree on the proposed assessment methodology outlined in this chapter.

6.3.1.3 It is also proposed that consultation will be undertaken to agree the likely DCO controls related to construction and decommissioning activities and operational air quality emissions for the Proposed Development.

6.3.1.4 Statutory consultees will be formally requested by the Planning Inspectorate (PINS) to comment upon this scoping report to inform the Scoping Opinion. Comments received will be considered and addressed through the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES), where relevant to air quality.

6.3.1.5 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

6.4 Study area

6.4.1 Baseline

6.4.1.1 The draft Order Limits are split into two broad areas, the Solar Development Sites 1-5 and the Cable Corridor Options Area, which covers a combined 1066 hectares and is within which the Proposed Development would be located, as described in Chapter 2 (The Proposed Development) and as shown on Figure 1.1 (Draft Order Limits).

6.4.1.2 The study area for the purpose of describing the baseline conditions is defined by the draft Order Limits (Solar Development Sites and Cable Corridor Options inclusive), and includes all land within the draft Order Limits plus a study area of 2km from the draft Order Limits boundary. This is considered to be a suitable study area within which to consider baseline air quality conditions. As it is likely to contain sufficient information on local air quality, including nearby monitoring stations (automatic and diffusion tube), background air quality data, existing industrial installations and air pollution sources, and any Air Quality Management Areas (AQMAs) that may be present. It will also allow for the identification of any sensitive receptors – both human and ecological which may be impacted by the construction, operation and decommissioning of the Proposed Development.

6.4.2 Construction and decommissioning

6.4.2.1 For construction dust, as well as dust emissions during the decommissioning phase, a study area of 250m from the boundary of the draft Order Limits will be used to assess the potential impacts from dust soiling and construction dust emissions on nearby sensitive human receptors, in line with the IAQM Construction Dust Guidance [74]. Additionally, for the trackout of dust from the site, a study area of 50m from the route that the construction vehicles will take up to 500m from the Proposed Development will be used. Potential impacts on any identified ecological receptors will be assessed up to 50m from the boundary of the Proposed Development.

6.4.2.2 For construction traffic, any increases in traffic flows will be screened against the EPUK/IAQM land-use and planning guidance [75] criteria suitable for sites that are located not located within or adjacent to an AQMA:

- a change of Light Duty Vehicle (LDV) flows of more than 500 annual average daily traffic (AADT) movements; or
- a change of Heavy-Duty Vehicle (HDV) flows of more than 100 AADT movements.

6.4.2.3 Meeting either of the criteria would indicate that detailed dispersion modelling of road traffic emissions would be necessary.

6.4.2.4 In line with the EPUK/IAQM guidance [75], LDV constitutes cars and small vans which are <3.5t in gross vehicle weight. Whilst HDV are goods vehicles (HGVs) and buses which are >3.5t gross vehicle weight.

6.4.3 Operation

6.4.3.1 Operational traffic - once available, will be screened against the EPUK/IAQM criteria detailed above [75]. In order to determine if a detailed dispersion modelling assessment is required, to understand the potential impacts on nearby sensitive human and ecological receptors. If the above screening criteria are exceeded, a detailed modelling assessment will be necessary.

6.5 Baseline conditions

6.5.1.1 A 2km study area around the draft Order Limits is generally considered to be appropriate to determine baseline conditions in the area of the Proposed Development and to provide sufficient data coverage.

6.5.1.2 Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment. These are present from various sources, such as industrial processes, commercial and domestic activities, road traffic and natural sources.

6.5.2 Desktop sources used

6.5.2.1 A desk-based review of the following data sources has been undertaken to determine the baseline air quality conditions in this assessment:

- Environment Agency (EA) Website [77];
- UK Air Information Resource (AIR) Website [78];
- Defra Local Air Quality Management webpages [79]; and
- North Yorkshire Council - Selby District Air Quality Annual Status Report [68].

6.5.3 Surveys undertaken and proposed

6.5.3.1 No surveys are required in respect of air quality, as all data required for completion of the assessment can be gathered through a desktop study using publicly available data.

6.5.4 Existing baseline

6.5.4.1 The draft Order Limits are located within the administrative area of North Yorkshire Council (NYC), which is responsible for the management of local air quality within the district.

6.5.5 Sources of Air Pollution

Industrial Processes

6.5.5.1 Industrial air pollution sources are regulated through a system of operating permits or authorisations, requiring stringent emission limits to be met and ensuring that any releases to the environment are minimised or rendered harmless. Regulated (or prescribed) industrial processes are classified as Part A(1), A(2), Part B or Medium Combustion Plant (MCP) processes, and are regulated through the Pollution Prevention and Control (PPC) system. The larger more polluting processes are regulated by the EA, and the smaller, less polluting ones by the local authorities. Local authorities regulate only for emissions to air, whereas the EA regulates emissions to air, water and land.

6.5.5.2 According to the EA website [77], there have been seven regulated industrial installations within 2km of the Proposed Development identified which have potential emissions to atmosphere and are displayed below in Table 6.5 and their locations are shown in Figure 6.1 Industrial Installations.

Table 6.5 Regulated industrial installations within 2km of the Proposed Development

ID	Name	Facility	Permit Number
1	J.E. Hartley Limited	Anaerobic Digestion Facility	EPR/UP3434WA
2	J.E. Hartley Limited	Medium Combustion Plant (MCP)	EPR/VB3090YG
3	Tarmac	Asphalt Waste Recycling Facility	EPR/UP3231QS
4	The Maltings Organic Treatment Limited	The Maltings Organic Treatment Facility	EPR/FP3090SZ

ID	Name	Facility	Permit Number
5	AB Agri Limited	Anaerobic Digestion Plant	EPR/VP3533DP
6	Gascoigne Wood Power Limited	Gascoigne Wood Power Plant (MCP)	EPR/LP3032QE
7	Eggborough Power Limited[1]	Eggborough Power Station	EPR/VP3930LH

Note:

[1] Eggborough Power Station is not operational, having been decommissioned in 2018. However, it is likely that the past contributions from this facility would be captured in background data as modelled Defra background concentrations are based on the reference year 2018 when the facility was still operational. It is therefore included for reference. It should also be noted that there are plans to construct a new facility on the site of the old Eggborough power station, which may have implications for the future baseline.

6.5.5.3 It is considered that the pollutant contributions from these facilities, are unlikely to have been fully captured in the Defra background concentrations reported below in Table 6.7, as only permit EPR/UP3434WA was granted before 2018, the rest were granted between 2019 and 2022. Therefore, it may be the case that the background concentrations are higher than those reported by Defra due to the addition of these installations. However, as these installations will have all gone through the Environment Agency permitting process, their impacts on local air quality should have been minimised.

6.5.6 Road Traffic

6.5.6.1 In recent decades, atmospheric emissions from transport on a national basis have grown to match or exceed other sources in respect of many pollutants, particularly in urban areas. The local air quality in the vicinity of the Proposed Development will likely be influenced by vehicle emissions, notably from the A63 around Monk Fryston and the junction from the A1(M), which will be used to access the larger settlement of Selby and the A19 which connects Selby to the city of York.

6.5.7 Local Air Quality

6.5.7.1 The Environment Act 2021 [57] requires local authorities to review and assess air quality with respect to the objectives for the pollutants specified in the National Air Quality Strategy. Local authorities were required to carry out an Updating and Screening Assessment (USA) of their area every three years and are now required to complete an Annual Status Report (ASR) every year. If the ASR identifies potential hotspot areas likely to exceed air quality objectives, then a detailed assessment of those areas is required. Where objectives are not predicted to be met, local authorities must declare the area as an AQMA. In addition, local authorities are required to produce an Air Quality Action Plan (AQAP), which includes measures to improve air quality in the AQMA.

6.5.7.2 There are no AQMAs within 2km of the Proposed Development. The nearest AQMA to the Proposed Development is the Knottingley AQMA [78], which is situated approximately 5km to the south of Site 4. This AQMA was declared in 2007 due to exceedances of the annual mean NO_2 air quality objective.

6.5.7.3 AQMA No.1 (Selby District Council) is situated in the town centre of Selby, between the northern and southern parts of the Proposed Development. The AQMA is approximately

5.5km north of Site 5 and 9km south of Site 1. This AQMA was declared in 2016 due to exceedances of the annual mean air NO_2 quality objective of 40µg/m^3 [78].

6.5.7.4 The City of York AQMA No. 5 is located 8.5km to the north of Site 1 and was also declared due to exceedances of the annual mean NO_2 air quality objective in 2018 [78].

6.5.7.5 These AQMAs are all shown in Figure 6.2 Air Quality Monitoring Sites and AQMAs.

6.5.7.6 Given the distance of the AQMAs from the Proposed Development, it is considered unlikely that the AQMAs would be affected by the construction, operation or decommissioning of the Proposed Development.

6.5.8 Local Monitoring

6.5.8.1 The most recent Air Quality ASR (June 2023) was prepared by Selby District Council (SDC) but issued after the formation of NYC [68].

6.5.9 Automatic Monitoring

6.5.9.1 The nearest automatic monitoring location to the Proposed Development is a roadside monitoring location (CM9 – Fulford Road) in the City of York, approximately 7.5km north-west of Site 1, outside the 2km study area [68]. This monitoring site is not considered to be representative of the air quality conditions at the Proposed Development given the distance from the Proposed Development. As such, it is not considered further in this baseline review.

6.5.10 Diffusion Tube Monitoring

6.5.10.1 Diffusion tube monitoring for NO_2 is undertaken in the Selby District of North Yorkshire Council [68]. There are in total, 28 diffusion tube monitoring locations, all situated within the town of Selby. All of these monitoring locations are further than 2km from any part of the Proposed Development. The nearest monitoring station is 9N (Bryony Court), an urban background monitor location situated approximately 4km north of Site 5 (Figure 6.2: Monitoring Locations). The nearest roadside monitoring location is 4N (Brook Street) approximately 5.5km north of Site 5 (Figure 6.2: Monitoring Locations). Due to the distance between these monitoring locations and the Proposed Development, they are not likely to be fully representative of the baseline conditions at the Proposed Development. They have been included below to give an idea of the air quality conditions in the surrounding area. Details of both monitoring sites are shown below in Table 6.6.

6.5.10.2 Monitoring data from 2020 and 2021 is not considered to represent typical air quality conditions due to the COVID-19 pandemic however they are included here for completeness.

6.5.10.3 The years 2018 to 2022 represent the most recent five years of air quality monitoring data that is publicly available.

Table 6.6 Diffusion Tube Monitoring Sites Closest to the Proposed Development

Site ID	Site Name	Site Type	OS Grid Reference		NO_2 Concentration ($\mu g/m^3$)				
			X	Y	2018	2019	2020	2021	2022
4N	Brook Street	Roadside	461096	432191	25.7	26.5	17.1	21.7	18.7
9N	Bryony Court	Urban Background	460899	430935	15.3	16.2	10.8	11.1	10.9

6.5.10.4 Table 6.6 shows that no exceedances of the NO_2 annual mean objective ($40\mu g/m^3$) were recorded at these monitoring locations between 2018 and 2022, with the highest measurement being $26.5\mu g/m^3$ in 2019 at monitoring site 4N.

6.5.10.5 Due to the rural location of the Proposed Development, it is likely that conditions would be similar to or lower than those recorded in central Selby. It is therefore considered that exceedances of the air quality objectives in the area of the Proposed Development are unlikely.

6.5.11 Background Concentrations

6.5.11.1 Background concentrations refer to the existing levels of pollution in the atmosphere, produced by a variety of stationary and non-stationary sources, such as roads and industrial processes. The Defra website [80] includes estimated background pollutant concentrations for NO_2, PM_{10} and $PM_{2.5}$ for each 1km-by-1km Ordnance Survey (OS) grid square in the UK.

6.5.11.2 The background pollutant concentrations are shown below in Table 6.7 for the relevant assessment years and all concentrations are well below the annual air quality objectives for NO_2 ($40\mu g/m^3$), PM_{10} ($40\mu g/m^3$) and $PM_{2.5}$ ($12\mu g/m^3$).

Table 6.7 Estimated Defra background concentrations for the baseline year of 2022

OS grid square		Annual mean concentration ($\mu g/m^3$)			
X	Y	NO_2	NO_x	PM_{10}	$PM_{2.5}$
458500	425500	7.6	9.8	13.5	7.6
459500	425500	7.4	9.5	13.7	7.6
460500	425500	7.8	10.1	14.2	7.8
453500	426500	7.8	10.1	14.0	7.6
454500	426500	7.5	9.6	14.1	7.6
455500	426500	7.4	9.5	13.6	7.6
458500	426500	7.6	9.8	13.7	7.7
459500	426500	7.5	9.7	13.7	7.6
460500	426500	7.5	9.6	13.8	7.7
452500	427500	7.8	10.1	14.3	7.7
453500	427500	8.1	10.4	14.2	7.6

OS grid square		Annual mean concentration (µg/m^3)			
X	Y	NO_2	NO_x	PM_{10}	$PM_{2.5}$
454500	427500	7.4	9.5	14.4	7.7
459500	427500	7.5	9.7	14.1	7.7
451500	428500	8.0	10.3	13.7	7.6
452500	428500	7.7	9.8	13.4	7.5
453500	428500	7.5	9.6	14.3	7.6
454500	428500	7.3	9.4	12.8	7.3
455500	428500	7.2	9.2	13.8	7.6
452500	429500	7.8	10.0	14.0	7.6
452500	430500	7.7	9.9	13.8	7.5
453500	430500	7.6	9.8	13.6	7.5
464500	440500	5.9	7.4	12.8	7.2
465500	440500	5.8	7.3	13.2	7.3
466500	440500	5.8	7.4	11.9	7.0
464500	441500	5.9	7.5	13.0	7.2
465500	441500	5.8	7.3	13.5	7.4
466500	441500	5.7	7.3	12.6	7.1
463500	442500	7.2	9.3	14.2	8.3
464500	442500	6.0	7.6	13.5	7.4
465500	442500	5.8	7.3	13.2	7.3
466500	442500	5.7	7.2	12.2	7.0
464500	443500	6.0	7.6	13.2	7.3
465500	443500	5.8	7.4	13.1	7.3
466500	443500	5.8	7.3	13.1	7.3

6.5.12 Receptors

Human Receptors

6.5.12.1 Sensitive receptors are defined as those residential properties, schools, care homes or hospitals that are likely to experience a change in pollutant concentrations and/or dust nuisance due to the construction or operation of a Proposed Development. These are considered to be high sensitivity human receptors, as they are places where people are typically spending large amounts of time and includes places that are considered to be the most vulnerable.

6.5.12.2 At this stage, exact receptors have not been identified but key population areas within 2km of the Proposed Development include Monk Fryston and Hillam, which are situated approximately 500m west of Site 3, Hambleton at 900m of Site 2. Birkin is located within 100m west of Site 4, whilst Gateforth is located 950m to the north-east. Both West

Haddlesey and Chapel Haddlesey border Site 5. In the north, Site 1 is situated approximately 430m east of Escrick.

6.5.12.3 In addition to the key population areas mentioned above, key community local receptors such as schools, hospitals and care homes within 2km of the draft Order Limits have been identified in Table 6.8 below. The list of human receptors is not exhaustive and there may be additional receptors that have not been identified below. A full review will be undertaken at the ES stage once construction and traffic data are available, if a detailed modelling assessment is required.

6.5.12.4 While a complete set of receptors cannot be identified at this stage, the review undertaken below indicates that there are potentially a significant number of receptors located within 2km of the draft Order Limits.

Table 6.8 Key community local receptors within 2km of the Proposed Development

Sensitive Receptor Name	Type	Location	Nearest Land Parcel
Monk Fryston C of E Primary School	School	Monk Fryston	Solar Development Site 2, Solar Development Site 3 & Cable Corridor
Chapel Haddlesey Church of England Primary School	School	Monk Fryston	Solar Development Site 4
Escrick C of E Primary School	School	Escrick	Solar Development Site 5
Queen Margaret's School for Girls	School	Escrick	Solar Development Site 5
Escrick Surgery	Doctors Surgery	Escrick	Solar Development Site 5
Burton Salmon Community Primary School	School	Burton Salmon	Cable Corridor Options
Fairburn Community Primary School	School	Fairburn	Cable Corridor Options
South Milford Community Primary School	School	South Milford	Cable Corridor Options
Olive Tree Day Nursery	School	Beal	Cable Corridor Options
Kellington Primary School	School	Kellington	Cable Corridor Options
Hambleton Court Care Home	Care Home	Hambleton	Cable Corridor Options
Hambleton C of E Primary School	School	Hambleton	Cable Corridor Options
Tiny Toes Private Nursery	Nursery	Hambleton	Cable Corridor Options
Thorpe Willoughby Community Primary School	School	Thorpe Willoughby	Cable Corridor Options
Thorpe Willoughby Childcare Centre	Nursery	Thorpe Willoughby	Cable Corridor Options
South Milford Surgery – Thorpe Willoughby	Doctors Surgery	Thorpe Willoughby	Cable Corridor Options
Selby High School	School	Selby	Cable Corridor Options

Sensitive Receptor Name	Type	Location	Nearest Land Parcel
Selby Community Primary School	School	Selby	Cable Corridor Options
Barlby Bridge Community Primary School	School	Selby	Cable Corridor Options
Scott Road Medical Centre	Doctors Surgery	Selby	Cable Corridor Options
St. Philips Care	Care Home	Selby	Cable Corridor Options
Tudor House Nursing Home	Care Home	Selby	Cable Corridor Options
Barlby Community Primary School	School	Barlby	Cable Corridor Options
Barlby High School	School	Barlby	Cable Corridor Options
Wistow Parochial C of E Primary School	School	Wistow	Cable Corridor Options
Maisy Moo's Day Nursery	Nursery	Wistow	Cable Corridor Options
Cawood CE Primary School	School	Cawood	Cable Corridor Options
Riccall Primary School	School	Riccall	Cable Corridor Options

Ecological Receptors

6.5.12.5 A high-level review of designated ecological sites within 2km of the draft Order Limits indicated that there are several designated ecological sites within 2km of the Proposed Development, which are listed below in Table 6.9.

6.5.12.6 There are no Ancient or Veteran Trees (AVT), Local Nature Reserves (LNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA) or Ramsar sites within the 2km baseline study area.

Table 6.9 Ecological sites within 2km of the Proposed Development

Designation	Number of Sites	Site Names
Ancient Woodland (AW)	15	Barber Rein / Ash Rein; Brayton Buff; Gilbertsons Wood; Great Lawn Wood; Heron Wood; Holly Carrs / Hart Nooking; Little Moss Hagg; Manor Wood; Paradise Wood; Spring Wood; 5x Unnamed Ancient Woodlands.
National Nature Reserve (NNR)	1	Skipwith Common
Sites of Special Scientific Interest (SSSI)	3	Burr Closes, Selby;

Designation	Number of Sites	Site Names
		Fairburn and Newton Ings; and Skipwith Common
Special Area of Conservation (SAC)	1	Skipwith Common

6.5.12.7 If required, a full, detailed review of potential ecological sites will be undertaken at the ES stage. This will include designated sites such as those highlighted here as well as any local sites that will be identified as priority sites by the project ecologists.

6.5.12.8 In addition to the sites listed above in Table 6.9, the project ecologists have also identified several Sites of Importance for Nature Conservation (SINCS) both adjacent to and within 2km of the draft Order Limits. Further information on the ecological sites listed above and the SINCs can be found in Chapter 7 (Biodiversity), Section 7.5.

6.5.13 Future baseline

6.5.13.1 It is assumed that future baseline pollutant concentrations within the draft Order Limits would reduce compared to the present level, continuing the current trend. Emissions due to road traffic, especially those of NO_2, are gradually declining owing to changes in the composition of the vehicle fleet with improving emission performance of newer vehicles and the increasing uptake of low-emission vehicles and electric vehicles (EVs). However, it is possible that other committed developments may arise in the future which could change the baseline conditions, such as the redevelopment of the Eggborough power station, which would be considered in the assessment as may be relevant if the assessment is **scoped in**.

6.5.14 Baseline Summary

6.5.14.1 There are no monitoring locations within 2km of the Proposed Development, the nearest being a diffusion tube 4km north of the southern area of the Proposed Development. This site is not considered to be fully representative of conditions at the Proposed Development due to the distance from the site location and the fact they are located within Selby Town, a more urban environment than the Proposed Development. These monitoring sites do however give an indication of potential air quality conditions at the Proposed Development, despite the distance and different environments. It is considered that the monitoring sites are more likely to represent a worse scenario in relation to air quality than the Proposed Development. Due to there being no recorded exceedance of the air quality objective for NO_2 at any of the monitoring locations, it is therefore highly unlikely that there will be exceedances at the Proposed Development.

6.5.14.2 Defra background concentrations for the Proposed Development are also well below the relevant air quality objectives.

6.5.14.3 Based on the rural location of the Proposed Development and the Defra background concentrations, it can be assumed that baseline air quality concentrations are likely to be below the air quality objectives for NO_2, PM_{10} and $PM_{2.5}$.

6.6 Potential impacts

6.6.1 Construction

Construction dust and non-road mobile machinery emissions

6.6.1.1 There is potential for impacts resulting from construction activities due to dust deposition, resulting in the soiling of surfaces; visible dust plumes; elevated PM_{10} and $PM_{2.5}$ concentrations as a result of dust generating activities on site; and an increase in NO_2, PM_{10} and $PM_{2.5}$ concentrations due to exhaust emissions from construction vehicles and the use of Non-Road Mobile Machinery (NRMM).

Construction traffic

6.6.2 There is the potential for the Proposed Development to impact local air quality and sensitive receptors due to construction vehicle movements on the roads surrounding the proposed development. This would be the result of construction traffic exhaust emissions of NO_2 and PM_{10} and $PM_{2.5}$.

6.6.3 Operation and maintenance

Operational traffic

6.6.3.1 There is the potential for the Proposed Development to impact local air quality and sensitive receptors (both on and off-site) due to operational vehicle movements on the roads surrounding the Proposed Development. This would be the result of operational traffic exhaust emissions of NO_2 and fine particulate matter.

Operational plant and non-road mobile machinery emissions

6.6.3.2 There is no operational plant or combustion processes as part of the Proposed Development. A heating, ventilation and air conditioning (HVAC) system is proposed as part of the Battery Energy Storage System (BESS). These systems do not produce emissions to air.

6.6.3.3 In the unlikely event of a fire within the BESS, unplanned air emissions could result in the release of Hydrogen Fluoride (HF), which may impact nearby receptors depending on the location of the BESS in relation to sensitive receptors and the design of the BESS. However, this is unlikely to occur. A key design principle applied to the design is that BESS will not be located closer than 100m to sensitive human receptors (residential property, nursing/care home, place of worship, GP surgery or hospital) which will be secured through the DCO. This requirement will also be included in the outline Battery Fire Safety Management Plan (oBFSMP) in addition to other fire safety design measures to minimise fire risk and to ensure a fire is contained and extinguished quickly and does not result in a 'runaway' event. Should the DCO consent be granted, these measures would minimise the fire risk and the risk of a fire spreading, limiting the potential impact on local air quality from unplanned emissions and impact on human health (also see Chapter 13 Human Health and Chapter 15 Major Accidents and Disasters). On this basis, unplanned air emissions will not be assessed further as sufficient measures are considered to be in place to mitigate the potential for this impact to occur, making it highly unlikely.

6.6.4 Decommissioning

6.6.4.1 Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2mbgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay.

6.6.4.2 The decommissioning phase of the Proposed Development at the Solar Development Sites 1-5 will comprise activities similar to the construction phase, including dust generation, emissions from vehicle movements and any associated decommissioning plant or equipment that may be utilised. As such, potential decommissioning phase impacts are expected to be similar to or less than the construction phase impacts and will be qualitatively assessed in line with construction phase assessment that is to be undertaken separately to the ES.

6.6.5 Cumulative and in-combination

6.6.5.1 The approach to assessing in-combination effects and cumulative effects is described in Chapter 20 Cumulative and in-combination effects. In-combination effects on ecological or human receptors are addressed in the respective topic chapters as may be relevant. It is unlikely there would be significant cumulative effects from dust generated by the Proposed Development and other committed developments due to the mitigation measures that would be required for each individual development. There are also unlikely to be any other committed developments within 250m of the Proposed Development, limiting the potential cumulative impacts. However, this will be reviewed at the ES stage to confirm.

6.6.5.2 Due to the low levels of construction traffic and operational traffic flows likely generated by the Proposed Development it is unlikely that there would be significant cumulative effects with other committed developments. It is also highly unlikely there would be significant unplanned air quality cumulative effects from a fire occurring at two solar farms at the same time in the local area. Therefore, overall, it is considered there is unlikely to be any in-combination or cumulative air quality effects.

6.7 Design, mitigation and enhancement measures

6.7.1 Embedded measures

6.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, Section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

6.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimize impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles, as well as other mitigation measures.

6.7.1.3 Embedded measures are taken into account in the assessment of the likely significant effects.

6.7.1.4 Embedded measures for the Proposed Development relevant to air quality are likely to include:

- Recommended mitigation measures following best practice IAQM construction dust guidance. These will then be included in the Outline Construction Environmental Management Plan (oCEMP) / Outline Decommissioning Management Plan (oDEMP) and Outline Operational Environmental Management Plan (oOEMP) submitted as part of the DCO application. It is not proposed or considered necessary to provide an air quality chapter covering construction /decommissioning air quality aspects in the ES and construction /decommissioning dust can therefore be **scoped out** of the EIA.
- An outline Construction Traffic Management Plan (oCTMP) which will include details regarding routing of construction traffic away from sensitive receptors where possible, in order to limit vehicle emission impacts at these locations.
- The Applicant takes the fire risk posed by the BESS element of the Proposed Development very seriously. As a result of a fire within the BESS, there is potential for unplanned air emissions which could result in the release of HF. However, even though this is unlikely to occur the Applicant will prepare an oBFSMP which will contain a variety of measures to minimize fire risk and, in the unlikely event that a fire occurs, to minimise its spread which will be submitted with the DCO application. The outline version will take into account comments received at non statutory and statutory consultation. Subject to the Proposed Development receiving development consent, the Applicant will develop the detailed design and update the BFSMP in consultation with the Health and Safety Executive (HSE) and the local fire authority and with the approval of North Yorkshire Council prior to the beginning of operations.

6.7.2 Management plans

6.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to air quality include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Materials and Waste Management Plan (oMWMP);
- Outline Soil Resource Management Plan (oSRMP);
- Outline Construction Traffic Management Plan (oCTMP);
- Outline Battery Fire Safety Management Plan (oBFSMP);
- Outline Operational Environmental Management Plan (oOEMP); and
- Outline Decommissioning Environmental Management Plan (oDEMP).

6.7.3 Further mitigation

6.7.3.1 Further mitigation are actions that require site and project specific activity in order to achieve a reduction in effect, and/or anticipated outcome.

6.7.3.2 It is considered that with appropriate site-specific construction and decommissioning mitigation in place, including management plans listed below, the residual effects on receptor locations during the construction and decommissioning phases are anticipated to be not significant and as such further mitigation is unlikely to be required.

6.7.3.3 It is not anticipated that there will be any specific requirements for mitigation measures associated with the operational phase of the Proposed Development.

6.8 Likely significant effects

6.8.1 Construction

Construction dust, plant and non-road mobile machinery emissions

6.8.1.1 During the construction phase of development, there is the potential for dust soiling and human health effects as well as potential impacts on ecological receptors as a result of dust emissions from construction processes. This will be considered through undertaking a Construction Dust Assessment in line with relevant IAQM guidance in order to identify likely effects and appropriate mitigation measures to be applied accordingly for construction, demolition, earthworks and trackout.

6.8.1.2 A Construction Dust Assessment will be provided alongside the PEIR and ES as a standalone document or technical appendix to identify the mitigation measures required. An oCEMP will be produced as part of the DCO application, which will include suitable site-specific mitigation measures and a commitment to produce an updated Construction Dust Assessment prior to development should the DCO be granted to inform the detail of mitigation measures. It is anticipated that with the implementation of suitable site-specific mitigation measures secured through the oCEMP, the residual effects of construction dust and particulates on existing sensitive receptors will not be significant. Therefore, an air quality PEIR and ES chapter will not be prepared for construction dust and this assessment is **scoped out** of the full ES.

6.8.1.3 At the time of writing, the locations and usage of generators and NRMM have not been confirmed. However, due to the temporary nature of their use and the fact it would likely be on an intermittent basis at varying locations within the draft Order Limits it is not considered that emitted pollutant would occur over a long enough time to have a significant effect on sensitive human or ecological receptors and therefore it is proposed to **scope out** NRRM from the assessment.

Construction traffic

6.8.1.4 Anticipated traffic generation is understood to be below the EPUK/IAQM criteria for detailed assessment. It is anticipated that there will be an additional 21 HDV vehicle AADT movements per day in total for all five of the Solar Development Sites with a maximum of 5 HDV AADT movements to any one of the Solar Development Sites.

Construction traffic flows for LDVs are not known at this time but are unlikely to exceed 500 AADT movements.

6.8.1.5 As the construction traffic flows for the Proposed Development are not predicted to exceed the EPUK/IAQM criteria, it is considered unlikely that construction traffic movements will result in a significant effect. In addition, an oCTMP will support the DCO application and include measures such as appropriate traffic planning and HGV management. This will further mitigate any potential effects. Construction traffic is therefore considered to be **scoped out** of the assessment. However, this will be confirmed once the full set of construction traffic data becomes available.

6.8.2 Operation and maintenance

Operational traffic

6.8.2.1 It is estimated that the solar PV modules would require replacement once, and the batteries twice, during the operational phase of the Proposed Development. The air quality effects of replacement activities are anticipated to be no greater than the construction phase (see Paragraph 6.8.1.4), and would be controlled and managed through appropriate management plans (oCEMP, oMWMP, oSRMP, oCTMP, and oOEMP) and by the requirements of the DCO.

6.8.2.2 Typically at other times during the operational phase (excluding the replacement periods) operational staff would travel to site by four-wheel drive vehicle or medium/large van (LDV) to undertake routine inspection and maintenance. There are anticipated to be around five visits to the each of the Solar Development Sites per month in LDV vehicles, averaging less than one trip per day. The PEIR and ES will include further details of the maintenance and replacement activities, and appropriate controls will be developed as part of the DCO. An Operational Environmental Management Plan (OEMP) would include control measures to ensure no significant impacts would arise during the maintenance and replacement activities. Therefore, during routine inspection and maintenance, outside of the proposed replacement periods, no significant effects are anticipated during operation from traffic generation associated with the Proposed Development due to the low number of anticipated vehicle movements and nature of the Proposed Development which are significantly below the EPUK/IAQM guidance for sites not within or adjacent to an AQMA. As such, it is proposed to **scope out** an air quality assessment of operational traffic. Once the full operational traffic data becomes available, this will be confirmed through the screening of the data against the EPUK/IAQM criteria described above in Section 6.4.

6.8.2.3 On the above basis, operational traffic from both routine inspection and maintenance and proposed replacement of solar PV modules and batteries is **scoped out** of further assessment.

Operational plant and equipment

6.8.2.4 The Applicant takes the fire risk posed by the BESS element of the Proposed Development very seriously. As a result of a fire within the BESS, there is potential for unplanned air emissions which could result in the release of HF. However, even though this is highly unlikely to occur the Applicant will prepare an oBFSMP which will contain a variety of measures to minimize fire risk and, in the unlikely event that a fire occurs, minimise its

spread, which will be submitted with the DCO application. The outline version will take into account comments received at non statutory and statutory consultation. Subject to the Proposed Development receiving development consent, the Applicant will develop the detailed design and update the BFSMP in consultation with the HSE and the local fire authority and with the approval of North Yorkshire Council prior to the beginning of operations. With these measures in place and the 100m set off, impacts from unplanned emissions on air quality are not expected to be significant. As a result, an assessment of effects upon air quality during operation from unplanned atmospheric emissions is **scoped out** from further assessment.

6.8.3 Decommissioning

6.8.3.1 Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2mbgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay. This is unlikely to result in significant air quality effects.

6.8.3.2 The decommissioning phase of the Proposed Development at the Solar Development Sites 1-5 will comprise activities similar to the construction phase and are not expected to result in any greater effects on air quality.

6.8.3.3 The potential limited effects of the Proposed Development on local air quality during decommissioning are associated with dust and traffic. As with construction, it is considered that a construction dust assessment will be required for decommissioning. However, as no significant dust effects are anticipated following implementation of suitable mitigation measures, it is considered that this can be **scoped out** of further assessment and assessed in a Decommissioning Dust Assessment provided alongside the PEIR and ES as a standalone document or technical appendix.

6.8.3.4 An oDEMP will be produced as part of the DCO application, which will include a commitment to produce an updated Decommissioning Dust Assessment prior to development should the DCO be granted to inform the detail of mitigation measures. It is anticipated that with the implementation of suitable site-specific mitigation measures through the oDEMP, the residual effects of decommissioning dust on existing sensitive receptors will not be significant.

6.8.3.5 It is also expected that there would be similar or fewer vehicles associated with the decommissioning phase when compared with the construction phase and it is anticipated that this can also be **scoped out**. However, once traffic data becomes available for the decommissioning phase this will be screened against the EPUK/IAQM criteria to confirm this assumption.

6.8.3.6 As a result, an assessment of effects upon air quality during decommissioning is **scoped out** from further assessment.

6.8.4 Cumulative and in-combination

6.8.4.1 As stated in Section 6.6.5.1 it is unlikely that there would be cumulative air quality impacts so it is unlikely there would be cumulative air quality effects.

6.9 Proposed assessment methodology

6.9.1.1 The ES is not proposed to contain an air quality chapter reporting the assessment on air quality as all aspects are unlikely to result in significant effects and are proposed to be **scoped out** of further assessment for that reason.

6.9.1.2 However, construction and decommissioning dust assessments will be undertaken to identify site specific mitigation measures required and will feed into the oCEMP and oDEMP that support the DCO application. The Construction Dust Assessment will be undertaken in accordance with the IAQM document 'Guidance on the Assessment of Dust from Demolition and Construction (January 2024)' [74]. The assessment will consider the potential dust soiling, human health and ecological effects (where applicable) at existing sensitive receptor locations, as a result of demolition, earthworks, construction and the trackout of dirt and mud onto the public highway. As no significant effects are anticipated for dust following the implementation of suitable mitigation measures, the dust assessment will be provided as a standalone report or technical appendix.

6.9.1.3 An outline BFSMP will be prepared and submitted as part of the DCO application. A DCO requirement will be sought, which requires the plan to be finalised during the detailed design of the Proposed Development should DCO consent be successful.

6.10 Assumptions, limitations and uncertainties

Assumptions

6.10.1.1 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. No surveys have been undertaken by the Applicant for the purpose of this EIA scoping report.

6.10.1.2 It is assumed that the data collated is accurate. The data will be supplemented with additional data in preparing the scoped in construction and decommissioning phase dust assessment. It is assumed that the data, information, and primary and secondary sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

6.10.1.3 It is assumed that future baseline pollutant concentrations within the draft Order Limits would reduce compared to the present level. Emissions due to road traffic, especially those of NO_2, are gradually declining owing to changes in the composition of the vehicle fleet with improving emission performance of newer vehicles and the increasing uptake of low-emission vehicles and EVs. However, it is possible that other committed developments may arise in the future which could change the baseline conditions.

6.10.1.4 It has also been assumed that the decommissioning phase will comprise activities similar to the construction phase including dust generation, emissions from vehicle movements and therefore the likely impacts will be the same.

Limitations

6.10.1.5 There are no limitations that have been identified as part of this EIA scoping report chapter.

Uncertainties

6.10.1.6 There are no uncertainties that have been identified as part of this EIA scoping report chapter.

6.11 Summary

Table 6.10 Air Quality scoping summary

Aspect	Phase	Scoped in/out	Justification
Construction dust	Construction	Scoped out	A dust assessment will support the DCO application for the construction phase and the decommissioning phase. This will also consider cumulative effects. Construction plant and NRMM are also to be scoped out based on the temporary and intermittent nature of their use at varying locations within the draft Order Limits.
	Operation (including replacement and routine inspection and maintenance activities)	N/A	
	Decommissioning	Scoped out	
Vehicle emissions	Construction	Scoped out	Construction traffic is scoped out on the basis that the anticipated AADT vehicle movements of 21 HDVs will be below the EPUK/IAQM screening criteria. Therefore, no significant effects are anticipated during construction from traffic generation associated with the Proposed Development.
	Operation (including replacement and routine inspection and maintenance activities)	Scoped out	Operational traffic is scoped out on the basis that the anticipated vehicle movements are to be <1 LDV AADT and will be below the EPUK/IAQM screening criteria. No significant effects are therefore anticipated due to traffic generated in associated with operation of the Proposed Development
	Decommissioning	Scoped out	Decommissioning traffic is scoped out on the basis that the decommissioning vehicle movements are anticipated to be the same as the Construction vehicle movements (21 HDV AADT) or fewer and will therefore likely be below the EPUK/IAQM screening criteria. Therefore, no significant effects are anticipated due to traffic generated from the decommissioning phase.
	Construction	N/A	

Aspect	Phase	Scoped in/out	Justification
Operational plant emissions	Operation (including replacement and routine inspection and maintenance activities)	Scoped Out	There are no operational plant or combustion processes included in the design of the Proposed Development. Therefore, this aspect has been scoped out of the assessment and there will be significant effects on nearby sensitive receptors.
	Decommissioning	N/A	
Operational emissions of unplanned air quality emissions such as hydrogen fluoride, due to potential but unlikely BESS fire event	Construction	N/A	There is potential for a fire within the BESS, although highly unlikely, could result in unplanned air emissions of chemicals such as HF. However, this is highly unlikely based on the design, in-built mitigation and the BFSMP. On this basis, unplanned air emissions have been scoped out of a formal assessment.
	Operation (including replacement and routine inspection and maintenance activities)	Scoped out	
	Decommissioning	N/A	

7. Biodiversity

7.1 Introduction

7.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of biodiversity.

7.1.1.2 It sets out biodiversity receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

7.1.1.3 The following aspects have been considered as part of the scope and methodology for biodiversity:

- Internationally, nationally and locally designated sites;
- Priority and non-priority habitats; and
- Protected and notable species.

7.1.1.4 This chapter is supported by the following figures:

- Figure 7.1: Statutory Designated Sites - International Designations 20km
- Figure 7.2: Statutory Designated Sites - National Designations 2km
- Figure 7.3: SSSI Impact Risk Zones 2km
- Figure 7.4: Non-Statutory Designated Sites
- Figure 7.5: Priority Habitats 2km
- Figure 7.6: Priority Species 2km
- Figure 7.7: Baseline Habitats

7.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development, including:
  - Figure 1.1: Site Location and Draft Order Limits; and
  - Figure 1.2: Solar Development Concept Layout Plan
- Chapter 6: Air Quality
- Chapter 14: Landscape and Visual
- Chapter 16: Noise and Vibration
- Chapter 18: Traffic and Movement
- Chapter 19: Water Resources and Flood Risk.

7.2 Relevant legislation, policy, standards and guidance

7.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for biodiversity and have informed the scope of the assessment.

7.2.2 Legislation

Table 7.1 Biodiversity - Legislation

Legislation	Relevance to assessment
The Environment Act, 2021 **[81]**	The Environment Act (November 2021) makes it mandatory for the vast majority of development projects to deliver a 10% biodiversity net gain (BNG). Further secondary legislation is required to apply the BNG requirement to NSIP developments. Previous consultation has set the expectation that a BNG requirement will be imposed on NSIP projects from November 2025, with the level of the requirement detailed within a BNG Statement(s) (subject to prior publication) but presently expected to be set at the same 10% level. A BNG assessment will be prepared for the project to describe the expected biodiversity change post development.
The Wildlife and Countryside Act (WCA), 1981 **[82]** (as amended)	In Britain, the WCA 1981 (as amended) is the primary legislation protecting habitats and species. SSSIs, representing the best examples of our natural heritage, are notified under the WCA 1981 (as amended) by reason of their flora, fauna, geology or other features. All breeding birds, their nests, eggs and young are protected under the Act, which makes it illegal to knowingly destroy or disturb the nest site during nesting season. Schedules 1, 5 and 8 afford protection to individual birds, other animals and plants.
The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019) **[83]**	The European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, often referred to as the 'Habitats Directive', provides for the protection of key habitats and species considered of European importance. Annexes II and IV of the Directive list all species considered of community interest. The legal framework to protect the species covered by the Habitats Directive has been enacted under UK law through The Conservation of Habitats and Species Regulations 2017 (as amended).
The Countryside and Rights of Way (CRoW) Act, 2000 **[84]**	The CRoW Act 2000 strengthens the species enforcement provisions of the WCA 1981 (as amended) and makes it an offence to 'recklessly' disturb a protected animal whilst it is using a place of rest or shelter or breeding/nest site.
The Natural Environment and Rural Communities Act (NERC) 2006 **[85]**	Provides a list of habitats and species of principal importance for the conservation of biodiversity
The Hedgerows Regulations, 1997 **[86]**	The Hedgerows Regulations 1997 were introduced in England and Wales to protect important hedgerows. They require landowners to notify the local planning authority before removing or damaging any hedgerow that meets certain criteria. If the local planning authority determines that the hedgerow is important, they can issue a retention notice, prohibiting its removal. The regulations apply to most countryside hedgerows, but do not affect hedges in domestic gardens. They aim to preserve hedgerows for their

Legislation	Relevance to assessment
	ecological benefits, such as providing habitat for wildlife and helping to prevent soil erosion.
The Protection of Badgers Act, 1992 **[87]**	The Protection of Badgers Act 1992 was introduced in the UK to protect badgers and their setts. It makes it illegal to intentionally kill, injure, or capture a badger, or to damage or destroy a badger sett. The Act also prohibits the disturbance of badgers while they are in their setts. The Act aims to conserve badger populations and protect their habitats. It is a criminal offense to violate the provisions of the Act, and offenders can face fines or imprisonment.

7.2.3 Policy

Table 7.2 Biodiversity - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[88]**	Sets broad national policy approach. Section 5.4 Biodiversity and Geological Conservation addresses biodiversity, outlining approach to assessment of impacts and determining requirement for mitigation (if required), including the following paragraphs of relevance: Paragraph 3.3.63 states: "*Subject to any legal requirements, the urgent need for critical national priority (CNP) Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible*." Paragraph 5.4.17 states: "*Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats*." In respect of mitigation, paragraphs 5.4.35 – 5.4.40 outlines appropriate mitigation measures to minimise any adverse impact
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[89]**	Establishes policy specific to renewable energy schemes, including solar in Section 2.10. Paragraphs 2.10.75 to 2.10.92 outline the ecological and environmental considerations for solar farm developments. The paragraphs emphasise the importance of conducting thorough ecological assessments, minimising negative impacts, and maximising biodiversity benefits in solar farm developments. It also provides guidance on various aspects of the development process to ensure environmental sustainability.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[90]**	NPS EN-5 addresses policy for energy transmission, including the routing of overhead lines and undergrounding cables, and general requirements for 'good design' in accordance with the Horlock Rules (paragraphs 2.9.18 – 2.9.19). It also outlines the potential risks posed by electricity networks infrastructure to birds and outlines particular consideration should be given to functionally linked land (paragraphs 2.9.3 – 2.9.6).

Policy	Relevance to assessment
National Planning Policy Framework (NPPF), 2023 **[91]**	The updated National Planning Policy Framework (NPPF) was published in December 2023 and sets out the Government's planning policies for England and how these should be applied. It replaces the first National Planning Policy Framework published in March 2012. Paragraph 11 states that: "*Plans and decisions should apply a presumption in favour of sustainable development*." Section 11 of the NPPF, paragraph 124, sub-section a states that planning policies and decisions should: a) "*encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains such as developments that would enable new habitat creation or improve public access to the countryside;* *b) recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production"* *Section 15 of the NPPF (paragraphs 180 – 194) considers the conservation and enhancement of the natural environment.* *Paragraph 180 states that planning and decisions should contribute to and enhance the natural and local environment by:* *a) "protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);* *b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;* *c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; and* *d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*" Paragraph 181 states that plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries. Paragraph 185 states that in order to protect and enhance biodiversity and geodiversity, plans should: a) "*Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity ; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation ; and* *b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of*

Policy	Relevance to assessment
	priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity." When determining planning applications, Paragraph 186 states that local planning authorities should apply the following principles: a) "*if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;* *b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;* *c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and* *d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate*." As stated in paragraph 187 the following should be given the same protection as habitats sites: a) "*potential Special Protection Areas and possible Special Areas of Conservation;* *b) listed or proposed Ramsar sites; and* *c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."* Paragraph 188 states that the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.
Selby District Core Strategy Local Plan, adopted 2013 **[92]**	The Selby District Core Strategy Local Plan is the adopted planning document created by the former Selby District Council. Key polices include: Policy SP15 Sustainable Development and Climate Change Policy SP18 Protecting and Enhancing the Environment
Selby District Local Plan, adopted 2005 **[93]**	The Selby District Local Plan 2005 is a key planning document that outlines the strategic vision for development and land use within the former Selby District. Key saved polices include: ENV9 Sites of Importance for Nature Conservation ENV11 Ancient Woodland

Policy	Relevance to assessment
	ENV12 River and Stream Corridors ENV13 Development Affecting Ponds
The Selby Biodiversity Action Plan, 2004 **[94]**	The Selby District Biodiversity Action Plan 2004 is a strategic document that outlines the Council's approach to conserving and enhancing biodiversity within the district.
Environmental Improvement Plan (EIP), 2023 **[95]**	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.

7.2.4 Standards and guidance

Table 7.3 Biodiversity - Standards and guidance

Standards and guidance	Relevance to assessment
Ecological Impact Assessment Guidelines for Preliminary Ecological Appraisal, 2nd Edition (2017) **[96]** Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester. CIEEM (2018) **[97]**	The guidelines provide a structured approach for identifying and assessing potential ecological impacts of development projects.
Habitat Regulations Assessment Habitats Regulations Assessments: Protecting a European site (2021) **[98]** Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (2024) **[99]**	Provides guidance on how to conduct Habitats Regulations Assessments (HRAs) for nationally significant infrastructure projects in the United Kingdom.
Air Quality A guide to the assessment of air quality impacts on designated nature conservation sites (2019) **[100]** Advisory Note: Ecological Assessment of Air Quality Impacts (2023) **[101]**	Provides guidance on how to assess the potential impacts of air pollution on designated nature conservation sites and ecosystems.
Habitats (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough **[102]** The UK Habitat Classification (2023) **[103]**	These guidelines provide a resource for conducting ecological assessments and environmental audits. It provides a standardised methodology for identifying and classifying habitats in the UK.
Biodiversity Net Gain The Statutory Biodiversity Metric User Guide (2024) **[104]**	Guidance regarding the use of the Statutory Metric in the assessment of BNG.
Amphibians Great Crested Newt Mitigation Guidelines (2001) **[105]**	These resources provide guidance for developers and landowners on how to

Standards and guidance	Relevance to assessment
Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus) (2000) **[106]** ARG UK Advice Note 5, Great Crested Newt Habitat Suitability (2010)https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file **[107]** SureScreen Scientifics GCN eDNA testing **[108]** Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA **[109]**	minimise the impact of their projects on Great Crested Newt populations. The provide a standardised methodology for amphibian surveys and provide advice on best practices for Great Crested Newt conservation, including habitat management and monitoring.
Badger Surveying Badgers (1989) **[110]** The history, distribution, status and habitat requirements of the badger in Britain (1990) **[111]** Badgers: surveys and mitigation for development projects, Natural England standing advice (2022) **[112]** The Classification of Badger (Meles meles) Setts in the UK: A Review and Guidance for Surveyors. (2013) **[113]**	These resources provide a comprehensive overview of badger surveying and mitigation practices in the UK, including legal requirements and best practices for badger surveys in the context of development projects.
Bats UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. (2023) **[114]** 3rd Edition Bat Workers' Manual (2004) **[115]** Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition) (2023) **[116]** Bat Roosts in Trees: a guide for identification and assessment for tree-care and ecology professionals (2018) **[117]**	These guidelines provide comprehensive information on bat surveys, mitigation, and habitat assessment in the UK.
Birds The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain (2021) **[118]** Bird census techniques (2000) **[119]** Gilbert, G., Gibbons, D.W., & Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England. **[120]** Bird Survey Guidelines for assessing ecological impacts (2023) **[121]**	These resources provide information on bird populations, census techniques, and survey methodologies in the UK.
Otter Otters: advice for making planning decisions **[122]** Monitoring the Otter Lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, (2003) **[123]**	These resources offer a range of information on otter ecology, survey methods, and conservation practices in the UK.

Standards and guidance	Relevance to assessment
Non-intrusive monitoring of otters (Lutra lutra) using infrared technology **[124]**	
Reptiles Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10. Froglife, Halesworth. **[125]** Reptiles: advice for making planning decisions (2022) **[126]**	These resources provide information on conducting reptile surveys and making planning decisions related to reptiles in the UK.
Water vole The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series) (2016) **[127]** Water Vole Field Signs and Habitat Assessment A Practical Guide to Water Vole Surveys (2021) **[128]** Strachan, R., Moorhouse, T. and Gelling, M. (2011) Water Vole Conservation Handbook. Third Edition. Wildlife Conservation Research Unit, Oxford **[129]**	These resources provide information on water vole surveys, mitigation, and conservation in the UK.
Nationally Significant Infrastructure Projects Planning Inspectorate Technical Advice Page for Scoping Solar Development (2024) – Solar Scoping Table **[130]**	The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. The guidance recommends that information is included on contaminated land and mineral resources' receptors and the anticipated impacts. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below. Receptors are illustrated on Figure 7.1 to Figure 7.7. Regarding invasive non-native species (INNS) The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows: • risk analysis as to whether INNS species are likely to be present • anticipated components and activities of the Proposed Development across all phases which could result in the introduction and, or spread of invasive species, such as translocation via vehicle movements, water, vegetation management • summary of site surveys or provision of preliminary ecological appraisal, phase one habitat surveys or individual habitat or species surveys. The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register: Commitment to providing:

Standards and guidance	Relevance to assessment

	• outline of standard measures to identify and control invasive species and how these will be secure, such as through an invasive species management plan.
	• Regarding species or habitats
	• The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows:
	  ○ a preliminary ecological appraisal and / or phase one habitat survey completed within the two years prior to submission of the scoping request
	  ○ Identification, location, importance and sensitivity of species/habitats within a Zone of Influence (ZoI) with reference to relevant guidance to define sensitivity of species/habitats on site/ potential to be on site
	  ○ evidence of absence of suitable supporting habitat for a particular species.
	• The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register:
	  ○ commitment to any anticipated follow up surveys required
	  ○ appropriate buffers / construction management measures
	  ○ any proposed strategic level licencing processes that will be relied upon, for example district level licencing for great crested newts.
	Evidence and assumptions provided in this chapter:
	• Evidence relied upon in scoping out aspects of the assessment are provided within section 7.7 and 7.8. Associated assumptions are listed in one location within section 7.10.
	Mitigation and commitments register:
	• Section 7.7 provides further details of the proposed mitigation measures taking into account the above examples, as may be relevant.
	• The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

7.3 Consultation

7.3.1.1 The Applicant will consult with the following stakeholders with regards to biodiversity as part of the assessment process and non-statutory and statutory consultation:

- Natural England; and
- North Yorkshire Council.

7.3.1.2 Consultation will be undertaken to agree on the proposed assessment methodology outlined in this chapter, including details of the baseline environmental surveys.

7.3.1.3 The following stakeholders have already been consulted as part of preparing this EIA scoping report chapter:

- Natural England, regarding survey scope and designated sites; and
- North Yorkshire Council, regarding survey scope.

7.3.1.4 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to biodiversity.

7.3.1.5 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

7.4 Study area

7.4.1.1 The draft Order limits are split into two broad areas, the Solar Development Sites 1-5 and the Cable Corridor Options Area, within which the Proposed Development would be located as described in Chapter 2 The Proposed Development and as shown on Figure 1.1 Site Location and Draft Order Limits.

7.4.1.2 The study area for ecological surveys includes land within the Solar Development Sites 1-5, the Cable Corridor Options Area and an appropriate buffer zone around this boundary, as described below.

7.4.1.3 The boundaries and radii established for the ecological 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 draft Order Limits (which comprises the Solar Development Sites 1-5 and the Cable Corridor Options Area). This approach is based on the published guidelines and professional expertise set out in Table 7.3 above.

7.4.1.4 The draft Order Limits includes all ecologically important features that may be directly or indirectly impacted by the project. 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 - 20km radius;
- Statutory designated national sites - 2km radius;
- Statutory designated SSSI impact risk zones - 5km/10km radius;
- Non-statutory designated local sites - 2km radius;
- Notable and protected habitats - 2km radius;
- Notable and protected species - 2km radius;
- Habitat survey – the draft Order Limits;
- Birds - Breeding bird survey – the draft Order Limits and 50m radius;
- Birds - Non-breeding bird survey – the draft Order Limits and suitable adjacent habitat up to 500m radius;
- Bats - Activity survey – the draft Order Limits;
- Bats - Static survey – the draft Order Limits;
- Bats - Ground Level Trees Assessments – the draft Order Limits;
- Great Crested Newt - Habitat Suitability Index (HSI) Assessment the draft Order Limits and 250m radius;
- Great Crested Newt - eDNA survey – the draft Order Limits and 250m radius;
- Badger survey - the draft Order Limits and 30m radius where appropriate;
- Bats - Tree climbing surveys – the draft Order Limits;
- Bats - Emergence surveys – the draft Order Limits;
- Otter survey – the draft Order Limits and suitable habitat within 200m of proposals; and
- Water vole survey – the draft Order Limits.

7.4.1.5 The Solar Development Sites and Cable Corridor Options Area are indicative at this stage while optioneering is ongoing to finalise the most appropriate Cable Corridors that underground electric cable connections would be located within. Therefore, these areas of the draft Order limits are likely to reduce in size as the design is refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. Therefore, as the draft Order Limits are refined the ecological study area will reduce accordingly which will be described in the PEIR and ES.

7.5 Baseline conditions

7.5.1 Desktop sources used

7.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Multi-Agency Geographic Information for the countryside (MAGIC) website;
- North & East Yorkshire Ecological Data Centre;
- North Yorkshire Council website;
- Joint Nature Conservation Committee (JNCC) website;
- Natural England (NE) designated sites website;
- Ordnance Survey mapping;
- Google Maps, including aerial photography; and
- Data regarding the historic cropping regime of the study area will be presented in the Preliminary Environmental Information Report and Environmental Statement

7.5.2 Surveys undertaken and proposed

7.5.2.1 The following surveys have been completed or partly completed at the time of writing:

- Habitats (2024);
- Habitat Condition Assessment (to inform BNG) (2024);
- Arboricultural Assessment (2024);
- Birds – Breeding (2024);
- Bats – Activity (2024);
- Bats – Static (2024); and
- Birds – Non-breeding Birds (2024 – 2025).

7.5.2.2 Survey design continues to be discussed with consultees and is therefore subject to change. To date the following surveys and assessments are planned to be undertaken, and will inform the PEIR and ES:

- Biodiversity Net Gain Assessment (2025);
- Aquatic Fauna Habitat Assessment (2025);
- Targeted Aquatic Fauna Surveys where impacts are expected (2025);
- Great Crested Newt HSI Assessment (2025);
- Great Crested Newt eDNA (2025);
- Badger (2024 – 2025);
- Bats – Ground Level Trees Assessments (2024 – 2025);
- Bats – Tree Climbing (where appropriate 2024 – 2025);
- Bats – Emergence (where appropriate 2024 – 2025);
- Otter (2024 - 2025); and
- Targeted Water Vole Surveys where impacts are expected (2025).

7.5.3 Existing baseline

7.5.3.1 The Solar Development Sites are split across a total of five separate land parcels, referred to herein as 'Solar Development Sites 1-5' or individually as may be required. The locations and extents of the five Solar Development Sites are shown in Figure 1.1. A description of Solar Development Sites 1-5 is provided in Chapter 2 The Proposed Development within section 2.3.

Designated sites

7.5.3.2 The study area for the identification of designated sites follows best practice guidelines [131]. Sites of International importance were assessed at 20 km from the nearest draft Order Limits boundary (Figure 7.1), with National, County and Locally designated site being assessed at 2 km from the nearest Site boundary (Figures 7.2, 7.3 and 7.4).

Statutory designated nature conservation sites

7.5.3.3 A number of sites of international importance are present within the 20 km of the draft Order Limits (Figure 7.1); these are listed below alongside their closest distance to the draft Order Limits:

- Skipwith Common SAC (215m east of the Cable Corridor and 2.4 km South of Solar Development Site 1);
- Lower Derwent Valley SPA, SAC & Ramsar (2.8 km East of Solar Development Site 1);
- River Derwent SAC (2.9 km East of Solar Development Site 1);
- Humber Estuary SPA, SAC & Ramsar (12.8 km East of Solar Development Site 5);
- Thorne & Hatfield Moors SPA (12.8 km Southeast of Solar Development Site 5);
- Thorne Moor SAC (12.8 km Southeast of Solar Development Site 5);
- Strensall Common SAC (15.1 km North of Solar Development Site 1); and
- Hatfield Moor SAC (19.3 km South of Solar Development Site 5).

7.5.3.4 The Sites of Special Scientific Interest (SSSI) 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.

7.5.3.5 No sites of national importance such as Sites of Special Scientific Interest (SSSI), National Nature Reserve (NNR) or National Parks are identified within 2km of any of the Solar Development Sites (Figure 7.2). The nearest site is Skipwith Common Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR), 2.4 km from the nearest Site boundary, which is a constituent part of Skipwith Common SAC.

7.5.3.6 There are three sites of national importance within 2km of the Cable Corridor Options Area, these are listed below alongside their closest distance to the Corridor:

- Burr Closes, Selby SSSI (Adjacent);

- Skipwith Common SSSI & NNR (215m East); and
- Fairburn and Newton Ings SSSI (1.5km West).

7.5.3.7 SSSI Impact Risk Zones (IRZs) are used as a rapid initial assessment tool by Local Planning Authorities to determine if a Proposed Development is likely to affect a terrestrial SSSI and highlight when Natural England should be consulted. The Solar Development Sites are identified within the SSSI Impact Risk Zone (Figure 7.3) of several SSSIs for the type and scale of development proposed (Solar schemes with footprint > 0.5ha, all wind turbines). These Impact Risk Zones appear to be related to the SSSI designations outlined above and are considered in the assessment. The Cable Route Options Area also falls within the IRZs of several SSSIs for the type and scale of development proposed (All planning applications and solar schemes with footprint > 0.5ha, all wind turbines). As above these are considered in the assessment.

7.5.3.8 No sites of local importance such as Local Nature Reserves (LNR) are identified within the 2km of the Solar Development Sites or Cable Corridor Options Area. The nearest site is Barlow Common LNR, 2.9 km from the nearest Site boundary.

Non-statutory designated nature conservation sites

7.5.3.9 A number of Sites of Importance for Nature Conservation (SINC) and Candidate SINC, of county importance are located both adjacent and within 2km of the draft Order Limits (Figure 7.4); these are listed below alongside their closest distance to the draft Order Limits:

Solar Development Site 1

- Gilbertsons Plantation - Wheldrake Site 65 (0m (adjacent) Northeast);
- Gashouse Plantation (125m Northwest);
- Common Wood (310m Southwest);
- Manor Wood, Skipwith (425m Southeast);
- North Selby Mine (695m North);
- Crook Moor (750m Southeast);
- Ponds In Grounds, Queen Margaret's School (860m Northwest);
- North Selby Mine - Wheldrake Site 13 (900m North);
- Nightingale Wood (980m South);
- Benjy Lane Meadows - Wheldrake Site 14 (980m Northeast);
- Hollicarrs Wood (1km Southwest);
- Yorkshire Rivers Important Invertebrate Area (1.4km East);
- Scarrow Green Pond, Little Skipwith (1.8km South); and
- West Plantation - Wheldrake Site 16 (1.8km Northeast).

Solar Development Site 2

- N/A

Solar Development Site 3

- Bywater Wood (1km Southwest); and
- Pond At Betteras Hill Road (1.1km Northwest).

Solar Development Site 4

- Borrow Pit East Of Birkin (10m South);
- Beal Carrs (500m South); and
- Staker Wood (540m Northeast).

Solar Development Site 5

- Burn Disused Airfield (720m North); and
- Selby Canal & Towpath (1.5km Northwest).

Cable Corridor Options Area

- Riccall Dam, Riccall (Within);
- York and Selby Cycle Track (Within);
- Small Lakes, Riccall Ings (Within);
- Ouse Bank, Westfield, Riccall Ings (Within);
- Common Wood (Adjacent);
- Hollicarrs Wood (Adjacent);
- Nightingale Wood (Adjacent);
- Mulberry Farm Ponds (Adjacent);
- Bishop Wood (Adjacent);
- Barber Rein (Adjacent);
- Bywater Wood (Adjacent);
- Far Carr Meadow, Wistow Deleted SINC (Adjacent);
- Swamp On Selby Dam Near Low Rest Park Farm Deleted SINC (Adjacent); and
- Meadow Near Hillam Gates Level Crossing Deleted SINC (Adjacent).

7.5.3.10 There are a further 30 SINCs and 9 deleted SINCs within 2km of the Cable Corridor Options Area.

7.5.4 Habitats

7.5.4.1 Habitats of principal importance identified within proximity to the draft Order Limits are described below and can be viewed in Figure 7.5. Habitats identified within the site are detailed in Figure 7.7, with brief descriptions provided below.

7.5.4.2 An Arboricultural Assessment is currently being undertaken and will identify any potential ancient woodland and veteran trees that are not identified through the desktop assessment (described below).

Solar Development Site 1

7.5.4.3 The majority of Solar Development Site 1 comprises agricultural cropland and grazing land bordered by hedgerows, trees and watercourses with pockets of woodland and a small number of ponds.

7.5.4.4 No habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the site in the desktop search. However, a number of parcels of Deciduous Woodland (derived from the National Forest Inventory 2020) were identified immediately adjacent to the site boundary (as well as within the wider landscape). One of these woodlands was also identified as Ancient Woodland in the Natural England Ancient Woodland database. This is located adjacent to the northeast boundary of the site and is associated with Gilbertsons Wood. Hedgerows and ponds are not part of the inventory but are present within the site, and these may be of principal importance.

7.5.4.5 Other habitats of principal importance found adjacent to the site include Good Quality Semi-Improved Grassland and Traditional Orchard. Lowland Fen and Pond habitats are found in the wider landscape (within 2km of the site).

Solar Development Site 2

7.5.4.6 Solar Development Site 2 predominantly comprises agricultural cropland dissected by Fleet Dike watercourse into two distinct halves. Further watercourses and hedgerows bound the periphery of the site. A number of scattered trees are present at the northern end of the site, as well as a small parcel of modified grassland cut for silage.

7.5.4.7 No habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the site in the desktop search. One parcel of Deciduous Woodland (derived from the National Forest Inventory 2020) was identified immediately adjacent to the site boundary (as well as within the wider landscape). None of these habitats were identified as Ancient Woodland in the Natural England Ancient Woodland database. Hedgerows are not part of the inventory but are present within the site, and these may be of principal importance.

7.5.4.8 Other habitats of principal importance found within 2km of the site include Coastal and Floodplain Grazing Marsh, Lowland Fens and Traditional Orchard.

Solar Development Site 3

7.5.4.9 Solar Development Site 3 is split by an un-named ditch in the southern portion of the site. Further ditches bound the southern parcel of land. Habitats within the site largely comprise agricultural cropland with scattered trees and three smaller parcels of other neutral grassland. Several small sections of hedgerow are also present around the periphery of the site.

7.5.4.10 No habitats of principal importance listed in the Natural England Priority Habitats Inventory, were identified within or adjacent to the site and no habitats were identified as Ancient Woodland in the Natural England Ancient Woodland database. Hedgerows are not part of the inventory but are present within the site, and these may be of principal importance.

7.5.4.11 Other habitats of principal importance found within 2km of the site include Coastal and Floodplain Grazing Marsh, Deciduous Woodland, Lowland Fens and Traditional Orchard. None of the woodland habitats were identified as Ancient Woodland in the Natural England Ancient Woodland database.

Solar Development Site 4

7.5.4.12 Solar Development Site 4 comprises a large expanse of agricultural cropland mostly bordered by watercourses and ditches with comparatively very few trees. The southern most boundary of the site is bordered by the banks of the River Aire.

7.5.4.13 No habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the site in the desktop search. However, a number of parcels of Deciduous Woodland (derived from the National Forest Inventory 2020) were identified immediately adjacent to the site boundary (as well as within the wider landscape). None of these habitats were identified as Ancient Woodland in the Natural England Ancient Woodland database. Hedgerows are not part of the inventory but are present within the site, and these may be of principal importance.

7.5.4.14 Other habitats of principal importance found within 2km of site 4 include Lowland Fens and Traditional Orchard.

Solar Development Site 5

7.5.4.15 Solar Development Site 5 comprises another large expanse of agricultural cropland dissected by a number of ditches and strips of other neutral grassland forming field margins. A number of trees are present in the western portion of the site. The southwestern boundary of the site lies approximately 40m north of the banks of the River Aire.

7.5.4.16 No habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the site in the desktop search. One parcel of Deciduous Woodland (derived from the National Forest Inventory 2020) was identified immediately adjacent to the site boundary (as well as within the wider landscape). None of these habitats were identified as Ancient Woodland in the Natural England Ancient Woodland database. Hedgerows are not part of the inventory but are present within the site, and these may be of principal importance.

7.5.4.17 Other habitats of principal importance found within 2km of the site include Coastal and Floodplain Grazing Marsh, Lowland Fens, Ponds and Traditional Orchard.

7.5.5 Cable Corridor Options Area

7.5.5.1 Habitats within the Cable Corridor Options Area appear to be largely similar to those within the Solar Development Sites comprising pre-dominantly of agricultural land containing both cropland and agricultural grassland. Other habitats present include scattered trees, hedgerows, watercourses, ponds and pockets of woodland. The corridor crosses the River Ouse and Selby Canal, as well as other named Dikes and Drains. There may be other habitats present and this will be determined during surveys expected to commence in 2025.

7.5.5.2 No areas of Ancient Woodland identified in the Natural England Ancient Woodland database are present within the Cable Corridor Options Area. There are parcels directly adjacent to the Corridor in a number of locations named below:

- Bishop Wood
- Unnamed wood near Greenlands Lane
- Hollicarrs Wood
- Common Wood
- Manor Wood.

7.5.5.3 Several parcels of habitats of principal importance listed in the Natural England Priority Habitats Inventory were identified within the Cable Corridor Options Area. Habitats include:

- Coastal and floodplain grazing marsh
- Deciduous woodland
- Lowland fens
- No main habitat but additional habitats present
- Traditional orchard.

7.5.5.4 Hedgerows and ponds are not part of the inventory but are present within the Cable Corridor Options Area , and these may be of principal importance.

7.5.5.5 Other habitats adjacent to the Cable Corridor Options Area or in the immediate surrounds (within 50m) not directly attached to habitats described above include Lowland Meadows (associated with Burr Closes, Selby SSSI) and further parcels of Deciduous Woodland.

7.5.6 Fauna

7.5.6.1 Based on the habitats recorded within the baseline surveys to date and the desktop study results (Figure 7.6), the draft Order Limits has the potential to support the following species/species groups:

- Amphibians;
- Badgers;
- Bats;
- Birds (breeding and non-breeding);
- Brown hare;
- Hedgehog;
- Invertebrates;
- Otter;
- Reptiles; and
- Water vole.

7.5.7 Future baseline

7.5.7.1 The future baseline for biodiversity is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding as it is likely the current management of the draft Order Limits as farmland will be maintained. However, it is possible that other committed developments may arise in the future which could change the baseline conditions.

7.6 Potential impacts

7.6.1 Construction

7.6.1.1 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;
- Indirect impacts to adjacent locally designated sites (disturbance/degradation of habitats and species);
- Direct habitat loss within the draft Order Limits;
- Fragmentation of habitat across the draft Order Limits;
- Indirect habitat loss/damage through degradation of retained/adjacent habitats (including ancient woodland);
- 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.

7.6.2 Operation and maintenance

7.6.2.1 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 PV modules;
- Disturbance / displacement of species during operational maintenance;
- Disturbance / displacement due to the replacement of solar PV modules once and batteries twice during the operational phase;
- Disturbance / displacement due to lighting of habitats that support light sensitive species such as bats; and
- Potential increase in botanical, bird and invertebrate species-richness due to habitat enhancements and ongoing management associated with BNG.

7.6.2.2 Risk of impacts to ground nesting farmland and wintering birds during maintenance operations (via vehicle movements) would be expected to be similar or less than current agricultural operations.

7.6.3 Decommissioning

7.6.3.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors would remain in place following decommissioning. It is expected that relatively minor decommissioning activities would require the removal of the likely small in scale above ground infrastructure in the form of manholes to allow access to the joint bay and link boxes. Any control boxes in the vicinity of joint bays would be removed along the cable connections between Solar Development Sites 1-5 and Monk Fryston Substation. Therefore, the decommissioning activities have the potential for the following impacts on important ecological features:

- Indirect impacts to an internationally designated site through pollution pathways;
- Indirect impacts to adjacent locally designated sites (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.

7.6.4 Cumulative and in-combination effects

7.6.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20 Cumulative and in-combination effects. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment and will consider impacts from other chapters such as Chapter 6 Air Quality, Chapter 16 Noise and Vibration, Chapter 12 Ground Conditions, Chapter 18 Traffic and Movement and Chapter 19 Water Resources and Flood Risk.

7.7 Design, mitigation and enhancement measures

7.7.1 Embedded measures

7.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 The Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

7.7.1.2 Embedded measures can comprise modifications to the design of a scheme, made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

7.7.1.3 Embedded measures for the Proposed Development relevant to biodiversity are likely include:

- Opportunities to retain grazing / other compatible agricultural uses under panels will be explored and considered alongside other compatible land uses such as measures to maximise biodiversity.
- The construction compound(s) will be located on low diversity habitat, where practicable and will be located as far as practicable from sensitive receptors.
- A 15m buffer will be provided around any construction works and from any infrastructure (including fencing) and to ancient / veteran trees and ancient woodland. Final buffers to ancient / veteran trees and ancient woodland will be informed by an Arboricultural Impact Assessment, which will set out Root Protection Areas;
- Loss of woodland and hedgerow will be kept to a minimum and is likely only to be required to facilitate access points / cable routing / fencing, with reinstatement provided (access tracks and cable routing will be located to pass through existing field gates and gaps in hedgerows where feasible). Where possible, the Applicant will also incorporate a 10m buffer to non-ancient woodland (identified from the National Forestry Inventory and surveys) and a 5m buffer for all non-ancient / non-veteran trees. This design principle has been achieved in the current Proposed

Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan. Final buffers to retained trees and hedgerows will be informed by an Arboricultural Impact Assessment, which will set out Root Protection Areas.

- A minimum offset 10m from bank top for all watercourses from all infrastructure (including fencing) 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). This design principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan;
- Infrastructure and construction works will be located at suitable buffer distances from protected species, (for example, 30m from known badger sett locations etc.) where practicable;
- Fencing of the solar panel areas and associated infrastructure areas (except cable connections between the sites which would not be fenced) will be designed to let small mammals pass through where possible;
- Sustainable urban drainage systems (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing conditions;
- Internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates;
- Existing hedgerows in poor condition will be reinforced with new planting where feasible to strengthen landscape pattern and habitat connectivity which may contribute to historic landscape character;
- Opportunities for connection and extension of woodland and hedgerow will be explored to strengthen landscape pattern, and habitat connectivity and which may contribute to historic landscape character;
- No significant lighting will be provided during operation (demand responsive motion sense lights only);
- Establishment of a sensitive lighting plan covering construction and operational lighting to ensure lighting of suitable bat commuting, foraging and roosting habitats and otter/water vole habitat is minimised;
- Timing construction works to avoid the bird breeding season, to avoid disturbance impact to nesting birds (or provision of Ecological Clerk of Works (ECoW) to check for the presence of active nests, establish appropriate buffer zones and monitor disturbance);
- Ensuring all open excavations are either ramped or fenced such that unintended entrapment of fauna 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
- An Invasive Species Management Plan (ISMP).

7.7.2 Management plans

7.7.2.1 A suite of management plans will additionally be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to biodiversity include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Construction Traffic Management Plan (oCTMP);
- Outline Drainage Strategy;
- Arboricultural Impact Assessment (AIA);
- Outline Landscape and Ecology 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; and
- Outline Decommissioning Environmental Management Plan (oDEMP).

7.7.3 Further mitigation

7.7.3.1 Further mitigation are actions that require further activity in order to achieve a reduction in an effect, and/or anticipated outcome that is not embedded mitigation. Further mitigation for biodiversity will be defined through the PEIR and ES once the level of effects is known having taken into account the embedded measures that have been committed to or achieved.

7.7.3.2 Options for further mitigation for the Proposed Development relevant to biodiversity will be dependent upon the ecological features found during the baseline survey. This will include assessing the condition of habitats to provide a baseline for 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 Proposed Development to avoid 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).

7.7.3.3 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.

7.7.3.4 As far as practicable, the Proposed Development design will be guided to avoid ecological impacts. The further mitigation to be described in the PEIR and ES chapter on biodiversity will focus on minimising, restoring and compensating for impacts that cannot be avoided. Where the design incorporates avoidance of ecological features, this will be identified. The proposed mitigation will be designed to be proportionate to the value of the feature and consequent impacts of the Proposed Development. Where there is uncertainty in the level of effect, a precautionary approach will be taken.

7.7.3.5 The Proposed Development 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.

7.7.3.6 Options for further mitigation for the Proposed Development relevant to Biodiversity may include:

- Further surveys may reveal the requirement for licences with bespoke mitigation solutions for protected species such as bats, great crested newts and water voles.

7.7.3.7 Further mitigation will be outlined in the Commitments Register at Appendix 2.1.

7.8 Likely significant effects

7.8.1 Construction, operation and maintenance and decommissioning

7.8.1.1 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 7.4. It should be noted that the Cable Corridor Options are 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 the PEIR and ES Chapter once the cable corridor is fixed and distances between it and nature conservation sites are known.

Table 7.4 Biodiversity Scoping Summary

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
Designated Sites				
Skipwith Common SAC & SSSI (215m E)	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. Nevertheless for road traffic emissions the distance criteria applied for assessment is 200m which this site falls out off.	Scoped out for construction, operation, decommissioning
Lower Derwent Valley SPA & Ramsar (2.8km E)	International	Supports nationally important winter numbers of Bewick's swan, Golden plover, and Ruff. It also supports breeding Shoveler and other waders. It is also an area of international importance for wintering wildfowl.	Potential for loss of functional habitat for populations of birds forming qualifying features of the SPA / Ramsar	Scoped in for construction, operation, decommissioning
Lower Derwent Valley SAC (2.8km E)	International	Supports Annex I habitats: Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) and Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion	Potential Impacts to qualifying features such as otter arising from indirect effects of construction if run off were to result in pollution of Pallion Dike (which eventually connects	Scoped out for construction, operation, decommissioning

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
		incanae, Salicion albae). Also supports Annex II species otter.	to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. As such, potential impacts to these species and other qualifying features of the SAC are considered unlikely.	
River Derwent SAC (2.9 km E)	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 of Pallion Dike (which eventually connects to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. Therefore, potential impacts to these species and other qualifying features of the SAC / SSSI are considered unlikely.	Scoped out for construction, operation, decommissioning
Humber Estuary SPA, SAC & Ramsar (12.8km E)	International	Supports avocet (Recurvirostra avosetta); bar-tailed godwit (Limosa lapponica); bittern (Botaurus stellaris); black-tailed godwit (Limosa limosa); dunlin (Calidris alpina); golden plover (Pluvialis apricaria); hen harrier	Potential for loss of functional habitat for populations of birds forming qualifying features of the SPA / Ramsar. The Cable Corridor Options Area crosses the River Ouse which is noted to support	Scoped in for construction, operation, decommissioning

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
		(Circus cyaneus); knot (Calidris canutus); little tern (Sternula albifrons); marsh harrier (Circus aeruginosus); redshank (Tringa totanus); ruff (Philomachus pugnax); shelduck (Tadorna tadorna), as well as for its waterbird assemblage. It also supports Annex I habitat Estuaries and Mudflats and sandflats not covered by seawater at low tide and supports Annex II species that are present as a qualifying feature; Sea lamprey, River lamprey and Grey seal.	migrating lamprey associated with the River Derwent, which is a tributary of the River Ouse. It is anticipated that this river will be crossed using directional drilling and therefore consideration of the design and depth of drilling will need to be taken into consideration to ensure no impacts on this species occurs.	
Thorne & Hatfield Moors SPA (12.8km SE)	International	Supports a breeding population of Nightjar.	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
Thorne Moor SAC (12.8km SE)	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

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
Strensall Common SAC (15.1km N)	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
Hatfield Moor SAC (19.3km S)	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
Burr Closes, Selby SSSI (Adjacent to Cable Corridor Options Area)	National	Supports unimproved species-rich damp alluvial meadow. Also noted for supporting the Forester moth *Procris statices*.	Construction close to the boundary of the SSSI could lead to disturbance of habitats and associated species. The design principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a cable corridor that will avoid impacts to this SSSI.	Scoped in based on current proximity to Cable Corridor Options Area, but a screening exercise will be taken as part of the PEIR and ES chapter to re-assess sites depending on the final alignment of the cable corridor.
Fairburn and Newton Ings SSSI (1.5km West of Cable Corridor Options Area)	National	Diverse wetland flora which supports large numbers of birds particularly wintering wildfowl and a variety of migrants.	The Cable Corridor Options Area is within influencing distance of this SSSI. Potential effects on species associated	Scoped in based on current proximity to Cable Corridor Options Area, but a screening exercise will be

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
			with the site is likely to be temporary and short-term and optioneering and timing of works would seek to avoid impacts to this SSSI where possible. Qualifying species could however be present within the Solar Development Sites. Potential impacts will be informed by non-breeding bird surveys.	taken as part of the PEIR and ES chapter to re-assess sites depending on the final alignment of the cable corridor
Gilbertsons Plantation - Wheldrake Site 65 SINC (adjacent NE)	County	Woodland habitat (Oak/Sycamore plantation) classified as a bluebell wood (also an ancient woodland).	There is potential for direct damage to habitats in the adjacent SINC. However following the design principles , a 15m buffer from this SINC is proposed (as it is an ancient woodland) and this buffer, as well as the measures in the oCEMP/oLEMP should suffice to prevent direct impacts during construction, operation, and decommissioning phase. Works close to the boundary of the SINC could also lead to indirect disturbance of habitats and associated species. However following the design principles, the proposed 15m buffer discussed above should suffice to prevent indirect impacts during the construction,	Scoped out

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
			operation and decommissioning phase.	
SINCs within the Cable Corridor Options Area: Riccall Dam, Riccall York and Selby Cycle Track Small Lakes, Riccall Ings Ouse Bank, Westfield, Riccall Ings	County	Supporting a range of habitats and species.	Construction within or close to the boundary of these SINCs could lead to direct loss or disturbance of habitats and associated species. The design principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a cable corridor that will avoid impacts to these sites.	Scoped in based on current proximity to Cable Corridor Options Area, but a screening exercise will be taken as part of the PEIR and ES chapter to re-assess sites depending on the final alignment of the cable corridor
SINCs adjacent to the Cable Corridor Options Area: Common Wood Hollicarrs Wood Nightingale Wood Mulberry Farm Ponds Bishop Wood Barber Rein Bywater Wood Far Carr Meadow, Wistow Deleted SINC Swamp On Selby Dam Near Low Rest Park Farm Deleted SINC	County	Supporting a range of habitats and species.	Construction close to the boundary of these SINCs could lead to disturbance of habitats and associated species. The design principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a cable corridor that will avoid impacts to these sites.	Scoped in based on current proximity to Cable Corridor Options Area, but a screening exercise will be taken as part of the PEIR and ES chapter to re-assess sites depending on the final alignment of the cable corridor)

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
Meadow Near Hillam Gates Level Crossing Deleted SINC				
All other SINCs (20 within 2km of Solar Development Sites and 39 within 2km of Cable Corridor Options Area)	County	Supporting a range of habitats and species.	Potential impacts to the qualifying features of these designation are considered unlikely due to distance and lack of impact pathways with the potential to affect designated features during the construction, operation, and decommissioning phase	Scoped out
Habitats				
Arable land	Negligible	Throughout the draft Order Limits	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 birds), these species are scoped into the assessment and the value of this habitat is assessed within that feature.	Scoped out
Grassland	Local	Throughout the draft Order Limits	Potential for habitat loss (losses as yet undefined).	Scoped in
Waterbodies	Local	Throughout the draft Order Limits and up to 250m from the draft Order Limits	Habitat loss in general is to be determined but the design principles will seek no loss of ponds and a buffer of 10m to any works.	Scoped in (as design not yet fixed)

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
			This buffer, as well as the oCEMP/oLEMP should suffice to prevent impacts from potential damage to retained habitat during construction, operation, and decommissioning phase	
Ditches	Local	Throughout the draft Order Limits	Potential for small scale habitat loss (losses as yet undefined). Following the design principles, losses would be limited to necessary crossing locations.	Scoped in (as design not yet fixed)
Watercourses	Local	Throughout the draft Order Limits	Potential for small scale habitat loss (losses as yet undefined) following the design principles, losses would be limited to necessary crossing locations. The River Aire will not be directly impacted by the proposals.	Scoped in (as design not yet fixed)
Hedgerow	Local	Throughout the draft Order Limits	Potential for habitat loss (losses as yet undefined) following the design principles, losses would be limited to connection points, but sections of hedgerow may be removed to connect fields and allow for larger solar panel areas.	Scoped in (as design not yet fixed)
Trees	Local	Throughout the draft Order Limits	Potential for habitat loss (losses as yet undefined) following the design principles , losses would be limited to connection points, but trees may be removed to	Scoped in (as design not yet fixed)

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
			connect fields and allow for larger solar panel areas.	
Broad-leaved Woodland (adjacent)	Local	Adjacent to the draft Order Limits	No loss of this habitat is anticipated as woodland habitat appears to be offsite and a 10m buffer from woodland habitat is proposed, which will be sufficient to protect the habitat from any potential damage during construction, operation, and decommissioning phase	Scoped in (as impacts unclear at this stage and design not yet fixed and other areas of woodland may be identified within the draft Order Limits)
Ancient Woodland (adjacent)	National	Adjacent to the draft Order Limits	No loss of this habitat is anticipated and a 15m buffer from this habitat is proposed. This buffer, as well as the oCEMP/oLEMP should suffice to prevent impacts during construction, operation, and decommissioning phase.	Scoped out
Degradation of retained habitats	Local	Throughout the draft Order Limits	Potential for damage to retained habitats will be avoided by following the design principles set out above and oCEMP/oLEMP	Scoped out
Invasive non-native flora	Negligible	Potentially throughout the draft Order Limits	Potential for spread if they occur in areas affected by construction, operation, and decommissioning phase.	Scoped in
Species				
Amphibians	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury	Scoped in

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
Aquatic fauna	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / temporary fragmentation of habitat Disturbance, killing / injury	Scoped in
Badger	Negligible	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury	Scoped in
Bats	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat, disturbance, potential loss of roost opportunities in trees	Scoped in
Birds (breeding)	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat, disturbance, killing / injury could affect breeding populations of farmland bird species locally including red listed / priority species.	Scoped in
Birds (non-breeding)	Local	Extent of presence within draft Order Limits yet to be confirmed	Potential loss of functional habitat for birds that are a feature of nearby conservation designations is considered separately above under the relevant statutory nature conservation designations. There is also the potential for loss of habitat for other farmland bird species using the draft Order Limits as a habitat resource during the winter months.	Scoped in
Brown hare	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls during construction,	Scoped in

Feature	Feature importance	Summary of Features	Potential for significance of effect	Scoped in / Scoped out
			operation, and decommissioning phase.	
Hedgehog	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls during construction, operation, and decommissioning phase.	Scoped in
Invertebrates	Local	Extent of presence within draft Order Limits 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 but an assessment will need to be undertaken	Scoped in
Otter	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat, potentially including breeding habitat, Disturbance, killing / injury	Scoped in
Reptiles	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls during construction, operation, and decommissioning phase.	Scoped in
Water vole	Local	Extent of presence within draft Order Limits yet to be confirmed	Loss / fragmentation of habitat Disturbance, killing / injury	Scoped in

7.8.2 Cumulative and in-combination effects

7.8.2.1 As stated in section 7.6 the assessment will identify any likely significant cumulative and in-combination effects.

7.9 Proposed assessment methodology

7.9.1 Method of assessment

7.9.1.1 An Ecological Impact Assessment (EcIA) will be prepared to inform the biodiversity chapter of the PEIR and ES to be submitted with the DCO application. It will assess protected sites, habitats and species in accordance with the CIEEM Ecological Impact Assessment guidance, using the approach set out as follows:

7.9.2 Sensitivity, value or importance

7.9.2.1 Geographical scope - A desk-based study and initial site survey have been used to identify important ecological features (sites, habitats and species) which may be affected by the Proposed Development to determine the study area, and to inform the scope of further survey work required. The study area extends beyond the draft Order Limits boundary to include a 20km radius for international statutory site designations, a 2km radius for national statutory site designations and non-statutory site designations; and a 2km radius for all protected and priority species records.

7.9.2.2 Temporal scope - The EcIA will cover the construction, operational and decommissioning phases of the development.

7.9.2.3 Sensitivity of Receptors - The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the Zone of Influence (ZOI) in accordance with the CIEEM EcIA guidance.

7.9.2.4 The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features in accordance with the scale Table 7.5.

Table 7.5 Receptors and geographical scales of ecological importance

Designation	Receptors
International	An ecological feature (species, designated site or habitat) which is important at an international level. A population that would meet the published selection criteria as a qualifying feature for designation of a SAC. An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex 1 priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.
National	Nationally significant populations of species identified as being of principle importance for the conservation of biodiversity in, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI. A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation. A significant area of a non-designated habitat type identified in as being of principle importance for the conservation of biodiversity in, the loss of which would significantly change the overall range and area should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.
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 (North 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. Sites formally recognised by local authorities, e.g. SBI, or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in the NERC Act for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP.
Local	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance of greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.
Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status

Designation	Receptors
	at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.

7.9.3 Environmental Impacts

7.9.3.1 The assessment will consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing/injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

7.9.3.2 The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;
- Extent – this is the area over which an effect occurs;
- Magnitude – the size or amount of an effect, determined on a quantitative basis where possible (see Table 7.6 below);
- Duration – the time for which an effect is expected to last prior to recovery or replacement of the resource of feature;
- Timing and frequency – some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility- an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable. This approach to reversibility is taken from CIEEM's guidelines and will be a different approach to that being taken by the other topics in the PEIR/ES to this question; and
- Cumulative effects – where consideration is given to any other developments within the ZOI, together with the Proposed Development, may result in significant effects.

7.9.3.3 The overall magnitude of impacts and the associated environmental impacts are presented in Table 7.6.

Table 7.6 Magnitude of effects

Magnitude of Effect	Environmental Impact
Major	The impact is likely to have an adverse / positive effect on the integrity of a site or the conservation status of a species or species assemblage
Moderate	The impact affects a site or the conservation status of a species or species assemblage, but the adverse impact would not affect integrity of that site or the conservation status of a species or species assemblage. A moderate positive impact would benefit conservation status of a site / species / species assemblage.

Magnitude of Effect	Environmental Impact
Minor	The impact is likely to have an adverse / positive effect an ecological feature but would not affect integrity or conservation status.
Negligible	An effect positive or negative would be minimal. No detectable change from the baseline condition

7.9.3.4 Impact Prediction Confidence - It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out in Table 7.7.

Table 7.7 Impact Prediction Confidence

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

7.9.4 Significance of effects

7.9.4.1 The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The CIEEM EcIA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.

7.9.4.2 In accordance with professional guidance and terminology; a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a designated site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such change

7.9.4.3 The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences.

7.9.4.4 Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applied at the scale relevant to the feature or resource.

7.9.4.5 Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.

7.9.4.6 The location of key ecological receptors identified through the surveys and desk study used to inform this EIA scoping chapter are presented in Figures 7.1 to 7.7.

7.9.5 Supplementary assessments

7.9.5.1 A Biodiversity Net Gain (BNG) Assessment Report and shadow Habitat Regulations Assessment (HRA) – 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.

7.10 Assumptions, limitations and uncertainties

7.10.1.1 This EIA scoping report does not represent the results of an EcIA but provides a conservative judgement about impact pathways and receptors for which significant effects are considered possible, and which should therefore be scoped in to 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.

7.11 Summary

Table 7.8 Biodiversity Scoping Summary

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Designated Sites				
Skipwith Common SAC (215m E)	Desk based review	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. Construction traffic movements will be insufficient to create potential pathways through air pollution. Nevertheless for road traffic emissions the distance criteria applied for assessment at the traffic levels anticipated would be 200m which this designated site falls outside off.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Lower Derwent Valley SPA & Ramsar (2.8km E)	Bird surveys are currently being undertaken	Construction	Scoped in	Potential for loss of functional habitat for populations of birds forming qualifying features of the SPA / Ramsar
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
	for winter 2024/2025 period			
Lower Derwent Valley SAC (2.8km E)	Desk based review	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 of Pallion Dike (which eventually connects to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. As such, potential impacts to these species and other qualifying features of the SAC are considered unlikely.
		Operation	Scoped out	
		Decommissioning	Scoped out	
River Derwent SAC (2.9 km E)	Desk based review	Construction	Scoped out	Potential impacts to qualifying features (such as River lamprey, which migrate along the River Ouse) arising from indirect effects of construction if run off were to result in pollution of Pallion Dike (which eventually connects to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. Therefore, potential impacts to these species and other qualifying features of the SAC / SSSI are considered unlikely.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Humber Estuary SPA, SAC & Ramsar (12.8km E)	Bird surveys are currently being undertaken	Construction	Scoped in	Potential for loss of functional habitat for populations of birds forming qualifying features of the SPA / Ramsar.
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
	for winter 2024/2025 period			The Cable Corridor Options Area crosses the River Ouse which is noted to support migrating lamprey. It is anticipated that this river will be crossed using directional drilling and therefore consideration of the design and depth of drilling will need to be taken into consideration to ensure no impacts on this species occurs.
Thorne & Hatfield Moors SPA (12.8km SE)	Desk based review	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.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Thorne Moor SAC (12.8km SE)	Desk based review	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.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Strensall Common SAC (15.1km N)	Desk based review	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.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Hatfield Moor SAC (19.3km S)	Desk based review	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.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Burr Closes, Selby SSSI	Desk based review	Construction	Scoped in	Construction close to the boundary of the SSSI
		Operation	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
(Adjacent to Cable Corridor Options Area)		Decommissioning	Scoped in	could lead to disturbance of habitats and associated species. The design principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a cable corridor that will avoid impacts to this SSSI.
Fairburn and Newton Ings SSSI (1.5km West of Cable Corridor Options Area)	Desk based review	Construction	Scoped in	The Cable Corridor Options Area is within influencing distance of this SSSI. Potential effects on species associated with the site is likely to be temporary and short-term and optioneering and timing of works would seek to avoid impacts to this SSSI where possible.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Gilbertsons Plantation - Wheldrake Site 65 SINC	Desk based review	Construction	Scoped out	There is potential for direct damage to habitats in the adjacent SINC. However following the Design Principles, a 15m buffer from this SINC is proposed (as it is an ancient woodland) and this buffer, as well as the measures outlined in the oCEMP/oLEMP should suffice to prevent direct impacts. Works close to the boundary of the SINC could also lead to indirect disturbance of habitats and associated species. However following the Design Principles, the proposed 15m buffer discussed above should suffice to prevent indirect impacts.
		Operation	Scoped out	
		Decommissioning	Scoped out	
SINCs within the Cable Corridor Options Area:	Desk based review	Construction	Scoped in	Construction within or close to the boundary of these SINCs could lead to direct loss or disturbance
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Riccall Dam, Riccall York and Selby Cycle Track Small Lakes, Riccall Ings Ouse Bank, Westfield, Riccall Ings				of habitats and associated species. The Design Principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a Cable Corridor that will avoid impacts to these sites.
SINCs adjacent to the Cable Corridor Options Area: Common Wood Hollicarrs Wood Nightingale Wood Mulberry Farm Ponds Bishop Wood Barber Rein Bywater Wood Far Carr Meadow, Wistow Deleted SINC Swamp On Selby Dam Near Low Rest Park Farm Deleted SINC Meadow Near Hillam Gates Level Crossing Deleted SINC	Desk based review	Construction	Scoped in	Construction close to the boundary of these SINCs could lead to disturbance of habitats and associated species. The Design Principals have not yet been applied to the Cable Corridor Option Area but optioneering would seek to identify a Cable Corridor that will avoid impacts to these sites.
		Operation	Scoped in	
		Decommissioning	Scoped in	
All other SINCs (20 within 2km of Solar Development Sites and 39 within 2km of Cable Corridor Options Area)	Desk based review	Construction	Scoped out	Potential direct and indirect impacts to the qualifying features of these designation are considered unlikely due to distance and lack of impact pathways with the potential to affect designated features.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Habitats				

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Arable land	Habitat surveys are currently being completed	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 birds), these species are scoped into the assessment and the value of this habitat is assessed within that feature.
		Operation	Scoped out	
		Decommissioning	Scoped out	
Grassland	Habitat surveys are currently being completed	Construction	Scoped in	Potential for habitat loss (losses as yet undefined).
		Operation	Scoped in	
		Decommissioning	Scoped in	
Waterbodies	Habitat surveys are currently being completed	Construction	Scoped in	Habitat loss in general is to be determined but the design principles will seek no loss of ponds and a buffer of 10m to any works. This buffer, as well as the oCEMP/oLEMP should suffice to prevent impacts from potential damage to retained habitat.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Ditches	Habitat surveys are currently being completed	Construction	Scoped in	Potential for small scale habitat loss (losses as yet undefined). Following the design principles, losses would be limited to necessary crossing locations.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Watercourses	Habitat surveys are currently being completed	Construction	Scoped in	Potential for small scale habitat loss (losses as yet undefined). Following the design principles, losses would be limited to necessary crossing locations and the River Aire will not be directly impacted by the proposals.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Hedgerow	Habitat surveys are currently	Construction	Scoped in	Potential for habitat loss (losses as yet undefined). Following the design principles, losses would be
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
	being completed			limited to connection points, but sections of hedgerow may be removed to connect fields and allow for larger solar panel areas.
Trees	Habitat surveys are currently being completed	Construction	Scoped in	Potential for habitat loss (losses as yet undefined). Following the design principles, losses would be limited to connection points, but trees may be removed to connect fields and allow for larger solar panel areas.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Broad-leaved Woodland	Habitat surveys are currently being completed	Construction	Scoped in	No loss of this habitat is anticipated. Woodland habitat appears to be offsite and a 10m buffer from woodland habitat is proposed, which will be sufficient to protect the habitat from any potential direct or indirect impacts. Surveys are ongoing to determine if any further woodland is present.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Ancient Woodland	Habitat surveys are currently being completed	Construction	Scoped in	No loss of this habitat is anticipated and a 15m buffer from this habitat is proposed. This buffer, as well as the oCEMP/oLEMP should suffice to prevent direct and indirect impacts.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Degradation of retained habitats	Habitat surveys are currently being completed	Construction	Scoped out	Potential for damage to retained habitats will be avoided by following the Design Principles set out above and which will be provided in the oCEMP/oLEMP
		Operation	Scoped out	
		Decommissioning	Scoped out	
Invasive non-native flora	Habitat surveys are currently being completed	Construction	Scoped in	Potential for spread if they occur in areas affected by the development. Measures to control species where present or there is a risk they could be present will
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
				be outlined in an Invasive Species Management Plan.
Species				
Amphibians	eDNA surveys required in 2025 to inform any Natural England District Level Licencing (DLL) required for the project	Construction	Scoped in	Loss / fragmentation of habitat. Disturbance, killing / injury.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Aquatic fauna	Habitat based assessment will be undertaken	Construction	Scoped in	Loss / temporary fragmentation of habitat. Disturbance, killing / injury.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Badger	Surveys will be completed 2024/2025	Construction	Scoped in	Loss / fragmentation of habitat. Disturbance, killing / injury.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Bats	Surveys are currently being undertaken	Construction	Scoped in	Loss / fragmentation of habitat. Disturbance and potential loss of roost opportunities in trees.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Birds (breeding)	Surveys are complete and analysis underway	Construction	Scoped in	Loss / fragmentation of habitat, disturbance, killing / injury could affect breeding populations of farmland bird species locally including red listed / priority species.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Birds (non-breeding)	Surveys are currently being undertaken for winter 2024/2025 period	Construction	Scoped in	Potential loss of functional habitat for birds that are a feature of nearby conservation designations is considered separately above under the relevant statutory nature conservation designations. There is also the potential for loss of habitat for other
		Operation	Scoped in	
		Decommissioning	Scoped in	

Feature	Scope of Surveys	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
				farmland bird species using the draft Order Limits as a habitat resource during the winter months.
Brown hare	Habitat based assessment will be undertaken	Construction	Scoped in	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Hedgehog	Habitat based assessment will be undertaken	Construction	Scoped in	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Invertebrates	Habitat based assessment will be undertaken	Construction	Scoped in	Loss / fragmentation of habitat is unlikely to be of sufficient magnitude to affect populations locally based on the dominance of monoculture agricultural habitats present, but an assessment will need to be undertaken.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Otter	Surveys will be completed 2024/2025	Construction	Scoped in	Loss / fragmentation of habitat, potentially including breeding habitat. Disturbance, killing / injury.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Reptiles	Habitat based assessment will be undertaken	Construction	Scoped in	Loss / fragmentation of habitat Disturbance, killing / injury in the absence of appropriate controls.
		Operation	Scoped in	
		Decommissioning	Scoped in	
Water vole	Surveys will be completed 2024/2025	Construction	Scoped in	Loss / fragmentation of habitat. Disturbance, killing / injury.
		Operation	Scoped in	
		Decommissioning	Scoped in	

8. Climate change resilience

8.1 Introduction

8.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2, in respect of climate change resilience (CCR) and in-combination climate change impacts (ICCI).

8.1.1.2 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development; and
- Chapter 9: Greenhouse gas emissions, which provides the scope and methodology for the greenhouse gas (GHG) emissions assessment and is considered separately from the CCR and ICCI assessments.

8.1.1.3 As set out within the Institute of Environmental Management and Assessment's (IEMA) Environmental Impact Assessment (EIA) Guide to: Climate Change Resilience & Adaptation, there are two key strands to assessing climate adaptation issues within EIA:

> *"the risks of changes in the climate to the project (i.e. the resilience or conversely the vulnerability of a project to future climate changes) and the extent to which climate exacerbates or ameliorates the effects of the project on the environment (i.e. 'in-combination' effects)".*

8.1.1.4 This chapter sets out the relevant legislation, policy, standards and guidance, study area, baseline conditions, and a high-level assessment of potential impacts for these two strands:

- **Vulnerability of the Proposed Development to climate change (CCR assessment)**: An assessment of the resilience of the Proposed Development to the potential effects arising from projected changes in future climate.
- **In-Combination Climate Change Impacts (ICCI assessment)**: An assessment of the potential impacts of future climate conditions to act in-combination with the impacts of the Proposed Development on other environmental receptors.

8.2 Relevant legislation, policy, standards and guidance

8.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which have informed the scope of the CCR and ICCI assessments.

8.2.2 Legislation

Table 8.1 Climate change resilience - Legislation

Legislation	Relevance to assessment
The Climate Change Act 2008 **[132]**	The UK legislative basis to address climate change. It sets the requirement for a national adaptation programme and associated publication of a national climate change risk assessment every five years. The Climate Change Act provides the policy framework to promote climate change adaptation action in the UK and comprises the following: The UK Climate Change Risk Assessment (CCRA) is a five-yearly assessment of the major risks and opportunities from climate change to the UK. The most recent evidence report was published in 2021. The National Adaptation Programme is the Government's strategy to address the main risks and opportunities identified in the risk assessment for England and is also produced every five years. The latest National Adaptation Plan was published in 2023. The UK Adaptation Reporting Power grants the Secretary of State the power to require public service organisations to produce reports on what they are doing to adapt to climate change.
Infrastructure Planning (Environmental Impact Assessment) Regulations 2017	5. A description of the likely significant effects of the development on the environment resulting from, inter alia— (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;
Environmental Impact Assessment (EIA) Directive (2014/52/EU) **[133]**	An update to the EIA directive, includes climate change (both mitigation of GHGs and adaptation/vulnerability of projects) within assessment and decision-making processes.

8.2.3 Policy

Table 8.2 Climate change resilience - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[134]**	Sets broad national policy approach. Section 4.10 addresses climate change; outlining the generic considerations that applicants should consider in order to ensure that electricity networks infrastructure is resilient to the effects of climate change.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[135]**	Establishes policy specific to renewable energy schemes, including solar in Section 2.10. EN-3 aims to streamline the consenting process for large-scale solar developments by allowing decisions on solar applications to be made under section 104 of the Planning Act 2008. Solar energy is considered low carbon infrastructure and crucial for achieving net-zero goals, therefore designated Critical National Priority infrastructure under 2.17, 2.18, and Section 3. Paragraph 2.4.11 states that: *"Solar photovoltaic (PV) sites may also be proposed in low lying exposed sites. For these proposals, applicants should consider, in particular, how plant will be resilient to:* • *increased risk of flooding; and* • *impact of higher temperatures."*

Policy	Relevance to assessment
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[136]**	NPS EN-5 addresses policy for energy transmission. Section 2.3 Climate Change Adaptation and Resilience states that applicants should consider any impact on the development from flooding, effects of wind and storms on overhead lines, storms, ground and coastal movements and droughts.
The National Planning Policy Framework (NPPF), 2023 **[137]**	The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing & Communities, 2023) sets out the planning policies for England. Chapter 14 of the NPPF (Meeting the Challenge of Climate Change, Flooding, and Coastal Change) sets out the approach to the planning system's transition to a low carbon future in the context of changing climate.
The Flood Risk and Coastal Change Guidance within the National Planning Practice Guidance **[138]**	The Flood Risk and Coastal Change Guidance within the National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2014) contains climate change allowances to be included in Flood Risk Assessments (FRA). These allowances take the form of percentage uplifts for streamflow and precipitation for proposed drainage design.
UK Climate Change Risk Assessment **[139]**	The UK Climate Change Risk Assessment identifies 61 climate risks cutting across multiple sectors of society. Its purpose is to help identify the range of potentially significant and costly impacts that the UK will be subject to unless significant further action is taken now. It seeks to continue to raise ambitions on adaptation to ensure the UK is resilient to the challenges of a warming world.
North Yorkshire Council - Climate Change Strategy 2023 to 2030 **[140]**	Within this strategy document, Key Theme 2 is dedicated to adaptation and resilience. This section highlights the council's focus on improving resilience and key strategies to do so.
Selby District Core Strategy Local Plan, adopted 2013 **[15]**	In line with Selby's Core Strategy Objective 7, concerned with tackling climate change and promoting sustainable patterns of development, Strategic policy SP15 Sustainable Development and Climate Change will be considered.
Selby District Local Plan, adopted 2005 **[16]**	No relevant policies to consider at this stage.

8.2.4 Standards and guidance

Table 8.3 Climate change resilience - standards and guidance

Standards and guidance	Relevance to assessment
Institute of Environmental Management and Assessment (IEMA) Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation **[141]**	IEMA provides guidance on the scope and best practice methodology which should be used to assess climate change resilience of projects within EIAs.
Planning Inspectorate Technical Advice Page for	The Planning Inspectorate provides guidance on the scoping of solar projects. It proposes that a description should be included of the

Standards and guidance	Relevance to assessment
Scoping Solar Development – Solar Scoping Table **[142]**	potential climate change impacts both now and in the future, considering both the lifetime of the Proposed Development and appropriate future climate change projections, such as flooding from surface and fluvial flood risk. Evidence and assumptions provided in this chapter: Evidence relied upon in scoping out aspects of the assessment are provided within Section 8.7 and 8.8. Associated assumptions are listed in one location within section 8.10. Mitigation and commitments register: Section 8.7 provides further details of the proposed mitigation measures considering the above examples, as may be relevant. The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

8.3 Consultation

8.3.1.1 To date there has been no formal consultation on the scope of the CCR chapter. Statutory stakeholders will be formally requested to comment on this scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the EIA process, where relevant to the CCR and ICCI assessments detailed in this chapter.

8.3.1.2 A period of non-statutory consultation commenced on 24 October and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process

8.4 Study area

8.4.1.1 The study area is the boundary of the Proposed Development, as set out in Figure 1.1 Site Location and Draft Order Limits.

8.4.1.2 Climate change projection data is available for grid cells across the UK. The key areas of the Proposed Development are covered by 3 of the 12km grid cells. Data was taken from the grid cells where the existing National Grid substation is located and due to proximity to the other cells, it is likely to be representative of the future changes to climate for the whole development.

8.4.1.3 The assessment will include all relevant potential climate hazards associated with the Solar Development Sites 1-5 and the selected Cable Corridor. The assessment of climate risks are assessed for construction, operation and decommissioning.

8.5 Baseline conditions

8.5.1 Desktop sources used

8.5.1.1 The following desktop sources were used to inform the existing baseline conditions of the study area:

- HadUK weather data: HadUK-Grid is a collection of gridded climate variables derived from the network of UK land surface observations [143].
- UKCP18 National Climate Change Projections: These projections set out a range of possible climate scenarios for the UK until 2100 based on latest scientific findings [144].

8.5.2 Surveys undertaken and proposed

8.5.2.1 No surveys are required with respect to the CCR and ICCI assessments.

8.5.3 Existing baseline

8.5.3.1 Information regarding historical climate conditions for the Proposed Development was obtained from HadUK observation data [143]. HadUK data includes various climate metrics which mirror projection data to provide context for the future baseline. Historical climate conditions are provided within the 'Baseline Observation 1980-2010' column of Table 8.4.

8.5.4 Future baseline

8.5.4.1 UKCP18 climate projection data for Representative Concentration Pathway 8.5 (RCP 8.5) has been used to describe the future baseline [145]. The use of RCP 8.5 as a future baseline, which represents a high emissions and high impact future scenario, is in line with IEMA recommendations to take a conservative approach to climate scenario choice [141].

8.5.4.2 Table 8.4 contains both the historical baseline information, and the future climate change projections for multiple climate metrics. The table also provides metrics describing both average conditions and extreme conditions.

Table 8.4 Baseline and projection data for climate metrics. All projections data was taken for RCP 8.5. Future projection data is presented for three percentiles.

Metric	Unit	Baseline observation (1980-2010)	Future climate (2050 to 2080)		
			10th percentile	50th percentile	90th percentile
Summer mean temperature	˚C	15.8	19.3	20.2	20.5
Winter mean temperature	˚C	4.4	6.3	7.1	7.7
Average summer precipitation	mm/day	1.8	1.2	1.4	1.6

Metric	Unit	Baseline observation (1980-2010)	Future climate (2050 to 2080)		
			10th percentile	50th percentile	90th percentile
Average winter precipitation	mm/day	1.6	1.6	1.8	1.9
Average daily maximum temperature in summer	˚C	20.3	24.6	25.5	26.2
Average daily minimum temperature in winter	˚C	1.6	3.4	4.3	4.8
Number of hot days (daily maximum temperature higher than 25°C)	days / year	10.4	41.4	55.6	62.1
Average number of heatwaves per year (3 days above 25˚C)	occurrences/ year	1.3	5.1	6.3	7.0
Dry spells (10 days or more with no precipitation)	occurrences/ year	3.6	4.1	4.3	5.0
Heavy rainfall (annual number of days with >20mm rainfall)	days/ year	2.3	2.1	2.8	3.6

8.5.4.3 Table 8.4 shows that in the future the location of the Proposed Development is projected to experience changes in climate and associated extreme weather events, most notably:

- Increases in the occurrences and intensity of drought events - Summers are projected to be noticeably drier with a 22% reduction in summer precipitation.
- Increases in extreme heat events - Heatwaves are projected to increase from an average of 1.3 per year in the historical baseline, to 6 heatwaves in the future. Summer temperatures are also projected to increase by 4.35˚C, with the hottest part of the day in summer months projected to be 5.17˚C warmer. The number of days reaching above 25 ˚C is projected to increase more than 5-fold.
- Increases in flood risk - Winters are anticipated to be noticeably wetter in the future with average winter precipitation increasing by approximately 20%, in addition to a 22% increase in the number of heavy rainfall days.

8.5.4.4 There are a number of climate variables not included in the UKCP18 dataset, including data on storms, winds and lightening. Insight into these variables was obtained from UKHad data [143] and Met Office Hadley Centre data [144] showing that:

8.5.4.5 **Storms**: There are no compelling trends in changes to storminess, as determined by maximum gust speeds, from the UK wind network over the last four decades. From 2050 onwards, increase in the frequency and intensity of winter storms is expected over the UK [143].

- **Wind**: From 2050 onwards, near surface wind speeds over the UK are predicted to increase during the winter season. Surface wind speeds are predicted to increase more over western parts of the UK and over the ocean in winter and decrease across the UK in summer [143].
- **Lightning**: The data predicts a future increase in spatially averaged lightning frequency over the UK in summer and to a lesser extent in spring, little change in winter, and a decrease in autumn. In winter, future decreases in lightning are expected over the sea to the north and west of the UK, where high flash rates are seen in the present day [143].

8.6 Potential impacts

8.6.1.1 As set out in Section 8.5, the area surrounding the Proposed Development is projected to experience changes in climate and associated extreme weather events. Table 8.5 presents each assessed climate hazard and the likely impacts it may have upon the Proposed Development. It also shows the potential impacts associated with each of these hazards on the physical assets of the Proposed Development and staff working during construction and operation stages.

Table 8.5 Climate hazards assessed and the likely impacts it may have upon the Proposed Development.

Climate hazard	Likely impacts
Increase in extreme heat events	Heat stress could impact materials and structures. In extreme scenarios temperature thresholds for equipment may be breached, causing malfunction. In addition, heat waves can severely reduce solar panel power generation. Extreme heat could cause health risks to staff, increasing the likelihood of heat related illness such as heat stroke or heat exhaustion. Those working outdoors and/or in physically demanding jobs would be most vulnerable.
Increase in storm frequency and intensity	High winds could cause direct or indirect (via debris) damage to assets. Lightning could also damage assets and cause the malfunction of electrical equipment. During construction and decommissioning stages, storms could pose health and safety risks to staff working on the Proposed Development, particularly if working outside.
Increase in heavy rainfall and the risk of flooding	Heavy rainfall could contribute to land subsidence and damage to structures or drainage systems. Heavy rainfall and seasonal shifts in rainfall will also contribute to increased flood risk in the future. During construction and decommissioning stages, flooding could also pose health and safety risks to staff working on the Proposed Development.
Increased risk of drought	Drought could cause ground cracking and subsidence.

8.7 Design, mitigation and enhancement measures

8.7.1 Embedded measures

8.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

8.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures

8.7.1.3 Embedded measures for the Proposed Development relevant to CCR are likely to include:

- Flood: Sustainable drainage solutions (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing site conditions.
- Flood: Access tracks will be permeable (compacted gravel) to allow water to filtrate through and maintain greenfield run-off rates.
- Flood: A Flood Risk Assessment (FRA) will be undertaken to consider the risk of potential extreme flood events as a result of climate change and will identify suitable mitigation to be embedded into the design. Further details on measures pertaining to flood risks can be found in Chapter 19: Water resources and flood risk.
- Ecology: Any landscaping containing planting or planting of species in other areas will consider the resilience of the species to future climates.
- Climate change resilience: As extreme heat and storms are likely to become more frequent as hazards in the future, the design of all elements would take into consideration future extreme temperatures and extreme wind when identifying their design thresholds.

8.7.2 Management plans

8.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to CCR include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Operation Environmental Management Plan (oOEMP);
- Outline Landscape and Ecological Management Plan (oLEMP); and
- Outline Decommissioning Environmental Management Plan (oDEMP).

8.7.3 Further mitigation

8.7.3.1 There are no further mitigation measures identified at this stage.

8.8 Likely significant effects

8.8.1 Climate Change Resilience Assessment

8.8.1.1 The appraisal period of the Proposed Development is 60 years (the operational life), plus the time required to construct and decommission. Climate conditions as set out in Section 8.5 are expected to change over this period, with the potential to negatively impact the Proposed Development.

8.8.1.2 Table 8.6 sets out each climate hazard that may negatively impact on the Proposed Development. It provides a high level assessment as to whether each hazard is likely to result in significant effects, and ultimately whether it is recommended that they be scoped into further assessment within the ES.

Table 8.6 Likely significant effects of climate change that may affect the Proposed Development.

Climate hazard	Impact to the Proposed Development	Scoping conclusion	Scoped in/out
Increase in extreme heat events	Heat stress of materials and structures, reduction in lifespan or malfunction. Extreme heat could cause heat health risks to staff	It is likely that design thresholds for extreme heat will allow for changes to future temperatures. Therefore, extreme heat is unlikely to have any significant impacts on the Proposed Development during the appraisal period, although this will be confirmed during further EIA process.	Scoped in for operational and decommissioning stages
Increase in storm frequency and intensity	High winds could cause direct or indirect (via debris) damage to assets. Lightning could also damage the assets and cause the malfunction of electrical equipment. Storms could cause disruption and safety risks during construction and decommissioning.	Consideration of future projections of wind speed and storm intensity and incorporating these into the design of structures and assets can enhance resilience to such a hazard. Therefore, storms are unlikely to have any significant impacts on the Proposed Development during the appraisal period, although this will be confirmed during further EIA process.	Scoped in for operational and decommissioning stages

Climate hazard	Impact to the Proposed Development	Scoping conclusion	Scoped in/out
Increase in heavy rainfall and the risk of flooding	Heavy rainfall could contribute to land subsidence and damage to structures or drainage systems. Heavy rainfall and seasonal shifts in rainfall will also contribute to increased flood risk in the future.	After mitigation, increased rainfall and risk of flooding are unlikely to have a significant impact on the Proposed Development, although this will be confirmed during further EIA process. Flood risk is also covered in more detail in Chapter 19 'Water Resources and Flood Risks'.	Scoped in for operational and decommissioning stages
Increased risk of drought	Drought could cause ground cracking and subsidence.	Drought is unlikely to have any significant impact on the Proposed Development, although this will be confirmed during further EIA process.	Scoped in for operational and decommissioning stages

8.8.2 In-combination Climate Change Impacts Assessment

8.8.2.1 The ICCI assessment identifies how resilience of various receptors in the surrounding environment may be affected by a combination of future climate conditions and the Proposed Development. The climate parameters relevant to the Proposed Development are detailed in Table 8.7 below together with the rationale for scoping.

Table 8.7 Climate parameters for the in-combination climate change impact of the Proposed Development.

Climate hazard	Scoping conclusion	Scoped in/out
Increase in extreme heat events	As per Table 8.4, projected temperature increases in combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines.	Scoped out for construction, operational and decommissioning stages
Increase in storm frequency and intensity	As per Table 8.4, projected changes in wind patterns in combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines.	Scoped out for construction, operational and decommissioning stages
Increase in heavy rainfall and the risk of flooding	As per Table 8.4, climate change may lead to an increase in substantial precipitation events that could lead to flash flooding or changes to groundwater levels. However, no significant impacts on surface water or groundwater levels are expected as a result of precipitation changes, in combination with the Proposed Development, as the flow of precipitation to ground will not be significantly hindered as a result of the Proposed Development. The Proposed Development, in combination with projected changes in precipitation, is also not expected to	Scoped out for construction, operational and decommissioning stages

Climate hazard	Scoping conclusion	Scoped in/out
	have a significant impact upon receptors identified by other environmental disciplines.	
Increased risk of drought	As per Table 8.4, projected changes in drought patterns in combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines.	Scoped out for construction, operational and decommissioning stages

8.9 Proposed assessment methodology

8.9.1 Desk-based study

8.9.1.1 To fully understand the future climate hazards posed to the Proposed Development during its operational stage, the following climate change projection data will be gathered:

- Future projected climate conditions and extreme weather events for the area encompassing the Proposed Development will be provided for the 2050s-2080s. These time periods cover the operational life of the Proposed Development (2029 – 2089).
- Historical baseline data will be obtained from HadUK data provided by Met Office. Projected changes in average climate conditions will be obtained from the UKCP18 probabilistic climate change projections (both Probabilistic [146] and Regional [147]) of climate change to establish the future climate baseline.
- In the ES, climate change projections for a range of meteorological parameters will be presented for different probability levels within the RCP8.5 high emission scenario [148] for the near-term and long-term future time periods for the 2050s-2080s.

8.9.1.2 Using this data, a high-level climate change risk assessment will be undertaken. The assessments within the ES will be carried out with due consideration of the IEMA (2020) Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation guidance [141].

8.9.1.3 Throughout this methodology the terms ‘impact’ and ‘risks’ are used. These are defined through examples as follows:

- Impact: the impact of climate change within the location of the Proposed Development e.g. increased rainfall (change in climate) results in increased flooding (climate hazard). The terms climate hazard and impact of climate change are used interchangeably throughout this methodology.
- Risks: the result of the climate hazard on the receptors within the Proposed Development e.g. increased flooding (climate hazard) may cause damage to Proposed Development (risk).

8.9.1.4 Using the IEMA guidance, the assessment will include two steps in order to assess each impact and identify if the risk is significant. This method will be applied for both the CCR and ICCI assessments.

8.9.1.5 The two steps include:

1. **Qualitative assessment of impacts:** Each identified impact will be incorporated into a risk assessment and scored based on a combination of; (1) the sensitivity of the receptor (*for CCR key receptors which have been identified, for ICCI receptors identified by other relevant chapters*) (2) the likelihood of the hazard/impact occurring and (3) the consequence of the resultant impact. The risk assessment will also consider any existing mitigation measures within the design of the Proposed Development and identify the need for any additional resilience measures to protect against the impacts of climate change, based on those risks assessed as 'high' or 'very high'. High level resilience measures will be identified through a workshop with key engineering and design experts.
2. **Identification of significant impacts:** Once scored, a qualitative appraisal of the significance of the impacts will be conducted to identify significant residual impacts after design mitigation has been considered.

8.9.1.6 It is considered unlikely that significant climate resilience effects will be identified, or, where the potential for these are identified it is expected that adequate mitigation will be included within wider environmental and engineering design approaches. This will be confirmed within the ES.

8.10 Assumptions, limitations and uncertainties

8.10.1.1 It is assumed that the data, information, and sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

8.10.1.2 The limitations and assumptions for using the proposed methodology are:

- The assessment method will be largely qualitative, particularly the process of scoring risks.
- There is limited methodological guidance on the assessment of individual risks.
- There is inherent uncertainty in climate change projections. The quantitative data used in this study was obtained from UKCP18, the latest set of probabilistic projections for the UK.
- There is often uncertainty in the relationship between changes in climate hazards and the respective response in terms of asset performance. This uncertainty has been assessed qualitatively.

8.11 Summary

8.11.1.1 As set out in Section 8.5, changes to climate at the site of the Proposed Development are likely to increase climate hazards during the appraisal period. Climate change is not expected to be so significant within the construction stage timescales as to require additional mitigation beyond current best practice. Further assessment of CCR is scoped

in for the operational and decommissioning stages due to expected changes in climatic conditions on site during the appraisal period, as summarised in Table 8.8.

Table 8.8 Climate change resilience scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Climate change resilience	Construction	Scoped out	Climate conditions are not expected to change significantly within the construction stage. The full justification for scoping out this aspect is provided in Section 8.8.
	Operation	Scoped in	N/A
	Decommissioning	Scoped in	N/A
In-combination climate change impacts	Construction	Scoped out	The full justification for scoping out this aspect is provided in Table 8.7.
	Operation		
	Decommissioning		

9. Greenhouse gas emissions

9.1 Introduction

9.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2, in respect of Greenhouse Gas (GHG) emissions.

9.1.1.2 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development; and
- Chapter 8: Climate Change Resilience, which provides the scope and methodology for the Climate Change Resilience (CCR) assessment and proposes to scope out an In-combination Climate Change Impacts (ICCI) assessment.

9.1.1.3 This chapter sets out relevant legislation, policy, standards and guidance, the study area, baseline conditions, and a high-level assessment of potential impacts associated with construction, operation and maintenance, and decommissioning of the Proposed Development. It will also identify mitigation measures to reduce GHG emissions through the life cycle of the Proposed Development.

9.2 Relevant legislation, policy, standards and guidance

9.2.1.1 The methodology has been developed in accordance with the relevant legislation and industry guidance on assessing GHG Emissions.

9.2.2 Legislation

Table 9.1 Greenhouse gas emissions - Legislation

Legislation	Relevance to assessment
The Kyoto Protocol, United Nations Framework Convention on Climate Change (UNFCCC) **[149]**	The Kyoto Protocol is an international treaty which extends the UNFCCC and commits state parties to reduce GHG emissions.
Paris Agreement, UNFCCC **[150]**	The Paris Agreement is a legally binding treaty that pledges to limit the increase in global average temperature to well below 2 degrees Celsius (°C), and to aim for 1.5°C, above pre-industrial levels.
Environmental Impact Assessment (EIA) Directive (2014/52/EU) **[151]**	An update to the EIA directive, includes climate change (both mitigation of GHGs and adaptation/vulnerability of projects) within assessment and decision-making processes. This was implemented in the UK for NSIPs via the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
The Climate Change Act 2008, as amended by the Climate Change Act (2050 Target Amendment) Order 2019 **[152]**	The Climate Change Act commits the UK to GHG emissions reductions and reporting. The Act requires the setting of five-yearly Carbon Budgets that are not to be exceeded.

Legislation	Relevance to assessment
	The amendment Order updates the Climate Change Act, stating the UK's net zero target by 2050.
The Carbon Budget Order 2021 Climate Change Committee Sixth Carbon Budget **[153]**	This sets the carbon budgets for each relevant budgetary period. The sixth Carbon Budget (covering the period from 2033 to 2037) is the first budget to take account of the UK Government's 2050 net zero target. The seventh carbon budget is planned to be released in early 2025.

9.2.3 Policy

Table 9.2 Greenhouse gas emissions - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[154]**	With particular reference to paragraphs 2.2.1, 2.3.3, 3.3.57, 3.3.82 in relation to UK's Net Zero target by 2050 and objectives for energy systems; paragraph 2.4.1 in relation to UK's overall GHG emission from power sector; Section 5.3 in relation to GHG assessment and mitigation.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[155]**	Covers renewable energy infrastructure including solar PV above 50MW in England. NPS EN-3 recognises solar farms as one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation worldwide. It provides clear support for large scale solar development, stating that: 'the government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions. As such solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector'. Furthermore, NPS EN-3 recognises the important role solar will have in delivering the UK's energy goals for greater energy independence.
National Planning Policy Framework (NPPF), 2023 **[156]**	Sets out the UK Government's planning policies for England and how these should be applied. Whilst the policies set may be relevant to the assessment, the NPPF does not form the basis for a decision on an NSIP. Key sections of relevance to this assessment include paragraphs 8, 20 and 149 in relation to adaptation, mitigation and climate change resilience; paragraphs 148 and 157 in relation to flood risk and damage to property and people; paragraphs 150 and 153 in relation to reduction of carbon dioxide (CO_2) emissions through design and reduced energy consumption; and paragraphs 155 to 165 in relation to climate projections, associated flood risk and adaptation.
The Clean Growth Strategy Department for Energy Security and Net Zero (DESNZ) and Department for Business, Energy & Industrial Strategy (BEIS) **[157]**	This strategy document sets out key policies and proposals to accelerate clean growth. It projects power sector emissions, taking into account the clean growth pathway between 1990 and 2050.
UK's Nationally Determined Contribution **[158]**	The UK's Nationally Determined Contribution was updated in 2022. The UK commits to reducing economy-wide GHG emissions by at least 68% by 2030, compared to 1990 levels.

Policy	Relevance to assessment
British Energy Security Strategy **[159]**	This strategy sets out how the UK will accelerate homegrown power for greater energy independence.
Net Zero Strategy: Build Back Greener **[160]**	Sets out policies and proposals for decarbonising all sectors of the economy to meet the net zero target by 2050.
Powering Up Britain: Net Zero Growth Plan **[161]**	Provides additional detail on the Just Transition of the main sectors of the UK economy and delivering the UK Government's commitments to net zero by 2050, as set out in the Carbon Budget Delivery Plan [162].
Selby District Core Strategy Local Plan, adopted 2013 **[39]**	Strategy Policy SP15 on Sustainable Development and Climate Change States that: *"7.2 The Core Strategy policies aim to reduce greenhouse gas emissions and protect resources, whilst providing opportunities to exploit realistic alternatives to 'fossil fuels' by promoting renewable energy."*
Selby Local Plan, adopted 2005 **[16]**	No relevant policies to consider at this stage.

9.2.4 Standards and guidance

Table 9.3 Greenhouse gas emissions - Standards and guidance

Standards and guidance	Relevance to assessment
EIA: Guide to Assessing GHG Emissions and Evaluating their Significance (2022), Institute of Environmental Management and Assessment **[163]**	This updated guidance from the IEMA provides a revised, and more nuanced, approach to the assessment of greenhouse gases and their significance within an EIA than the previous iteration. It directs the assessment to adopt a whole life carbon approach to the quantification of GHG emissions. It also directs that the assessment of significance should consider not just the magnitude of GHG emissions arising from a development, but also the role that the project (and resultant increases and decreases in GHG emissions) will play in the transition to net zero in 2050.
Low Energy Transformation Initiative (LETI) Embodied Carbon Primer **[164]**	The LETI Embodied Carbon Primer sets challenging net zero carbon targets for the built environment industry, current regulations and construction practices. It also provides a useful source of benchmark information to support the quantification of GHG emissions.
Royal Institution of Charted Surveyors (RICS), 'Whole life carbon assessment for the built environment' (2nd Edition) **[165]**	The guidance document provides a comprehensive methodology for industry professionals to calculate and report the quantity of GHG emissions throughout all life cycle stages of a project.
BSI - PAS 2080:2023 'Carbon Management in Buildings and Infrastructure' (2023), The Green Construction Board, Construction Leadership Council, the British Standards Institution **[166]**	This standard provides guidance for whole life carbon management, including all stakeholders, and any development to be in line with government's Net Zero 2050 pathway.
The European Investment Bank (EIB) 'EIB Project Carbon Footprint Methodologies. Methodologies for the Assessment of Project GHG	The EIB Project Carbon Footprint Methodologies (2023) guidance is used to expand upon the IEMA guidance to establish the baseline scenarios for the assessment. This goes into greater detail in terms of a baseline methodology

Standards and guidance	Relevance to assessment
Emissions and Emissions Variations' **[167]**	and allows for easier comparison of impacts where there is no prior development in an area.
United Nations Economic Commission Europe's (UNECE), 'Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources' (2022) **[168]**	The report presents an assessment of various electricity generation technologies and their associated environmental impacts across its various metrices such as health, ecosystems, and resource requirement through their life cycle. The document also provides information on energy storage, comparison of lifecycle impacts of selected electricity storage options which could be useful in the design stage and during considering alternatives that have a minimum carbon footprint.

9.3 Consultation

9.3.1.1 To date there has been no formal consultation on the scope of the GHG Emissions chapter. Statutory stakeholders will be formally requested to comment on this scoping report, via the scoping process.

9.3.1.2 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

9.4 Study area

9.4.1.1 The GHG assessment considers emissions arising from the construction, operation and decommissioning of the Proposed Development (across Solar Development Sites 1-5 and the selected Cable Corridor), some of which are emitted within the draft Order Limits, but the majority of which are emitted outside the boundary, e.g. extraction, manufacture, and transport of materials for construction of the Proposed Development. The spatial study area for the GHG assessment is therefore determined by the GHG emissions sources that fall within the scope of the quantification process for the assessment.

9.4.1.2 The temporal boundary for the GHG emissions assessment constitutes the construction phase (anticipated to be 2-3 years), operation phase (expected design life of the Proposed Development is 60 years) and decommissioning phase (anticipated to be 2-3 years).

9.5 Baseline conditions

9.5.1 Desktop sources used

9.5.1.1 A quantitative assessment of baseline conditions has not been undertaken for this EIA scoping report, and therefore, there are no data sources to be listed.

9.5.2 Surveys undertaken and proposed

9.5.2.1 No surveys are required in respect of the GHG emissions assessment.

9.5.3 Existing baseline

9.5.3.1 Aligning with IEMA [163] guidance, the baseline (Do-Minimum (DM) scenario) is the reference against which the impact of the Proposed Development will be compared and assessed. The DM scenario comprises the cumulative GHG emissions within the study area over the appraisal period, but without implementation of the Proposed Development.

9.5.4 Future baseline

9.5.4.1 The future baseline is defined as the GHG emissions arising from the study area in the absence of the Proposed Development. In this scenario it is assumed that no construction activity would take place within the boundary of the Proposed Development, and that this area would continue to operate in its current configuration.

9.5.5 Receptors

9.5.5.1 For the GHG assessment, emissions are not geographically limited and have a global effect rather than directly affecting local receptors. As per IEMA guidance [163], the receptor is therefore the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

9.6 Potential impacts

9.6.1.1 This section outlines the potential impacts associated with construction, operation and decommissioning of the Proposed Development.

9.6.1.2 As set out in the IEMA [163] guidance, GHG quantification within an EIA should follow the principles outlined in key documents such as the GHG Protocol Corporate Standard, BS EN ISO14064-2 or PAS 2080, and in doing so ensure the assessment achieves relevance, completeness, consistency, transparency and accuracy.

9.6.1.3 PAS2080 [166] outlines a modular approach to life cycle stages for GHG emissions assessments. This approach has been used when considering potential impacts. This provides a framework for considering different emissions sources across the life cycle of the Proposed Development, and informs the methodology adopted to address inclusions and exclusions from the assessment process, and the resolution of any gaps in available data to inform the assessment.

9.6.1.4 Table 9.4, Table 9.5 and Table 9.6 outline potential sources of GHG emissions associated with each lifecycle stage for the Proposed Development. These are presented within the modular framework set out in PAS 2080 (and other associated guidance) under the broad headings of Construction, Operation, and Decommissioning.

9.6.2 Construction

9.6.2.1 Construction of the Proposed Development is expected to take approximately 2-3 years.

9.6.2.2 Table 9.4 summarises the potential impacts of the Proposed Development during the construction phase.

Table 9.4 Summary of the potential construction impacts and emission sources

Whole Life Carbon Lifecycle Stage	Activity	Emission source and impact
Product stage (A1-3)	Raw material extraction, transport to factory and manufacturing of materials	Embodied GHG emissions associated with the required raw materials for construction of the Proposed Development.
Transport stage (A4)	Transportation of materials to site	GHG emissions from fuel consumption of vehicles used for transportation.
Construction process stage (A5)	Construction activities	GHG emissions from fuel/energy/water consumption of plant, construction practices and ancillary services.
	Transportation of construction workers	GHG emissions from fuel consumption of vehicles used.
	Transportation and disposal of construction waste streams	GHG emissions from fuel consumption of vehicles used. GHG emissions released from waste disposal method.

9.6.3 Operation and maintenance

9.6.3.1 The operational lifespan of the Proposed Development is expected to be approximately 60 years and will commence immediately after the end of construction.

9.6.3.2 The purpose of the Proposed Development is to generate low carbon electricity. The production of electricity from renewable sources such as solar has the potential to result in lower aggregate GHG emissions outside of the Proposed Development boundary by replacing electricity generated from other energy sources. However, it is expected, that the Proposed Development will still result in GHG emissions during its operational phase, although these are expected to be very small in comparison to the benefits delivered through the generation of low carbon electricity.

9.6.3.3 Table 9.5 summarises the potential impact of the Proposed Development during the operational phase.

Table 9.5 Summary of potential operation impacts and emission sources

Whole Life Carbon Lifecycle Stage	Activity	Emission source and impact
In-use (B1)	Non-energy-related impacts	GHG emissions associated with vegetation sequestration and GHG removals.
Maintenance, repair and replacement (B2-B4)	Routine maintenance, repair and replacement of components	GHG emissions associated with carrying out required maintenance such as annual inspections during operation.

Whole Life Carbon Lifecycle Stage	Activity	Emission source and impact
		Embodied carbon associated with materials used for repair and replacement activities.
Refurbishment (B5)	Planned site refurbishment	No impact envisaged. Assuming no planned refurbishment within the operational lifespan.
Operational energy consumption (B6), operational water consumption (B7)	Energy and water consumption	Minimal impact envisaged; however, water will be used to clean panels.
Other operational emissions and user activities (B8)	Operational consumption and site user activities	Negligible impact envisaged. Assuming no chemical or process emissions or user emissions.
Land use change (D)	Changes to currently vegetated land	GHG emissions and removals associated with land use change.
Electricity generation (D)	Generation of low carbon electricity	Emissions avoided through the generation and export of electricity from the Proposed Development.

9.6.4 Decommissioning

9.6.4.1 Once the Proposed Development has reached the end of its operational lifespan, it will be decommissioned.

9.6.4.2 Table 9.6 summarises the impact of this decommissioning on GHG emissions.

Table 9.6 Summary of potential decommissioning impacts and emission sources

Whole Life Carbon Lifecycle Stage	Activity	Emission source and impact
Decommissioning (C1)	Deconstruction of the Proposed Development	GHG emissions associated with demolition, decommission and deconstruction activities.
Transport (C2)	Transport of materials from site to waste processing or disposal centre	GHG emissions associated with the transport of decommissioned materials from Site.
Waste processing (C3)	Waste processing of waste using techniques such as reusing, recycling or other recovery such as composting or backfill	GHG emissions associated with the processing of decommissioned materials.
Disposal (C4)	Disposal of waste either through landfilling or incineration	GHG emissions associated with the disposal of decommissioned materials.

9.7 Design, mitigation and enhancement measures

9.7.1 Design principles

9.7.1.1 Measures to reduce GHG emissions will be developed in line with the hierarchy set out in the IEMA guidance as shown in Table 9.7.

9.7.1.2 Mitigation measures may include, but would not be limited to, sourcing of local construction materials, selection of construction materials with lower embodied carbon, increased efficiency of construction plant and machinery, and use of renewable/low carbon fuels for construction vehicles and machinery.

Table 9.7 IEMA GHG Management Hierarchy

GHG Management Hierarchy	Examples
Eliminate	• Influence business decisions/use to prevent GHG emissions across the lifecycle. • Create opportunities for emissions elimination within the organisation by changing, expanding, rationalising or moving business. • Transition to new business model, alternative operation or new product/service.
Reduce	• Reduce real and relative (per unit) consumption of carbon and energy. • Improve efficiency in operations, processes, fleet and energy management. • Optimise approaches (e.g. technology) and use digital solutions as enablers.
Substitute	• Adopt renewables/low-carbon technologies (e.g. on site, transport). • Reduce carbon (GHG) intensity of energy use and of energy purchased. • Purchase inputs and services with lower embodied/embedded emissions.
Compensate	• Compensate ‘unavoidable’ residual emissions (e.g. removals, offsets). • Investigate land management, value chain, asset sharing, carbon credits. • Support climate action and developing markets (beyond carbon neutral).

9.7.2 Embedded measures

9.7.2.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted as part of the DCO application.

9.7.2.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures

9.7.2.3 Opportunities to reduce GHG emissions within the design of the Proposed Development will be developed in line with the principles in Table 9.7.

9.7.3 Management plans

9.7.3.1 A suite of management plans will be developed for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those considered relevant to the GHG emissions assessment include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Landscape and Ecological Management Plan (oLEMP), including general operational measures alongside those specific to landscape and ecology;
- Outline Decommissioning Environmental Management Plan (oDEMP); and
- Outline Materials and Waste Management Plan (oMWMP).

9.8 Likely significant effects

9.8.1.1 Table 9.8 provides the likely significant effects associated with the Proposed Development identified at scoping stage, including indirect effects. Further assessment will be required to confirm these at PEIR and final ES stages.

Table 9.8 Scoping conclusions for the GHG emissions assessment of the Proposed Development

Project Work Stage	Lifecycle Stage	Description	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
Pre-construction	A0	Preliminary studies, consultation	Scope out - GHG emissions from preliminary studies and works are largely office-based and are assumed to be negligible.	N/A
Product Stage	A1-3	Raw material extraction and manufacturing of materials	Scope in -A1-A3 emissions e.g. from raw material extraction and product manufacturing will be quantified to understand the emissions associated with this stage e.g. the use of steel in the PV stands.	Material quantities.
Construction Stage	A4	Transportation of materials to Site	Scope in - Consumption of energy (electricity; other fuels) from plant, vehicles, generators and worker travel. Fuel consumption from transportation of materials to site, where these are not included in product-stage embodied emissions. Due to the nature of the equipment, this could require sourcing and shipment of certain components over significant distances.	Assumed transportation distances of material.
	A5	Construction / installation processes	Scope in - GHG emissions from fuel/energy/water consumption of plant, construction practices and ancillary services. GHG emissions from fuel consumption of vehicles used. GHG emissions released from waste disposal method.	Fuel usage during construction, electricity and water usage for site compounds. Construction staff and estimated commute frequency and distances. Waste quantities and assumed distance to disposal facilities.

Project Work Stage	Lifecycle Stage	Description	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
				Likely to be derived from industry and/or academic literature.
	D	Land use change	Scope in - It is proposed that a qualitative assessment is undertaken to understand potential impact of GHG emissions associated with the change of carbon sinks e.g. removal or addition of vegetation associated with the construction of the Proposed Development.	Type and area of land subject to change in usage taken from Chapter 7: Biodiversity.
Operation	B1	Use	Scope out – a qualitative assessment of sulphur hexafluoride (SF6) use in the substation will be provided separately.	The use of SF6 in certain electric components, such as switchgears and transformers, within the substation and the level of fugitive emissions from leakage of this GHG during operation.
	B2, B3 & B4	Maintenance, Repair & Replacement	Scope in – GHG missions from routine maintenance are expected to be negligible, however emissions associated with the replacement of components will be quantified as far as possible, noting the assumption that solar PV modules could require replacement once and the batteries twice, during the operational phase of the Proposed Development.	Typical replacement periods for key materials. Likely to be from academic literature.
	B5	Refurbishment	Scope out – unlikely to change use over the lifetime of the Proposed Development	N/A
	B6 - B7	Operational energy use & operational water use	Scope out - It is anticipated that there will be minimal operational energy use or water use associated with the Proposed Development. This is not considered to be material to this assessment.	N/A
	B8	User's Activities	Scope out – assumed none.	N/A

Project Work Stage	Lifecycle Stage	Description	Justification for scoping in / out of the GHG emissions assessment	Proposed data source
Decommissioning / End of Life	C1-C4	End of Life	Scope in - GHG emissions associated with de-commissioning activities undertaken on Site. This is anticipated to be similar to emissions associated with the construction stage e.g. GHG emissions associated with fuel consumption from transportation of workers to Site, plant, vehicles and generators and emissions associated from the transportation and disposal of waste.	Assumed waste rates using construction details using RICS Whole Life Carbon assessment for the built environment assumptions as it is unlikely that detailed decommissioning information will be available at time of assessment.
Benefits and loads beyond the system boundary	D	Land use change and supplementary information beyond the lifecycle	Scope in– Due to the nature of the Proposed Development, GHG emissions avoided as a result of the Proposed Development will be quantified as far as possible.	Where possible, client modelling will be used. If data is not available from client modelling, academic literature will be used instead.

9.9 Proposed assessment methodology

9.9.1 Study area

9.9.1.1 The GHG assessment will consider the emissions arising from the construction, operation and decommissioning of the Proposed Development, some of which are emitted within the draft Order Limits, but the majority of which are emitted outside the boundary e.g. extraction, manufacture, and transport of materials. The assessment will also consider the benefits of the Proposed Development from renewable energy generation over the operational life of the Proposed Development.

9.9.2 Scope of assessment

9.9.2.1 The GHG assessment will quantify and report the GHG emissions anticipated to be generated or avoided by the Proposed Development. This will be reported in tonnes of carbon dioxide equivalent (tCO_2e), a single metric of the global warming potential of the main GHG emissions.

9.9.2.2 The temporal boundary for GHG emissions assessment constitutes the construction phase (24-36 months), operational phase (assumed to be 60 years) and decommissioning phase (24-36 months).

9.9.2.3 The GHGs emissions for the Proposed Development will be calculated using the formula:

Activity x GHG factor = carbon emissions

Where:

- *Activity data – a measure of the quantity of an activity; and*
- *GHG factor – a measure of the GHG emissions per unit of activity.*

9.9.2.4 GHG factors will be obtained from industry recognised sources commonly used in GHG assessments, such as:

- Greenhouse gas reporting conversion factors (DESNZ); and
- The Inventory of Carbon and Energy (ICE) database

9.9.2.5 The methodology focuses on assessing the impact of the Proposed Development on GHG emissions by quantifying the net GHG emissions arising from each lifecycle stage. Emissions associated with the Proposed Development will be compared to the baseline DM scenario (as described in Section 9.5 above) to quantify the net impact of the Proposed Development.

9.9.3 Assessment of significance

9.9.3.1 The 2022 IEMA [163] guidance revised the overall approach to assessing the impacts and significance of GHG emissions from projects. The guidance directs that emissions must be contextualised as part of the assessment process (for example, but not exclusively, against national Carbon Budgets).

9.9.3.2 The guidance restates the principles that:

- GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect; and
- the consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality).

9.9.3.3 The guidance provides a more nuanced approach to the appraisal of significance of changes in GHG emissions arising from a project compared to the previous guidance. It notes that some projects will lead to increases in emissions but that this alone does not represent a significant impact. Instead, it is the role of the suitable qualified expert carrying out the assessment to consider the scale of changes in emissions; the context within which these are expected to occur; the mitigation undertaken to minimise negative impacts; and the overall alignment of the project to achievement of the UK's carbon targets.

9.9.3.4 The UK Carbon Budgets [169] considered relevant to the assessment are set out in Table 9.9.

Table 9.9 Carbon Budget Periods relevant to this assessment

Carbon Budget & Period	Carbon Budget Limit	Reduction below 1990 levels
Fourth (2023 – 2027)	1,950 $MtCO_2e$	50% by 2025
Fifth (2028 – 2032)	1,725 $MtCO_2e$	68% by 2030[1]*
Sixth (2033 – 2037)	965 $MtCO_2e$	78% by 2035

9.9.4 Sensitivity of receptors

9.9.4.1 For the GHG assessment, emissions are not geographically limited and have a global effect rather than directly affecting local receptors. As per IEMA guidance, the receptor is therefore the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources. The sensitivity of the climate to GHG emissions is 'high'. The rationale is as follows:

- GHG emission impacts could compromise the Climate Change Committee's (CCC) sectoral construction and net zero pathways and therefore the ability to meet its future carbon reduction trajectory;
- GHG emission impacts could compromise the UK's ability to reduce its GHG emissions and therefore the ability to meet its future legally binding carbon budgets;
- The extreme importance of limiting global warming to below 2 °C above industrial levels, while pursuing efforts to limit such warming to 1.5 °C as set out in the Paris

[1] *Originally 57% when Fifth Carbon Budget was enshrined in law, has recently been increased to 68% as the UK's National Determined Contribution ahead of the United Nations' Conference of the Parties (26) (COP26) in November 2021 [30] .

Agreement and a recent report by the Intergovernmental Panel on Climate Change highlighted the importance of limiting global warming below; and

- Disruption to global climate is already having diverse and wide-ranging impacts to the environment, society, economic and natural resources. Known effects of climate change include increased frequency and duration of extreme weather events, temperature changes, rainfall and flooding, and sea level rise and ocean acidification. These effects are largely accepted to be negative, profound, global, likely, long term to permanent, and are transboundary and cumulative from many global actions.

9.9.5 Magnitude

9.9.5.1 The GHG emissions from the Proposed Development will be considered in the context of the UK carbon budgets. The UK carbon budgets are in place to restrict the amount of GHG emissions the UK can legally emit in a five–year period. The UK is currently in the 4th carbon budget period, which runs from 2023 to 2027. The 4th and 5th Carbon Budgets reflect the previous 80% reduction target by 2050. The 6th carbon budget aligns with the legislated 2050 net zero commitment.

9.9.5.2 It is noted that the contribution of most individual projects to national level budgets will be small, so the UK context will have limited value. It is proposed that the GHG assessment, therefore, uses the IEMA guidance (18.11) to assess the significance of effects with the UK carbon budgets being used to provide context to the GHG emissions.

9.9.6 Significance of effects

9.9.6.1 IEMA guidance provides criteria for assessing the significance of GHG emissions effects. Five levels of significance are presented which focus on how a project makes a relative contribution towards achieving a science based 1.5°C aligned transition towards net zero and the levels of mitigation applied. The different levels of significance are plotted against the UK's net zero compatible trajectory as presented in Table 9.10 to determine the project's significance.

Table 9.10 Significance criteria as per IEMA

Effects	Level of Significance	Description
Significant adverse	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 with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Significant adverse	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.

Effects	Level of Significance	Description
Not significant	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 is 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 GHG 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.

9.9.7 Relevant data sources

9.9.7.1 As set out above, the GHG emissions for the Proposed Development will be calculated by converting 'activity' data into carbon emissions through the application of referenced typical emissions conversion factors widely used within the industry.

9.9.7.2 Activity data will be gathered from project-specific information available at the current design stage. Where limited data is available, appropriate assumptions or benchmarks will be used.

9.9.7.3 The main emissions factors used in the assessment will be from the following sources:

- Department for Energy Security and Net Zero (DESNZ) GHG Reporting: Conversion Factors (published annually); [170]
- Inventory of Carbon & Energy (ICE) Database V3; and [171]
- Valuation of Energy Use and GHG Emissions for Appraisal: Supplementary guidance to the HM Treasury Green Book. [172]

9.10 Assumptions, limitations and uncertainties

9.10.1.1 The GHG assessment will be undertaken using the best available information at time of assessment. A reasonable worst-case assessment will be developed using appropriate industry benchmarks, and conservative assumptions on materials, design, assembly, earthworks and use of components to provide a robust assessment of likely carbon emissions.

9.10.1.2 The GHG assessment will be undertaken using the best available information at the time of assessment. Where benchmarks and conservative assumptions are required, these will be based on:

- Emerging design detail;
- Engineering specialist knowledge;
- Environmental specialist knowledge;
- Climate change / carbon specialist knowledge;
- Manufacturer specifications; or,
- Proxy engineering data from previous comparable projects.

9.10.1.3 The methodology used to calculate the UK carbon budgets is different to that used for the calculation of lifecycle emissions for the Proposed Development, and therefore caution must be taken when making a direct comparison. However, for the purposes of identifying the extent to which the Proposed Development may impact the ability of the UK Government to meet its carbon budgets, it is necessary to make this comparison.

9.10.1.4 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and out data will be documented and provided within the ES.

9.11 Summary

9.11.1.1 As set out in Section 9.6 the Proposed Development has the potential to result in emissions during construction, operation and decommissioning, and therefore a detailed assessment will be undertaken as part of the EIA.

9.11.1.2 Table 9.11 summarises the potential construction and operation impacts relevant to the GHG assessment proposed to be scoped in or out of EIA.

Table 9.11 GHG emission assessment scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
GHG Emissions	Construction	Scoped in	N/A
	Operation	Scoped in	N/A
	Decommissioning	Scoped in	N/A

10. Cultural Heritage

10.1 Introduction

10.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of cultural heritage.

10.1.1.2 It sets out cultural heritage receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

10.1.1.3 The following aspects have been considered as part of the scope and methodology for cultural heritage:

- Direct and indirect impacts to designated heritage assets – comprising World Heritage Sites, scheduled monuments, listed buildings of all grades, registered parks and gardens of all grades, registered battlefields, protected wrecks, and conservation areas.
- Direct and indirect impacts to non-designated heritage assets – comprising buildings, monuments, below and above ground archaeological sites, archaeological findspots, and Locally Listed Buildings (LLB) and Locally Listed Parks and Gardens (LLPG) (which are heritage assets which have been identified as having a degree of cultural significance (value) by local planning authorities).
- Direct and indirect impacts to possible in situ unrecorded archaeological features, remains, and/or deposits and possible palaeoenvironmental deposits (hereafter, 'unrecorded archaeology').

10.1.1.4 This chapter is supported by:

- Figure 9.1: Designated Heritage Assets; and.
- Figure 9.2: Non-Designated Heritage Assets.

10.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 14: Landscape and Visual; and
- Chapter 16: Noise and Vibration.

10.2 Relevant legislation, policy, standards and guidance

10.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for cultural heritage and have informed the scope of the assessment.

10.2.2 Legislation

Table 10.1 Cultural heritage - Legislation

Legislation	Relevance to assessment
Infrastructure Planning (Decisions) Regulations 2010	These regulations prescribe a list of matters for consideration by the Infrastructure Planning Commission or the Secretary of State when taking decisions on applications for a Nationally Significant Infrastructure Project. With regard to the historic environment, the regulations impart the definitions and tests for: • scheduled monuments (previously 'scheduled ancient monuments') which warrant protection due to being of national importance as defined in the Ancient Monuments and Archaeological Areas Act 1979 [173]; • listed buildings, as defined in Section 1 of the Planning (Listed Buildings and Conservation Areas) Act 1990 [174]; and • conservation areas, as defined under section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 [174]. Provision 3 of the regulations state: "*(1) When deciding an application which affects a listed building or its setting, the decision-maker must have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses. (2) When deciding an application relating to a conservation area, the decision-maker must have regard to the desirability of preserving or enhancing the character or appearance of that area. (3) When deciding an application for development consent which affects or is likely to affect a scheduled monument or its setting, the decision-maker must have regard to the desirability of preserving the scheduled monument or its setting*".
Treasure Act 1996 **[175]**	This Act defines 'treasure' as any object that is at least 10% gold or silver, associated with coins or groups of coins which are over 300 years old, objects formerly classed as 'treasure trove' (i.e. deliberately deposited items with a high content of gold or silver) and any objects found in association with the above (even if found at different times). The Secretary of State may designate any class of object as treasure which they consider to be of outstanding historical, archaeological or cultural importance. Any find of 'treasure' must be reported to the local Coroner.
Burial Act 1857 **[176]**	Under Section 25 of this Act, it is generally a criminal offence to remove human remains from any place of burial without an appropriate licence issued by the Ministry of Justice, although recent legislative changes indicate that some cases are exempt from this requirement.
Protection of Military Remains Act 1986 **[177]**	This Act provides protection for the wreckage of military aircraft and designated military vessels. Certain activities are prohibited at protected sites without the authority of the Ministry of Defence.
Historic Buildings and Ancient Monuments Act 1953 **[178]**	The Act authorises Historic England to compile a register of gardens and other land of special historic interest. A registered park or garden is not protected by a separate consent regime, but applications for planning permission will give great weight to their conservation.

10.2.3 Policy

Table 10.2 Cultural heritage - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[179]**	National Policy Statement (NPS) EN-1 instructs the Secretary of State to consider the potential harm caused to the significance of a heritage asset by impact(s) resulting from a Proposed Development. Harm to significance can be assessed as 'substantial' – which also includes the destruction (described as 'total loss') of a heritage asset – and 'less than substantial', NPS EN-1 advises that during decision making there should be a presumption in favour of the conservation of designated heritage assets and that loss affecting any designated assets should require clear and convincing justification. It also refers to considering impact on non-designated heritage assets on the basis that assets have a heritage significance that merits consideration in decision making, even though non-designated assets are of lesser value than designated heritage assets.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[180]**	NPS EN-3 states that the ability of applicants to microsite specific elements of a development during construction should be an important consideration of the Secretary of State when assessing risk of damage to archaeology. The Secretary of State should also consider granting consents which allow micro-siting within a tolerance of elements so that precise locations can be amended during construction if unknown archaeology is encountered. NPS EN-3 states the following key messages concerning the impact of solar farms on cultural heritage, which can be summarised as: • The impacts on the historic environment will require expert assessment in most cases and may have effect both above and below ground. • Above ground impacts may include effects on the setting of Listed Buildings and other designed heritage assets and Historic Landscape Character, and below ground impacts are generally limited. • Development many have a positive effect on cultural heritage assets. • Applicant assessments should be informed by information from Historic Environment Records (HERs) or the local authority. • Where a site has the potential to include heritage assets with archaeological interest, the applicant should submit an appropriate desk-based assessment and, where necessary, a field evaluation. • In some instances, field studies may include investigative work to assess the impacts of any ground disturbance. The extent of investigative work should be proportionate to the sensitivity of, and extent of proposed ground disturbance. • Applicants should take account of the results of historic environment assessments in their design proposal. • Applicants should ensure heritage assets are conserved in a manner appropriate to their significance.

Policy	Relevance to assessment
	• Consideration should be given to the impact of large-scale solar farms may cause substantial harm to the significance of the asset.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[35]**	NPS EN-5 advises on the factors affecting decisions in site selection and sets out the government's position on the use of overhead lines and underground (and sub-sea) cables concerning heritage assets, archaeology, and sensitive landscapes.
National Planning Policy Framework (NPPF), 2023 **[181]**	The NPPF deals with all types of heritage in a single document. It takes an integrated approach to the historic environment, moving beyond a distinction between buildings, landscapes and archaeological remains. The policies outlined in 'Section 16. Conserving and enhancing the historic environment' are relevant to the assessment. The NPPF states that non-designated heritage of archaeological interest and unrecorded archaeology which are/is "demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage" as a monument under the definition in Section 61(12) of the Ancient Monuments and Archaeological Areas Act 1979. The NPPF defines three levels of harm to heritage assets: substantial harm, less than substantial harm and no harm. It also defines the heritage interests that contribute to the cultural significance of heritage assets.
The Hedgerow Regulations 1997 **[182]**	This set of regulations provides the criteria used to determine if a hedgerow is 'important' archaeologically or historically.
Selby District Core Strategy Local Plan, adopted 2013 **[40]**	Objective 11 of the Core Strategy is concerned with "protecting and enhancing the character of the historic environment, including buildings, open spaces and archaeology, and acknowledging the contribution the District's heritage and economic prosperity, local distinctiveness and community well-being." Strategic policy SP18 Protecting and Enhancing the Environment states that *"the high quality and local distinctiveness of the natural and man-made environment will be sustained by:* *1) Safeguarding and, where possible, enhancing the historic and natural environment including the landscape character and setting of areas of acknowledged importance.* 2) *Conserving those historic assets which contribute most to the distinct character of the District and realising the potential contribution that they can make towards economic regeneration, tourism, education and quality of life."* Strategic policy SP19 Design Quality states: "Proposals for all new development will be expected to contribute to enhancing community cohesion by achieving high quality design and have regard to the local character, identity and context of its surroundings including historic townscapes, settlement patterns and the open countryside."
Selby District Local Plan, adopted 2005 **[183]**	Environmental policy ENV22 Protection of Listed Buildings states that "development will not be permitted where it would have a detrimental effect on the character, fabric or setting of a listed building."

Policy	Relevance to assessment
	Environmental policy ENV27 Scheduled Monuments and Important Archaeological Sites states that *"where scheduled monuments or other nationally important archaeological sites or their settings are affected by Proposed Development, there will be a presumption in favour of their physical preservation. In exceptional circumstances where the need for the development is clearly demonstrated, development will only be permitted where archaeological remains are preserved in situ through sympathetic layout or design of the development."* Environmental policy ENV28 Other Archaeological Remains states: *"(A) Where development proposals affect sites of known or possible archaeological interest, the District Council will require an archaeological assessment/evaluation to be submitted as part of the planning application.* *(B) Where development affecting archaeological remains is acceptable in principle, the Council will require that archaeological remains are preserved in situ through careful design and layout of new development.* *(C) Where preservation in situ is not justified, the Council will require that arrangements are made by the developer to ensure that adequate time and resources are available to allow archaeological investigation and recording by a competent archaeological organisation prior to or during development."*
The Environmental Improvement Plan (EIP)	The Environmental Improvement Plan[2] is a 25-year plan that looks to improve all parts of the environment including cultural heritage. The EIP includes a goal to enhance the beauty, heritage, and engagement with the natural environment.

10.2.4 Standards and guidance

Table 10.3 Cultural heritage - Standards and guidance

Standards and guidance	Relevance to assessment
Code of conduct: professional ethics in archaeology **[184]**	The Code applies to individual members and Registered Organisations of the Chartered Institute for Archaeology. The Code promotes the standard of acceptable conduct and self-discipline required by members and Registered Organisations in the interests of the public and in the study and care of the physical evidence of the past.
Standard and guidance for historic environment desk-based assessment **[185]**	The Standard states that an historic environment desk-based assessment will, so far as reasonably possible: 1. Determine from existing records the nature, extent, and significance of the historic environment within a specified area.

[2] https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf

Standards and guidance	Relevance to assessment
	2. Be conducted using appropriate methods and practices which satisfy the stated aims of the project and comply with the Code of conduct and other relevant regulations of the Chartered Institute for Archaeologists; and 3. In a development context, establish the impact of a Proposed Development or scheme on the significance of the historic environment (or identify the need for further evaluation to do so) to enable reasoned proposals and decisions to be made whether to mitigate, offset, or accept impact(s) without further intervention.
DMRB LA 104 Environmental assessment and monitoring **[186]** and DMRB LA 106 Cultural heritage assessment **[187]**	Although primarily intended for use in assessing the impact of highways projects on cultural heritage, the DMRB methodology is a suitable for adaptation to assess impact and environmental effects brought about by large, complex linear and non-linear developments
Planning Practice Guidance (PPG): Historic Environment **[188]**	The PPG Historic Environment guidance advises on enhancing and conserving the historic environment.
Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment **[189]**	Although not altered since 2008, Conservation Principles is still an important source of guidance on how the cultural significance heritage assets should be understood. Conservation Principals defines the values which contribute to the cultural significance of a heritage asset or an historic place and how people engage with and experience it.
Managing Significance in Decision Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning Note 2 **[190]**	This good practice advice in planning note gives an overview of how assessing the cultural significance of heritage assets should be approached, and the factors affecting the nature of impacts from development or industry.
The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) **[191]**	This advice in planning note lays out a five-stage/step approach to assessing the setting of heritage assets and the impacts of developments on them. These are: Step 1. Identify which heritage assets and their settings are affected. Step 2. Assess the degree to which these settings and views contribute to the significance of the heritage asset(s) or allow significance to be appreciated. Step 3. Assess the effects of the proposed scheme on the significance, or on the ability to appreciate it. Step 4. Explore ways to maximise enhancement or minimise harm. Step 5. Make and document the decision and monitor the outcomes.
Statements of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12 **[192]**	This advice note provide a methodology for decision makers to follow when taking a staged approach to understanding significance and assessing the impact(s) of proposals.

Standards and guidance	Relevance to assessment
Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15 **[193]**	This advice note describes the potential impacts on the historic environment of commercial renewable energy proposals, which could occupy large areas of land or sea. Technologies covered include large-scale development proposals for wind power, solar photovoltaics, and biomass and energy from waste. The advice note includes consideration of NSIPs and other large-scale proposals that do not meet the criteria for inclusion in the NSIP regime, but which require assessment under EIA regulations to determine what harm might be caused, including to cultural heritage, and whether this can be avoided or reduced.
Principles of Cultural Heritage Impact Assessment in the UK **[194]**	This document provides guidance for cultural heritage practitioners regarding the principles of assessing impact to the historic environment, specifically understanding cultural heritage assets and evaluating the consequences of change and offers additional supporting direction ('good practice') on achieving the best outcomes for a Proposed Development or scheme.
Archaeology and Construction: good practice guidance (C799D) **[195]**	This guide shows how combined construction, and archaeological processes can be managed by an integrated, multi-disciplinary team to deliver beneficial commercial, sustainable, and public outcomes. It offers practical advice applicable to all scales of construction project and is relevant to all stages of the construction and development life cycle.
Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development – Solar Scoping Table [**[196]**]	The Planning Inspectorate provides non-statutory advice and guidance on the scope of NSIP solar developments. The guidance recommends: • Information is included to identify cultural heritage receptors and the anticipated impacts. (This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below. Receptors are illustrated on Figure 10.1 Designated Heritage Assets and Figure 10.2 Non-Designated Heritage Assets). • A technical assessment of glint and glare should be provided where there is potential for likely significant effect(s). This should inform the assessment of effect(s) within relevant chapters, which could include cultural heritage. • Appropriate lighting strategies, addressing requirements during construction, operation, and decommissioning, should be provided. These should inform the assessment of effect(s) within relevant chapters, which could include cultural heritage. • Evidence relied upon in scoping out aspects of the assessment are provided within sections 10.7 and 10.8. Associated assumptions are provided within section 10.10. Mitigation and commitments register: The guidance recommended that mitigation measures to be relied upon in scoping out aspects from the assessment should be provided in the EIA scoping report chapter and in a commitments register. The guidance does not provide any specific examples of the types of proposed mitigation for cultural heritage. Nevertheless, section 10.7 provides further details of the proposed mitigation measures. The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

10.3 Consultation

10.3.1.1 The Applicant will consult with the following stakeholders with regards to cultural heritage as part of the design development and assessment process prior to the submission of the DCO application:

- Historic England for their interest in designated heritage assets (including scheduled monuments, listed buildings of all grades; Grade I and Grade II* registered park and gardens, and registered battlefields).
- North Yorkshire Council, the Local Planning Authority (LPA) represented by the Archaeological Advisor to the LPA and the Conservation Officer to the LPA for their interest in listed buildings of all grades, Grade II registered park and gardens, conservation areas, and non-designated heritage assets (including archaeological sites, LLB and LLPG).

10.3.1.2 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

10.3.1.3 It is anticipated that Historic England, as statutory body for heritage in England, will be consulted throughout the EIA process as part of an Enhanced Advisory Services Agreement.

10.4 Study area

10.4.1.1 The study areas described here have informed the baseline conditions for scoping and are proposed to be taken forward to the PEIR and Environmental Statement (ES). The study area may evolve over time to reflect adjustment(s) of the draft Order Limits as the design of the Proposed Development is refined.

10.4.1.2 The draft Order Limits for the ES comprise two areas: the Cable Corridor Options Area and the Solar Development Sites 1-5 (herein referred to as Site 1, 2, 3, 4 and 5) as described in Chapter 2 The Proposed Development and shown on Figure 1.1 Draft Order Limits.

10.4.1.3 The study area for designated heritage assets and conservation areas extends 2km from the draft Order Limits for Solar Development Sites 1-5 and 500m from the draft Order Limits of the Cable Corridor Options Area. . This is shown in Figure 9.1 Designated Heritage Assets. Designated heritage assets with a greater sensitivity to change (scheduled monuments and Grade I and Grade II* listed buildings and registered park and gardens) located beyond 2km that fall within the Zone of Theoretical Visibility identified in Chapter 14 Landscape and Visual may also be included in the assessment. Inclusion will be determined on a case-by-case basis through the application of professional judgement and experience, and in consideration of advice and guidance from statutory consultees such as Historic England, the Archaeological Advisor to the LPA, and the Conservation Officer to the LPA.

10.4.1.4 The study area for non-designated heritage assets, LLB, and LLPG extends 1km from the draft Order Limits for Solar Development Sites 1-5 and 500m from the draft Order Limits of the Cable Corridor Options Area. This is shown in Figure 10.2 Non-Designated Heritage Assets. As stated in Section 10.10, non-designated heritage asset data has not been obtained for the 500m Cable Corridor Options Area study area as part of this EIA scoping report.

10.4.1.5 The study area for non-designated heritage assets, LLB, and LLPG is smaller than that for designated heritage assets and conservation areas as, due to their lower levels of sensitivity to change, the Proposed Development is unlikely to result in significant effects to non-designated heritage assets, LLB, and LLPG located over beyond these distances. Any non-designated heritage assets which are identified during the assessment process as having the potential to experience a significant effect from the Proposed Development, despite lying beyond the study area, will be included in the assessment. Inclusion will be determined on a case-by-case basis through the application of professional judgement and experience, and in consideration of advice and guidance from statutory consultees such as the Archaeological Advisor to the LPA and the Conservation Officer to the LPA.

10.4.1.6 Desk and field-based investigation and survey regarding the possible presence of unrecorded archaeology is confined to undeveloped land within both areas of the draft Order Limits, as shown in Figure 1.1 Draft Order Limits and described in section 10.5 below.

10.5 Baseline conditions

10.5.1 Desktop sources used

10.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Archaeological Data Service – for data and information on the Historic Landscape Character (HLC) for North Yorkshire.
- Historic England's Heritage At Risk (HAR) register – for data and information on designated heritage assets and conservation areas at risk of loss through neglect, inappropriate change, and other factors.
- Historic England's National Heritage List for England (NHLE) – for data and information on designated heritage assets and conservation areas.
- National Library of Scotland – for online, georeferenced first edition Ordnance Survey map sheets.
- North Yorkshire Historic Environment Record (HER)– for data and information on non-designated heritage assets, LLB and LLPG, and archaeological events for Solar Development Sites 1-5.
- Sumo Surveys – for draft interpretation of interim geophysical (magnetometry) survey results for Solar Development Sites 1-5.
- York City Council HER – for data and information on non-designated heritage assets, LLB and LLPG, and archaeological events for Solar Development Sites 1-5.

10.5.2 Surveys undertaken and proposed

10.5.2.1 The following surveys have been completed at the time of writing:

- Familiarisation and orientation site visits to selected locations within the draft Order Limits for Solar Development Sites 1-5 took place on 21-22 May 2024.
- Geophysical (magnetometry) survey in parts of the draft Order Limits for Solar Development Sites 1-5, where permission for survey has been granted by the landowner, was conducted between May 2024 and August 2024.

10.5.2.2 The following surveys are planned to be undertaken, and will inform the PEIR / ES:

- Geophysical (magnetometry) survey of the remaining suitable parts of the draft Order Limits for Solar Development Sites 1-5, where permission for survey has been granted by the landowner, not surveyed during scoping and where it is technically feasible / can safely be accessed.
- Geophysical (magnetometry) survey of suitable parts of the preferred or shortlisted Cable Corridor(s) (located within the draft Order Limits for the Cable Corridor Options Area) once identified, where permission for survey has been granted by the landowner.
- Cultural heritage walkover survey and settings assessment site visits will be conducted throughout both areas of the draft Order Limits to ground-truth desk-based historic environment data and information, to aid in the possible identification of unrecorded archaeology or other assets of heritage interest, and to inform the assessment of possible impact(s), including indirect impacts as a result of changes in setting, which are identified as part of the PEIR.

10.5.2.3 Targeted cultural heritage site visit and survey to refine and test the assessment of impact(s) presented in the ES following the finalisation of the Order Limits for Solar Development Sites 1-5 and Cable Corridors (located within the draft Order Limits for the Cable Corridors Options Area). This would typically focus on change(s) to the setting of heritage assets and elements of the design which cannot be adjusted to avoid potentially significant effect(s).

10.5.2.4 Because of the flexibility afforded by the Draft Order Limits to adjust the layout of the Solar Development Sites and Cable Corridor to avoid impacts on archaeological remains identified by geophysical survey, pre-consent trial trenching is considered not to be required, and would be secured by Requirement as part of the overall post-consent Historic Environment mitigation strategy.

10.5.3 Existing baseline

10.5.3.1 The dates used throughout the existing baseline represent the archaeological and cultural (historical) periods communicated by the Forum on Information Standards in Heritage [197]. Duration of period is dated to Before Common Era (BCE) and Common Era (CE). The location of all identified designated and non-designated heritage assets are shown on Figure 10.1 Designated Heritage Assets and Figure 10.2 Non-Designated Heritage Assets, respectively.

Archaeological and historic background

10.5.3.2 There is evidence for Prehistoric human activity throughout the study area, much of which is found at its very edges. There is some evidence for Mesolithic (10,000BCE – 4,000BCE) beyond the study area but Neolithic (4,000BCE – 2,200BCE) activity has been recorded north of Site 5 and evidence of Bronze Age (2,600BCE – 700BCE) funerary practice, in the form of barrows, is scattered around the fringes of the study area of Site 1.

10.5.3.3 Most of the recorded evidence for Prehistoric activity recorded throughout the study area dates to the Iron Age (800BCE – 43CE) and the Iron Age to Roman (43CE – 410CE) transition. These assets typically comprise the remains of enclosures and field systems, but evidence for occupation is also recorded. Evidence for Iron Age ritual and funerary activity, which is typically rare following changes in ritual practice and the treatment of the deceased during the Iron Age, can also be found in the form of square barrows, such those of the Danes Hill square barrow cemetery on Crook Moor [NHLE 1016619], located approximately 1km south of Site 1, and designated a scheduled monument.

10.5.3.4 Evidence for Roman occupation and activity tends to fall beyond the study area but some isolated finds have been recorded within Site 4. Occupation activity approximately 1km south of Site 4 and 2km south of Site 5, suggests an established originally military presence in the area with a Roman Fort [NHLE 1017822] (designated a scheduled monument) vicus, and other enclosures and boundary ditches all recorded. A possible Romano-British occupation site [HER MNY24075] has been recorded within Site 5.

10.5.3.5 Many of the settlements and hamlets of the study area are likely to have Early Medieval (410CE – 1066CE) origins. Settlements in proximity to Site 2 – Site 5 are characteristically nucleated or long-linear in form while Escrick, next to Site 1, has been a manor, deer park, and landed estate since the Medieval period (1066CE – 1540CE). Evidence for Early Medieval and Medieval manor houses survive as archaeological remains at several locations throughout the Cable Corridors Options Area, for example near the village of Kelfield, and within Site 4 and Site 5; with upstanding remains of Hall Garth clearly marked on the first edition OS map. Three deserted Medieval settlements [HER MNY17096], [HER MNY17659], [HER MNY17657] are recorded around Escrick near Site 1.

10.5.3.6 The architectural vernacular of the villages and hamlets of the study area comprises stone buildings. Some contain churches with probable Early Medieval origins and surviving Medieval elements or fabric. Areas of ridge and furrow are common throughout the study area, particularly around Site 1 and almost enclose form Medieval deer park and later Post Medieval estate parkland. The designed landscape of Escrick Park [HER MNY17654], adjacent to the western edge of Site 1, evolved to reach its current proportions during the late Post Medieval period. No specific designers have been attributed to the layout of the formal estate lands or wider parkland suggesting that the owners particularly Beilby Thompson II in the latter part of the 18th Century and Paul Lawley Thompson in the 19th Century, had a significant input in its design and use.

10.5.3.7 Historic routeways are common within study area (although there is a higher density around Site 2 to Site 5) and many comprise lengths of Medieval holloway fossilised within the network of lanes and footpaths. The River Aire has long been used for transportation and it is likely that Medieval sites close to the River, such as Hall Garth [HER MNY9969] in Site 5 and Temple Manor [NHLE 1295905], were accessible from the waterway. The

Selby Canal [HER MNY10475], which was constructed in the Post Medieval period during the 18th Century, connects with the course of the River Aire west of West Haddlesey between Site 4 and Site 5 and enabled goods to be moved inland from the highest tidal reach of the River Aire.

10.5.3.8 The River Aire is bridged just north-west of Chapel Haddlesey and today carries the A19 from Doncaster, beyond the study area to the south-west, to Selby, beyond the study area to the north-east. During the Post Medieval period this roadway was classified as a turnpike and, according to the first edition OS map sheet, was owned and operated by the Doncaster and Selby Trust. Several milestones, such as Milestone Chapel Haddlesey [NHLE 1471605] (designated a Grade II listed building), survive along its route. Another Grade II designated milestone [NHLE 1148541] is located on the edge of the A63 which runs alongside the draft Order Limits of Site 2. Like the A19, the A63 was turnpiked during the Post Medieval period and, according to the first edition OS map, was owned and operated by the Selby and Leeds Trust. Several further milestones, all designated Grade II listed buildings, are recorded alongside these and other historic turnpikes which pass through the Cable Corridor Options Area.

10.5.3.9 The first edition OS map also indicates some of the historic land use of the study area and its composition by way of placenames. For example, the route of A19 along the edge of Site 2 is marked as 'Causeway Dike' and other features associated with drainage, such as Temple Drain [HER MNY10022] in Site 5, are also marked. The landscape closer to the base of the river valley, particularly around Temple Hirst near Site 5, is marked 'liable to flood' and the use of the word 'Ings' throughout much of the field systems on the west side of the River Aire, suggests that much of the land at the base of river valley was used as meadow or pasture. Away from the river valley, on the higher and drier ground, areas of common land, such as 'Fryston Common' north of Site 2, and moor, such as 'Maspin Moor' in Site 4, indicate earlier Medieval land use.

10.5.3.10 Almost all the study area comprises enclosed fields. While some areas around Site 1 and a few around Site 2 – Site 5 retain their original 'large irregular' character typology, most have been altered during the 20th Century (1901CE-2000CE). This alteration typically sees the removal of boundaries to create larger fields more suitable to the increasingly mechanised and intensified arable farming practices of this time. Small, isolated areas of historic coal extraction are recorded just north of Site 1 and north of Site 2 and areas of plantation and some re-stocked areas of ancient woodland are also present.

10.5.3.11 20th Century military remains are a key feature of the North Yorkshire region through its long-established connection with the Royal Air Force. Located just north of Site 5, RAF Burn (itself a non-designated heritage asset [HER MNY10063]) was established in 1941 as an airfield and associated army camp. RAF Burn became operational as a bomber station in 1942 and it is likely that some, but not all, of the crash sites of Second World War (1939-1945) aircraft were based there. The recorded crash sites, three of which are within 1km of Site 1 with a further five within 1km of Site 2 – Site 5, are all non-designated heritage assets and, as well as bombers such as the Halifax and Wellington, include examples of iconic Second World War aircraft such as the Spitfire [HER MNY26725], and early jet age aircraft such as the instantly recognisable and revolutionary Meteor [HER MNY30741].

Overview of heritage assets and archaeology

10.5.3.12 The Selby District, within which the study area is located, "has one of the lowest densities and overall total of designated heritage assets in the [North Yorkshire] region" [40]. It is also acknowledged that the region, and thus the study area, also contains numerous recorded and unrecorded archaeological remains [40].

10.5.3.13 In total 119 designated heritage assets and conservation areas have been identified throughout the study area, comprising:

- Five scheduled monuments3.
- 110 listed buildings, of which: four are designated Grade I, seven are designated Grade II*, and 99 are designated Grade II.
- Four conservation areas.

Solar Development Sites 1-5

10.5.3.14 Table 10.4 presents a summary of the designated heritage assets and conservation areas within 2km of Solar Development Sites 1-5. There are no designated heritage assets within any of the five sites. The closest designated heritage asset(s) to:

- Site 1 are Wheldrake Lodge [NHLE 1148456] and Gates, Piers and Railings at Wheldrake Lodge [NHLE 1316305], both of which are Grade II listed buildings, and Escrick Conservation Area. All three of these heritage assets are located approximately 90m from the draft Order Limits.
- Site 2 is Milestone approximately 0.5 miles east of junction with Lowfield Road [NHLE 1148541], which is designated a Grade II listed building and is located less than 10m from the draft Order Limits.
- Site 3 is Hillam Conservation Area, which is located approximately 550m from the draft Order Limits.
- Site 4 is Birkin House [NHLE 1316672], which is designated a Grade II listed building and approximately 80m from the draft Order Limits at their closest point.
- Site 5 is Temple Manor [NHLE 1295905], which is designated a Grade II listed building and is located less than 150m from the draft Order Limits.

Table 10.4 Designated heritage assets and conservation areas within 2km of Solar Development Sites 1-5

Location	Designated heritage assets and conservation areas	Description
Site 1	Scheduled monument	Danes Hill square barrow cemetery on Crook Moor [NHLE 1016619]
	Grade II* listed building	Escrick Park [NHLE 1167878]

[3] Three of which are entered onto Historic England's HAR register. These are: Danes Hill square barrow cemetery on Crook Moor [NHLE 1016619], Danes Hills square barrow cemetery, 300m south of Adamson Farm [NHLE 1018603], and Thorpe Hall moated monastic grange [NHLE 1017460].

Location	Designated heritage assets and conservation areas	Description
	Grade II* listed building	Former Coach House and Stables adjoining Escrick Park to rear right [NHLE 1148489]
	Grade II* listed building	Church of St Helen [NHLE 1167966]
	Grade II listed buildings	16 Grade II listed buildings are located within 2km
	Conservation area	Escrick Conservation Area
Site 2	Grade I listed building	Church of St Wilfred [NHLE 1296769]
	Grade II* listed building	Monk Fryston Hall [NHLE 1148544]
	Grade II* listed building	Prebendal House [NHLE 1296762]
	Grade II listed buildings	25 Grade II listed buildings are located within 2km
	Conservation area	Monk Fryston Conservation Area
	Conservation area	Hillam Conservation Area
Site 3	Grade I listed building	Church of St Mary [NHLE 1316671]
	Grade I listed building	Church of St Wilfred [NHLE 1296769]
	Grade II* listed building	Monk Fryston Hall [NHLE 1148544]
	Grade II* listed building	Prebendal House [NHLE 1296762]
	Grade II listed buildings	21 Grade II listed buildings are within 2km
	Conservation area	Monk Fryston Conservation Area
	Conservation area	Hillam Conservation Area
Site 4	Scheduled monument	Danes Hill square barrow cemetery on Crook Moor [NHLE 1016619]
	Grade I listed building	Church of St Mary [NHLE 1316671]
	Grade II* listed building	Gateforth Hall [NHLE 1132514]
	Grade II listed buildings	30 Grade II listed buildings are within 2km
	Conservation area	Monk Fryston Conservation Area
	Conservation area	Hillam Conservation Area
Site 5	Scheduled monument	Danes Hill square barrow cemetery on Crook Moor [NHLE 1016619]
	Grade II listed buildings	12 Grade II listed buildings are within 2km

10.5.3.15 Non-designated heritage assets located within Site 1 are typically Post Medieval in date and are associated with the Escrick Estate and Escrick Park [HER MNY17654]. They typically comprise the location of former ponds, drains and ditches. An historic field system [HER MNY37042] is located south of the historic Farmstead at Mount Pleasant Farm [HER MNY17722] and several other historic structures, such as Footbridge [HER MNY26159], are also recorded. Larger expanses of ridge and furrow remains, lengths of boundary ditches, and further historic field systems are located close to the outer edge of the draft Order Limits. There is also evidence for Roman occupation and activity [MNY24075].

10.5.3.16 There are no non-designated heritage assets recorded within Site 2 or Site 3.

10.5.3.17 Five non-designated heritage assets are located within Site 4. These are: Roe field moat [HER MNY9905], moat east of Barkhouse Wood Land [HER MNY9907]), a findspot of a Roman Coffin [HER MNY9911], a field system [HER MNY7247], and Low Cottage [HER MNY9906] – which is shown on historic OS map sheets as being built inside an enclosure, both of which are no longer extant.

10.5.3.18 There are six individual heritage assets and one group of 19 heritage assets within the draft Order Limits of Site 5. Of particular interest are the fossilised route of Temple Drain [HER MNY10022], which connects with the River Aire through the Knights Templar settlement at what is today Temple Manor [NHLE 1295905], and group of assets which comprise the moated site of Hall Garth [HER MNY9969-MNY9987]. The remaining non-designated heritage assets comprises findspots, ditches, and a possible enclosure [HER MNY17090].

10.5.3.19 Early greyscale images of the geophysical survey results for areas surveyed so far show multiple features and responses with an archaeological origin in all five sites; many of which are not on the HER. Interim interpretation of some of the survey results from the earliest survey phases in Site 1, Site 4, and Site 5 indicates that this unrecorded archaeology typically comprises:

- Enclosures;
- Possible field systems, diches, drainage systems, and other features likely to be associated with historic land use and division such as areas of ridge and furrow and former field boundaries; and
- Areas of likely occupation and associated settlement activity.

Cable Corridor Options Area

10.5.3.20 Table 10.5 presents a summary of the designated heritage assets and conservations areas within 500m of the Cable Corridor Options Area. One designated heritage asset is located within the draft Order limits. This is Gatepiers to Escrick Park [NHLE 1316306], which is designated a Grade II listed building.

Table 10.5 Designated heritage assets and conservation areas within 500m of the Cable Corridor Options Area

Location	Designated heritage assets and conservation areas	Description
Cable Corridor Options Area	Scheduled monument	Thorpe Hall moated monastic grange [NHLE 1017460]
	Scheduled monument	Kelfield moated site and fishpond, 180 north of Kelfield Church [NHLE 1017459]
	Scheduled monument	York prebendary manor moated site, 300m north west of Hawthorn Farm [NHLE 1018212]
	Scheduled monument	Danes Hills square barrow cemetery, 300m south of Adamson Farm [NHLE 1018603]
	Grade I listed building	Church of St Helen [NHLE 1148467]

Location	Designated heritage assets and conservation areas	Description
	Grade II* listed building	The Manor House [NHLE 1172683]
	Grade II listed buildings	26 Grade II listed buildings are within 500m
	Conservation area	Ricall Conservation Area

10.5.3.21 Data and information regarding non-designated heritage assets has not been obtained for the Cable Corridor Options Area at this time. This data will be obtained at PEIR and will inform selection of a preferred or shortlist of Cable Corridors within the Cable Corridor Options Area.

10.5.3.22 The Cable Corridor Options Area has not been subject to geophysical (magnetometry) survey.

10.5.4 Future baseline

10.5.4.1 The Cultural Heritage chapter within the PEIR and ES will consider changes which may affect the future historic environment. If the Proposed Development did not proceed, it is anticipated that the future cultural heritage baseline would remain broadly similar to the existing baseline.

10.5.4.2 Changes to the historic environment may occur due to the impact of future committed developments. For example, it is likely that the Eggborough Combined Cycle Gas Turbine (CCGT) plant, which has been granted a DCO by the Secretary of Statement, will be constructed on the existing Eggborough power station site, which is located approximately 1km south-west of Site 5, 2.5km south-east of Site 4, and approximately 6.5km south-east of Site 2 and Site 3. Construction of the new plant is likely to result in change(s) to the setting of heritage assets within these sites and throughout this part of the study area.

10.5.4.3 Minor variation may occur in the composition of the built heritage assets located throughout the study area, for example, through changes in the designation of built heritage assets (through listing or de-listing), the creation of local lists etc.

10.5.4.4 Continuation in the use of the study area for mixed agricultural and pasture farming and other rural land management activities is unlikely to bring about change to the current belowground environment or increase the risk of impact(s) to recorded archaeology or possible unrecorded archaeology.

10.5.4.5 Extremes of weather associated with environmental and climate change could, potentially, affect the condition of built and archaeological heritage assets and unrecorded archaeology however, the extent to which this would or could occur cannot currently be determined.

10.6 Potential impacts

10.6.1 Construction

10.6.1.1 For the purposes of cultural heritage assessment, the construction phase is defined as the activities involved in, and associated with, building the Proposed Development.

Construction impacts would affect the cultural significance (value) of built and archaeological heritage assets and possible unrecorded archaeology, the character of conservation areas, features of HLC, and the contribution made by setting (if any).

10.6.1.2 The potential for construction impacts to arise from the Proposed Development would inform design revisions at the PEIR and ES stages.

10.6.1.3 Permanent and irreversible impacts resulting from construction of the Proposed Development would potentially include, but are not limited to:

- The destruction, removal, or truncation of archaeological heritage assets because of excavation for cable routes, supporting infrastructure, or foundations.
- The destruction, removal, or truncation of unrecorded archaeology because of excavation for cable routes, supporting infrastructure, or foundations.
- The loss of sections of important hedgerows (if present).

10.6.1.4 There is also the potential for construction of Solar Development Sites 1-5 to result in changes to belowground environments through soil compaction and/or the movement or settlement of ground surfaces upon buried archaeological heritage assets, partially upstanding heritage assets (such as embankments), and unrecorded archaeology. The potential occurrence of such impact(s) will be assessed in the PEIR and ES and would be based upon the best available information informed by professional judgment and experience.

10.6.1.5 Temporary, short-term, reversible impacts resulting from construction of the Proposed Development would potentially include, but are not limited to:

- The presence of construction compounds, materials storage areas, temporary access routes, security lighting, welfare facilities, and other construction related infrastructure.
- Changes to the setting of built and archaeological heritage assets and conservation areas because of changes to the levels and extent of artificial light, noise from construction, vehicle movement, and presence of construction personnel required to build the Proposed Development but not required for operation.

10.6.2 Operation and maintenance

10.6.2.1 Operation impacts would derive from activities inherent in the operation of the Proposed Development. Operation impacts would affect heritage assets where setting contributes to cultural significance (value).

10.6.2.2 Temporary, long-term reversible impacts resulting from operation of the Proposed Development would potentially include, but are not limited to:

- Change(s) to the setting of built and archaeological heritage assets, conservation areas, and HLC features because of the physical presence of the Proposed Development.

10.6.2.3 Temporary, short-term reversible impacts resulting from operation of the Proposed Development would potentially include, but are not limited to:

- Increases in vehicle movement, the number of personnel and types of equipment in use, and operational noise generated during periods of component replacement when compared to operation and routine inspection and maintenance activities. It is anticipated that:
  - the solar PV modules (which have a lifespan of approximately 40 years) would be replaced once during the lifetime of Solar Development Areas 1-5; and
  - the batteries which comprise the Battery Energy Storage System (BESS) (which have a lifespan of approximately 20 years) may be replaced twice during the operational lifetime of the Proposed Development.

10.6.2.4 It is unlikely that routine inspection and maintenance activities which will occur during the operational phase (excluding periods of component replacement as presented above) as described in Chapter 2 The Proposed Development would result in impact(s) to cultural significance (value).

10.6.3 Decommissioning

10.6.3.1 As stated in Chapter 2 The proposed Development, it is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors would remain in place following decommissioning.

10.6.3.2 Therefore, impact(s) to the cultural significance (value) of heritage assets resulting from decommissioning are often similar to, or of a lesser magnitude than, construction impact(s). Temporary, short-term reversible impacts resulting from decommissioning of the Proposed Development would potentially include, but are not limited to, those identified during construction in section 10.6.1. This is based on the assumption that:

- No or minimal additional impacts would occur to below ground archaeological heritage assets left in situ within Solar Development Sites 1-5 following completion of the construction stage.
- Inter-site cabling, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as this would be located below 1.2mbgl, except for the removal of manholes which are required to allow access to the joint bay and link boxes where these are above 1.2mbgl located at each joint bay in the form of.

10.6.3.3 Decommissioning of Proposed Development within Solar Development Sites 1-5 would also result in change(s) to the setting of designated and non-designated heritage assets, conservation areas, and HLC as the physical presence of the solar PV modules, BESS, and other supporting infrastructure would be removed.

10.6.4 Cumulative

10.6.4.1 The approach to assessing cumulative and in-combination effects is described in Chapter 21 Cumulative and in-combination effects. At present there is potential for cumulative and in-combination impacts, and these will be considered in the assessment.

10.7 Design, mitigation and enhancement measures

10.7.1 Embedded measures

10.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

10.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimize impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles, as well as other mitigation measures.

10.7.1.3 Embedded measures are taken into account in the assessment of the likely significant effects.

10.7.1.4 Embedded measures for the Proposed Development relevant to cultural heritage are likely to include:

- Direct physical impact(s) to designated heritage assets will be avoided. Indirect impact(s) to designated heritage assets will be minimised in the design process.
- No significant lighting will be provided during operation (demand responsive motion sense lights only).
- Existing hedgerows in poor condition will be reinforced with new planting where feasible to strengthen landscape pattern and habitat connectivity which may contribute to HLC.
- Opportunities for connection and extension of woodland and hedgerow will be explored to strengthen landscape pattern, and habitat connectivity which may contribute to HLC.
- Preservation in situ of archaeological heritage assets and unrecorded archaeology, so far as proportionate and reasonably practicable, through the application of engineering and construction solutions to avoid physical impact(s) at Solar Development Sites 1-5.
- The identification of Cable Corridors within the Cable Corridor Options Area which avoid archaeological heritage assets and/or identified areas of in situ unrecorded archaeology so far as reasonably practicable. Where archaeological heritage assets or unrecorded archaeology cannot be avoided, engineering/construction solutions associated within reducing physical impact(s) during installation would be considered.

- As stated in Chapter 14 Landscape and visual, the landscape and visual impact assessment is informing the iterative design process of the Proposed Development with regard to elements which could result in change(s) to the setting of heritage assets. These include, but are not limited to, changes in the siting, layout and colour tones of the Solar PV modules and associated structures to reduce their visibility and perceived scale and mass within the landscape.

10.7.2 Management plans

10.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to cultural heritage include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Archaeological Remains Management Plan (oARMP); and
- Outline Decommissioning Environmental Management Plan (oDEMP).

10.7.3 Further mitigation

10.7.3.1 If it is not possible to avoid impacts to heritage assets through embedded mitigation as part of the design, further mitigation measures would be applied to reduce the impact of the Proposed Development. Further mitigation for cultural heritage will be defined through the PEIR and ES once the level of significance of effects is known. Options for further mitigation for the Proposed Development relevant to cultural heritage may include:

- Archaeological excavation of known archaeological sites and unrecorded in situ archaeological features and remains located within both areas of the draft Order Limits as identified through geophysical survey and other proposed field survey and investigation (see Section 10.5).

10.7.3.2 The scope of archaeological excavation would be agreed with the Archaeological Advisor to the LPA and, in the case of nationally important archaeological assets or potentially nationally important unrecorded archaeology, the nature of which cannot yet be determined but could include important settlement sites and other occupation activity as described in section 10.5, Historic England. The scope any archaeological investigation would be described in an Overarching Written Scheme of Investigation (OWSI) with implementation secured through DCO Requirement.

10.7.3.3 The OWSI forms the basis of the method statement that archaeological contractors use to inform the Written Scheme of Investigation (WSI) for specific work(s). The OWSI would be included as an appendix to the oARMP which describes the strategy for archaeological mitigation.

10.7.3.4 Measures to avoid, reduce, mitigate and, where possible, enhance heritage assets will be identified through the EIA process and secured within the relevant management plans submitted with the DCO application.

10.8 Likely significant effects

10.8.1 Construction

10.8.1.1 Construction of the Proposed Development has the potential to result in adverse significant effects to the cultural significance (value) of:

- Designated built heritage assets and conservation areas. Likely significant effects would result from change(s) to the setting where this contributes to cultural significance (value) during construction of the Proposed Development within Solar Development Sites 1-5 and the cable routes within the Cable Corridors (when identified within the Cable Corridor Options Area).
- Non-designated built heritage assets. Likely significant effects could result from physical impact(s) brought about by the removal of upstanding remains in whole or in part. It is unlikely that changes to setting, where this contributes to cultural significance (value), would result in significant effects.
- Archaeological heritage assets or unrecorded archaeology located within land required for construction of the Proposed Development within the Solar Development Sites 1-5 and the Cable Corridors (which will be located within the Cable Corridor Options Area) – noting that this may be smaller or different to the extent of both areas of the draft Order Limits described in Chapter 2 The Proposed Development. Likely significant effects would potentially result from:
  - The destruction, truncation, or removal of archaeological heritage assets and/or unrecorded archaeology.
  - The removal of important hedgerows (if identified).
  - Changes in the belowground environment brought about by compaction, movement or settlement of ground surfaces.

10.8.1.2 Construction effects on built heritage assets (designated and non-designated) and conservation areas, archaeological heritage assets, and unrecorded archaeology have been **scoped in** for further assessment.

10.8.2 Operation and maintenance

10.8.2.1 Operation of the Proposed Development within Solar Development Sites 1-5 could result in adverse significant effects to the cultural significance (value) of designated built heritage assets and conservation areas where the setting of these assets contributes to their cultural significance (value). Likely significant effects would be visual and acoustic resulting from the physical presence of the Proposed Development within Solar Development Sites 1-5 and increases in vehicle movement, the number of personnel and types of equipment in use, and operational noise generated during periods of component replacement when compared to normal operation and routine inspection and maintenance activities . Therefore, operation effects on designated built heritage assets and conservation areas have been **scoped in** for further assessment.

10.8.2.2 Because of their lower sensitivity to change, operation of the Proposed Development is unlikely to result in significant effects to the cultural significance (value) of non-designated built heritage assets. Any potential physical impact(s) would occur during

construction. Therefore, operation effects on non-designated built heritage assets have been **scoped out** for further assessment.

10.8.2.3 Operation of the Proposed Development, including periods of component replacement, are unlikely to result in significant effects to archaeological heritage assets and unrecorded archaeology left in situ following construction of Solar Development Sites 1-5 and the Cable Corridors. This is because any impact(s) would be associated with construction and it is assumed that component replacement is unlikely to require excavation or other belowground works. Therefore, operation effects on archaeological heritage assets (designated and non-designated) and unrecorded archaeology have been **scoped out** for further assessment.

10.8.3 Decommissioning

10.8.3.1 While decommissioning of the Proposed Development within Solar Development Sites 1-5 would result in change(s) to the setting of designated heritage assets and conservation areas through removal of all above-ground equipment and infrastructure as part of the Proposed Development, the magnitude of impact resulting from this is unlikely to result in significant effect(s) to the cultural significance (value) of any affected assets.

10.8.3.2 It is unlikely that decommissioning of the Proposed Development would result in significant effects to the cultural significance (value) of non-designated built heritage assets. This is because any physical impact(s) will have occurred during construction of the Proposed Development and non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value). It is assumed that decommissioning will comprise the removal of all of the Proposed Development above 1.2mbgl and restoration of the Solar Development Sites 1-5 rather than replacement with a different scheme.

10.8.3.3 It is assumed that no or minimal additional impacts would occur to below ground archaeological heritage assets left in situ within the Solar Development Sites 1-5 following completion of the construction. Inter-site cabling, located within the Cable Corridors, will not be removed as part of the decommissioning process as this is likely to be below 1.2mbgl, except for the removal of manholes which are required to allow access to the joint bay and link boxes where these are above 1.2mbgl. It is therefore unlikely that decommissioning of the Proposed Development would result in significance effects to archaeological heritage assets.

10.8.3.4 It is assumed that any surviving unrecorded archaeology located within Solar Development Sites 1-5 and the Cable Corridors which was not impacted during construction would not be affected during decommissioning. It is therefore unlikely that decommissioning of the Proposed Development would result in significant effects to unrecorded archaeology.

10.8.3.5 Overall, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation. Decommissioning effects on built heritage assets (designated and non-designated) and conservation areas, non-designated built heritage assets, designated and non-designated archaeological heritage assets, and unrecorded archaeology have been **scoped out** for further assessment.

10.8.4 Cumulative

10.8.4.1 As stated at section 10.6.4, the assessment will consider the potential for cumulative and in-combination effects.

10.9 Proposed assessment methodology

10.9.1 Legislation, policy, and standards and guidance

10.9.1.1 The relevant legislation, planning policy, standards and guidelines which underpin the proposed assessment methodology for cultural heritage in the PEIR and ES will be the same as those which have informed this EIA scoping report chapter. These are presented in section 10.2.

10.9.2 Data and information sources

10.9.2.1 The desktop sources used to inform the existing baseline conditions of the study area of this EIA scoping report chapter, presented in section 10.5.1, will be taken forward for use in the PEIR and ES and complimented by use of the following sources:

- Conservation area appraisals and/or management plans and associated mapping. These are usually held by the local planning authority.
- Historic aerial photographs. The principal source for these will be the Historic England Archive, however, HERs and other repositories will also be searched where available.
- LiDAR Digital Terrain Models provided by the Department for Environment, Food & Rural Affairs via their Data Services Platform.
- Geological mapping (bedrock and superficial geology) and borehole records held by the British Geological Survey.
- Grey literature and archaeological reporting deposited with the HER and the Archaeological Data Service.
- Ordnance Survey and pre-Ordnance Survey maps, including tithe maps and apportionments and estate maps and plans4. These are usually held by county archives, but digital copies of historic maps can be obtained from other service providers, and some material may be held in private archives.
- Primary and secondary documentary and other resources (such as specialist texts), held by local studies library, county libraries, and archives.

10.9.2.2 The PEIR and ES will be informed by the surveys (and fieldwork) undertaken and proposed as described in Section 10.5.2. Additional surveys and fieldwork are not anticipated but may arise as the design of the Proposed Development and understanding of the historic environment of the study area and both areas of the draft Order Limits is refined.

[4] Where historic map sources indicate the potential for areas of unrecorded ancient woodland, this will be assessed in Chapter 7 Biodiversity.

10.9.3 Baseline conditions

10.9.3.1 An Historic Environment Desk-based Assessment (HEDBA) will be prepared to establish the cultural heritage baseline conditions and further refine understanding of the historic environment. The HEDBA will be informed and supported by the findings of the proposed surveys and investigations presented in Section 10.5.2 as each becomes available. The study area (and both areas of the draft Order Limits) used in the HEDBA will the same as that used to inform this EIA scoping report chapter, described in section 10.4, but refined to reflect changes in design of the Proposed Development and agreed with the Archaeological Advisor to the LPA and the Conservation Officer to the LPA. An anticipated change is the adjustment of the 500m study area for designated and non-designated heritage assets which will be measured from the out edge of the preferred or shortlisted Cable Corridor(s) rather than the Cable Corridor Options Area.

10.9.3.2 The HEDBA will comply with all applicable professional standards and guidance, will reflect any comment and suggestion received in the EIA Scoping Response, and will be informed by the data and information sources here within. The HEDBA will be submitted as an appendix to the PEIR and ES and will inform the cultural heritage chapter of each.

10.9.4 Assessment of effects

10.9.4.1 Construction, operation, and decommissioning effects to heritage assets and unrecorded archaeology will be assessed using a methodology adapted from the standards presented in the DMRB and will incorporate standards and guidance from Historic England and Institute of Environmental Management and Assessment where appropriate.

10.9.5 Assessment of cultural significance (value)

10.9.5.1 In the UK different vocabularies are applied to defining what constitutes the cultural significance of a heritage asset. For example, NPS EN-1 [179] and Section 16 of the NPPF [181] refer to ‘heritage interests’ when discussing cultural significance whereas Conservation Principles Policies and Guidance for the Sustainable Management of the Historic Environment [189] and the assessment methodology in the DMRB [186] [187] use the term ‘value’. At the root of these nuances in vocabulary and meaning, however, is an emphasis on the need to understand exactly what it is that makes heritage assets culturally significant.

10.9.5.2 In this assessment, the value/interest of heritage assets will be defined as ‘cultural significance (value)’. Cultural significance (value) will be guided by designations but derived from the heritage interest(s) presented in NPS EN-1 [179] and described in Annex 2 of the NPPF [181] (these interests can be archaeological, architectural, artistic, or historic) and heritage value(s) as described in Conservation Principles Policies and Guidance for the Sustainable Management of the Historic Environment [189] (these can be evidential, historical, aesthetic, or communal).

10.9.5.3 The cultural significance (value) of a heritage asset may also be influenced by its setting or also be derived from, or enhanced by, its group value with other assets. NPS EN-1 [179] and the NPPF [181] consider the setting of a heritage asset, archaeological or built, to be the surroundings within which it is experienced [181]. Furthermore, it is recognised that these surroundings may benefit, detract from, or not contribute to cultural significance

(value). It is acknowledged that the extent of a heritage asset's surroundings "is not fixed and may change as the asset and its surroundings evolve." [181].

10.9.6 Assessment of importance

10.9.6.1 Cultural significance (value) can be defined as the sum of the value/interest that society places upon a heritage asset, and it is not appropriate to refer to a heritage asset as having a low, medium, or high value/interest [194]. However, as the DMRB methodology requires a quantifiable descriptor, heritage assets will be assigned an 'importance'. This importance will be derived from a heritage asset's cultural significance (value) and determined according to the criteria set out in Table 10.6 alongside the application of professional judgement and experience.

Table 10.6 Criteria for the determination of the importance of heritage assets

Importance	Typical descriptors
Very high	Very high importance and rarity, international scale and very limited potential for substitution. Includes some World Heritage Sites and nominated sites, where their Outstanding Universal Value is derived from cultural heritage value.
High	Rare nationally with a limited potential for their substitution. Examples of archaeological heritage assets are scheduled monuments or previously unrecorded or non-designated archaeological features, remains, and/or deposits of a schedulable quality as defined by the Ancient Monuments and Archaeological Areas Act 1979 [173]. All listed buildings. Archaeological features, remains, and/or deposits that are common nationally but are rare regionally may also be determined as being of high importance. Grade I and Grade II* registered parks and gardens. Conservation areas containing very important buildings, undesignated structures of clear national importance, or undesignated resources of schedulable quality and importance.
Medium	Common nationally with some potential for substitution. Examples of archaeological heritage assets include recorded non-designated archaeological sites and previously unrecorded archaeological features, remains, and/or deposits that are not of a schedulable quality as defined by the Ancient Monuments and Archaeological Areas Act 1979 [173]. Archaeological features, remains, and/or deposits that are rare within a region may also be determined as being of medium importance. Grade II registered parks and gardens. Conservation areas containing buildings that contribute to its historic character.
Low	Very common with a limited ability to enhance understanding of the historic environment. Examples include partially lost archaeological features and disturbed or destroyed archaeological remains and deposits that are already recorded. Unrecorded archaeological features, remains, and/or deposits that may enhance the understanding of the historic environment on a local scale may also be determined as being of low importance. Built heritage examples include locally listed buildings.
Negligible	Very common nationally, regionally, and locally and unlikely to enhance understanding of the historic environment. Examples include recorded and unrecorded material culture findspots with limited (if any) archaeological context.

10.9.7 Assessment of magnitude of impact (degree of change)

10.9.7.1 Impact(s) to the cultural significance (value) of a heritage asset will be assessed by determining the magnitude of impact (degree of change). This is the degree to which direct or indirect change(s) will occur, the type of impact (whether this is adverse or beneficial), and the sensitivity of a heritage asset's cultural significance (value) to change.

10.9.7.2 The magnitude of impact (degree of change) will be determined according to the descriptions set out in Table 10.7 alongside the application of professional judgement and experience. The assessment will also take into account guidance on 'substantial harm' and 'less than substantial harm' as set out in NPS EN-1 [179] and the NPPF [181].

Table 10.7 Criteria for determining magnitude of impact (degree of change)

Magnitude of impact (degree of change)	Type	Typical impact
Major	Adverse	The total physical loss of a heritage asset and the removal of its integrity. Severe damage, either directly or indirectly, to several key characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Large scale improvement to the integrity of a heritage asset and/or the extensive conservation or restoration, other improvements to condition, and the active and sustainable management of physical remains. The removal of, or a considerable reduction in, vulnerabilities and/or a reduction in critical risks. Extensive enhancements and favourable alterations, either directly or indirectly, to several key characteristics that contribute to the cultural significance (value) of a heritage asset.
Moderate	Adverse	The partial physical loss of a heritage asset and the removal of some of its integrity. Damage, either directly or indirectly, to key characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Improvements to, and the active management of, physical condition and improvements to its integrity. This may include the design and/or implementation of management plans. Reduction in vulnerabilities and a reduction in risks. Favourable alterations and enhancement, either directly or indirectly, to key characteristics that contribute to the cultural significance (value) of a heritage asset.
Minor	Adverse	Some minor physical loss to part of a heritage asset or a measurable loss of its integrity or quality, or an increase in its vulnerability. Minor detrimental alteration, either directly or indirectly, to at least one key characteristic that contributes to the cultural significance (value) of a heritage asset.

Magnitude of impact (degree of change)	Type	Typical impact
	Beneficial	Some minor improvement to physical condition or reduction in vulnerability. Minor favourable alterations, either directly or indirectly, to at least one key characteristic that contributes to the cultural significance (value) of a heritage asset.
Negligible	Adverse	Very minor physical loss to part of a heritage asset or an alteration to its integrity or quality. Very minor detrimental alteration, either directly or indirectly, to one or characteristics that contribute to the cultural significance (value) of a heritage asset.
	Beneficial	Very minor improvement of physical condition or reduction in vulnerability. Very minor favourable alterations, either directly or indirectly, to one or more characteristics that contribute to the cultural significance (value) of a heritage asset.
No change	-	There are no physical adverse or beneficial impacts to a heritage asset or alterations, either directly or indirectly, to the attributes that comprise its cultural significance (value).

10.9.8 Assessment of significance of effect

10.9.8.1 The effect of the Proposed Development upon a heritage asset will be determined using the matrix presented in Table 10.8. Combining the importance of a heritage asset with the magnitude of impact (degree of change) that may result from the Proposed Development will establish the effect upon the heritage asset.

Table 10.8 Matrix for determining significance of effect

Importance	Magnitude of impact (degree of change)				
	Major	Moderate	Minor	Negligible	No change
Very high	Very large	Very large or Large	Moderate or Large	Slight	Neutral
High	Very large or Large	Large or Moderate	Slight or Moderate	Slight	Neutral
Medium	Large or Moderate	Moderate	Slight	Slight or Neutral	Neutral
Low	Moderate or Slight	Slight	Neutral or Slight	Slight or Neutral	Neutral
Negligible	Slight	Slight or Neutral	Neutral or Slight	Neutral	Neutral

10.9.8.2 According to the matrix, a heritage asset may be subject to an effect that has two possible outcomes. In instances where this occurs the criteria for describing effects outlined in the DMRB and shown in Table 10.9 will be used alongside the application of professional judgement to arrive at a robust, single effect.

Table 10.9 Criteria for determining significance of effect

Matrix result	Adverse or Beneficial	Description
Very large	Adverse	Total or partial loss of recorded and/or unrecorded heritage assets of very high importance.
	Beneficial	The same as large beneficial but only applicable in instances where the heritage asset is of very high importance.
Large	Adverse	Result in the total, or almost total, loss of recorded and/or unrecorded heritage assets regardless of its importance. Be highly intrusive and seriously damage the setting of the recorded and/or unrecorded heritage assets, where this contributes to its cultural significance (value) such that this is totally or almost totally degraded. Conflict with legislation and/or national policies for the protection of recorded and/or unrecorded heritage assets.
	Beneficial	Result in the total removal, relocation, or substantial mitigation of very damaging or discordant existing impacts (direct or indirect) to the cultural significance (value) of the heritage asset. Result in extensive restoration or enhancement of the characteristics and/or setting, which contribute to the cultural significance (value) of a heritage asset. Exemplify national policies and approaches to the protection or enhancement of the historic environment. Remove or successfully mitigate existing impacts so that the that the integrity, understanding, and sense of place of a site, or group of sites, is re-established.
Moderate	Adverse	Result in the partial loss of recorded and/or unrecorded heritage assets such that the feature, remains, or deposit is compromised but not destroyed. Be highly intrusive in the setting of the recorded and/or unrecorded heritage assets, where this contributes to its cultural significance (value) such that this is partially degraded.
	Beneficial	Result in the partial removal, relocation, or mitigation of damaging or discordant existing impacts (direct or indirect) to the cultural significance (value) of the heritage asset. Partially restore or enhance the characteristics and/or setting, which contribute to the cultural significance (value) of a heritage asset. Exemplify regional or local policies and approaches to the protection or enhancement of the historic environment. Restore and enhance the integrity, understanding, and sense of place of a heritage asset, or group of heritage assets.
Slight	Adverse	Have a detrimental impact on the setting of recorded and/or unrecorded heritage assets, where this contributes to its cultural significance (value) such that this is diminished. Conflict with local policies for the protection of the historic environment and local character.

Matrix result	Adverse or Beneficial	Description
	Beneficial	Enable removal or mitigation of damaging or discordant existing impacts (direct or indirect) so that understanding of the cultural significance (value) of a heritage asset is improved, and the impact(s) diminished. Enable enhancement of the characteristics and/or setting which contribute to the cultural significance (value) of a heritage asset so that appreciation and understanding is improved, and the impact(s) diminished. Restore the integrity, understanding, and sense of place of a heritage asset or archaeological site, or group of heritage assets, through design choices.
Neutral	-	Have no appreciable impacts, either beneficial or adverse, on recorded and/or unrecorded heritage assets OR has a balance of beneficial and adverse impacts. Not result in severance or loss of integrity context or understanding within a historic landscape. No conflict with, and does not contribute to, policies for the protection or enhancement of the historic environment. Either no effects or effects that are beneath levels of perception within normal bounds of variation or within the margin of forecasting error.

10.9.8.3 Effects that are assessed as moderate, large, or very large adverse will be reported as significant in the PEIR and ES. Adverse significant effects typically equate to 'substantial harm' as described in NPS EN-1 [179] and defined in the NPPF [181], although moderate adverse effects might, depending on the nature of the asset affected, equate to an NPS EN-1/NPPF assessment outcome of 'less than substantial harm'.

10.9.8.4 Effects that are assessed as moderate, large, or very large beneficial will be reported as significant in the PEIR and ES. Other beneficial effects are not significant.

10.10 Assumptions, limitations and uncertainties

10.10.1 Assumptions

10.10.1.1 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. It is assumed that the data collated is accurate. The data will be supplemented with additional data as part of the EIA process. It is assumed that the data, information, and primary and secondary sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

10.10.1.2 This EIA scoping report chapter also assumes that all data and information will be refreshed and re-examined in the ES. It is assumed that any open access data and information would be enhanced and supplemented by the acquisition of additional data and information from existing and new sources and by the findings more extensive desk-based research and assessment and the results of field surveys and investigation(s).

10.10.2 Limitations

10.10.2.1 Data and information regarding non-designated heritage assets has not been obtained for the Cable Corridor Options Area or 500m study area as part of this EIA scoping report. These data will be obtained and reported in the PEIR and ES.

10.10.2.2 The ability to conduct site visits and walkovers, non-intrusive and intrusive archaeological fieldwork, survey such as geophysics and archaeological evaluation (trial trenching) respectively, is subject to permission from landowners. Limitations will be reported in the PEIR and ES.

10.10.3 Uncertainties

10.10.3.1 Any uncertainties associated with the assessment will be reported in the PEIR and ES.

10.11 Summary

Table 10.10 Cultural heritage scoping summary

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
Designated built heritage assets and conservation areas (Listed buildings and registered park and gardens of all grades, and conservation areas)	Cultural heritage walkover survey and settings assessment site visits Targeted cultural heritage site visit and survey (at confirmation of the Order Limits)	Construction	Scoped in	N/A
		Operation	Scoped in	N/A
		Decommissioning	Scoped out	As stated in section 10.8.3, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation. While decommissioning of the Proposed Development in Solar Development Sites 1-5 would result in change(s) to the setting of designated heritage assets and conservation areas through removal of all above-ground equipment and infrastructure to 1.2mbgl, the magnitude of impact resulting from this is unlikely to result in significant effect(s) to the cultural significance (value) of any affected assets.
Non-designated built heritage assets (Non-designated built heritage assets, locally listed buildings and locally listed park and gardens)	Cultural heritage walkover survey and settings assessment site visits Targeted cultural heritage site visit and survey (at confirmation of the Order Limits)	Construction	Scoped in	N/A
		Operation	Scoped out	As stated in section 10.8.2, it is unlikely that operation would result in significant effects to non-designated built heritage assets. This is because any physical impact(s) will have occurred during construction and as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value), changes to setting resulting from operation, routine inspections and maintenance and periods of component replacement are unlikely to result in significant effect(s) to cultural significance (value).
		Decommissioning	Scoped out	As stated in section 10.8.3, any physical impact(s) will have occurred during construction and, as non-designated

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
				built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value) the removal of all above-ground equipment and infrastructure to 1.2mbgl, and restoration of land within Solar Development Sites 1-5 rather than replacement with a different scheme is unlikely to result in significant effect(s) to the cultural significance (value) of affected assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
Archaeological heritage assets (Designated and non-designated sites, monuments, features and other remains)	Cultural heritage walkover survey and settings assessment site visits Targeted cultural heritage site visit and survey (at confirmation of the Order Limits) Archaeological Evaluation (trial trenching)	Construction	Scoped in	N/A
		Operation	Scoped out	As stated in 10.8.2, normal operations and periods of component replacement are unlikely to result in significant effects to archaeological heritage assets left in situ following construction of the Proposed Development within Solar Development Sites 1-5 and the Cable Corridors. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other belowground works.
		Decommissioning	Scoped out	As stated in section 10.8.3, it is assumed that no or minimal additional impacts would occur to below ground archaeological heritage assets left in situ within Solar Development Sites 1-5 following completion of construction, and all inter-site cabling, located within the Cable Corridors, will not be removed as part of the decommissioning process. It is therefore unlikely that decommissioning would result in significance effect(s) to the cultural significance (value) of archaeological heritage assets. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.

Aspect	Scope of surveys	Phase	Scoped in / out	Justification for scoping out aspects
Unrecorded archaeology (In situ features, remains, and/or deposits. This could include paleoenvironmental deposits)	Cultural heritage walkover survey and site visits Geophysical (magnetometry) survey Archaeological Evaluation (trial trenching)	Construction	Scoped in	N/A
		Operation	Scoped out	As stated in 10.8.2, normal operations and periods of component replacement are unlikely to result in significant effects to unrecorded archaeology left in situ following construction of the Proposed Development within Solar Development Sites 1-5 and the Cable Corridors. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other belowground works.
		Decommissioning	Scoped out	As stated in section 10.8.3 it is assumed that any surviving unrecorded archaeology located within Solar Development Sites 1-5 and the Cable Corridors which was not impacted during construction would not be affected during decommissioning. It is therefore unlikely that decommissioning would result in significant effect(s) to the cultural significance (value) of unrecorded archaeology. Therefore, it is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation of the Proposed Development.

11. Electric, magnetic and electromagnetic fields

11.1 Introduction

11.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2, in respect of electric, magnetic, and electromagnetic fields (herein referred to collectively as electromagnetic fields). This chapter should be read in conjunction with Chapter 1: Introduction.

11.1.1.2 The chapter sets out electromagnetic field receptors of relevance and the approach to the assessment of the Proposed Development's impacts during construction, operation (including maintenance) and decommissioning.

11.1.1.3 Electromagnetic fields arise from the generation, transmission, distribution and use of electricity. They occur around all electronic infrastructure and appliances that use electricity. In relation to the Proposed Development the most significant sources are from electricity cables, substations and associated infrastructure which will connect the Proposed Development to the National Grid.

11.1.1.4 Electricity infrastructure emits low-frequency electromagnetic radiation (EMR) which creates an electromagnetic field (EMF). EMFs comprise electric and magnetic fields. Electric fields are the result of voltages applied to electrical conductors and equipment. 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 electric fields and magnetic fields diminishes with increasing distance from the source. EMFs can have both direct and indirect effects on human health.

11.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction; and
- Chapter 2: The Proposed Development.

11.2 Relevant legislation, policy, standards and guidance

11.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for EMF and have informed the scope of the assessment.

11.2.2 Legislation

Table 11.1 Electromagnetic fields - Legislation

Legislation	Relevance to assessment
The Control of Electromagnetic Fields at Work Regulations 2016 **[198]**	Set exposure limits on EMFs to ensure the safety of employees.

11.2.3 Policy

Table 11.2 Electromagnetic fields - Policy

Policy	Relevance to assessment
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[199]** (Whilst this NPS is not targeted towards renewable energy as EN-3 is, the general detail on EMF limits is considered relevant)	The International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 relating to exposure to electromagnetic fields. In March 2004, the National Radiological Protection Board (now part of NIHP CRCE), published advice on limiting public exposure to electromagnetic fields. The advice recommended the adoption in the UK of the EMF exposure guidelines published by ICNIRP in 1998. Paragraphs 2.9.55 - 2.9.58 are of particular relevance which mentions that applications should show evidence of compliance with these guidelines and sets out likelihood of harm from EMF.
Selby District Core Strategy Local Plan, adopted 2013 **[200]**	No relevant policies to consider at this stage.
Selby District Local Plan, adopted 2005 **[201]**	No relevant policies to consider at this stage.

11.2.4 Standards and guidance

Table 11.3 Electromagnetic fields – Standards and guidance

Standards and guidance	Relevance to assessment
Guidelines for limiting exposure to electromagnetic fields (100 kHz to 300 GHz), 2020 (updating the 1998 version), International Commission on Non-Ionizing Radiation Protection **[202]**	Underground cables at voltages up to and including 132 kV are not capable of exceeding the ICNIRP exposure guidelines.
Advice on Limiting Exposure to Electromagnetic Fields (0-300GHz), Volume 15, No 2, 2004, National Radiological Protection Board **[203]**	The Board of NRPB has recommended the adoption in the UK of the guidelines of the ICNIRP for limiting exposures to EMFs between 0 and 300 GHz.
Power lines: demonstrating compliance with EMF public exposure guidelines, a voluntary code of practice, 2012, Department for energy and climate change **[204]**	The guidelines state that overhead powerlines at voltages up to and including 132KV, underground cables at voltages up to and including 132kV and substations at and beyond the publicly accessible perimeter are not capable of exceeding the ICNIRP exposure guidelines for electromagnetic fields.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[205]**	The non-statutory guidance and advice states the following: *"Where proposed cables are over 132kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over 132kV and a risk assessment to any human and ecological sensitive receptors within the ZoI"* **Evidence and assumptions provided in this chapter**: Evidence and assumptions relied upon in scoping out aspects of the assessment are provided within Section 11.7.

11.3 Consultation

11.3.1.1 The Proposed Development is planned to connect into the existing National Grid substation at Monk Fryston. An initial project meeting was held on 17 September 2024 and National Grid will continue to be engaged with throughout the application process to discuss the Applicant works at the substation to inform design and construction controls although it is likely that design detail would not be finalised until after decision making on a DCO application.

11.3.1.2 A period of non-statutory consultation commenced on 24 October and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

11.4 Study area

11.4.1.1 The draft Order Limits are split into two broad areas, the Solar Development Sites 1-5 and the Cable Corridor Options Area, within which the Proposed Development would be located as described in Chapter 2 (The Proposed Development) and as shown on Figure 1.1 (Site Location and Draft Order Limits). The Cable Corridor Options Area are indicative at this stage while optioneering is ongoing to finalise the best Cable Corridors that underground electric cable connections would be located within.

11.4.1.2 There is no specific regulatory guidance or standardised methodology for defining a study area in relation to the assessment of EMF. However, the intensity of both electric fields and magnetic fields diminishes with increasing distance from the source. Therefore, it is considered appropriate to restrict the study area to the draft Order Limits and any immediately adjacent residential and ecological receptors.

11.4.1.3 There are no legal requirements to shield EMFs from underground cables or provide buffers to protect human health in the UK because these cables are, by industry-standard, compliant with the ICNIRP 1998 exposure limits in the terms of the 1999 EU Recommendation even when measured directly on top of them. Therefore, the approach taken to the study area is considered appropriate and proportionate.

11.5 Baseline conditions

11.5.1 Desktop sources used

11.5.1.1 Readily available mapping of the draft Order Limits, such as OS mapping have been used to inform the existing baseline conditions of the study area. This is to understand the location of existing overhead lines.

11.5.2 Surveys undertaken and proposed

11.5.2.1 No surveys are required in respect of EMFs.

11.5.3 Existing baseline

11.5.3.1 Sources of EMF are present naturally in the environment. The EMF value from natural sources is estimated to be 50 tesla units μT [206] (which measures the strength of magnetic fields) and the permitted public exposure limit set as a recommendation is 360 μT [207]. These limits are set as long-term limits as in the short-term these can be exceeded in many ways, for example, at 1m from the appliance the EMF value of a vacuum cleaner can be 800 μT [206].

11.5.3.2 The Monk Fryston substation will be a source of EMF, with the substation falling into the site area where the grid connection connects to the substation. There are also other substations in the area but the number are limited due to the largely rural and agricultural character of the study area. There are also likely to be existing telegraph pole mounted substations supplying small groups of residential or isolated properties in the study area which create EMF. However, such EMF extends no more than 3m from the sources so present no hazard to humans.

11.5.3.3 Substations located in the study area are often located within or near to settlements. Cables into and out from the substations are then routed to where the electricity is needed, often following roads - the cables may be overhead or underground. Every house with electrical power is supplied through a cable, even properties which are far away from their nearest substation. So, there is always a possibility of detecting EMF in a residential or business property, either from its own supply cable or from a neighbour's. There are also higher voltage overhead lines present in Solar Development Sites 4 and 5.

11.5.3.4 Several residential properties are located adjacent to the draft Order Limits and small sections of Public Rights of Way (PRoW) which recreational receptors use run through Solar Development Sites 1, 4 and 5 (PRoW are defined as National Trails, National Cycle Network Routes and definitive PRoW as per the definitive PRoW map).

11.5.3.5 Within the Cable Corridor Options Area there are a number of residential and ecological receptors, and the routing of the cable will pass under the River Ouse. The design principles for the development will specify the distance cables will be installed under the River Ouse to enable the team to conclude that there would be no significant effects on marine life due to the cable installation under the River. Should the Environment Agency express concerns about impacts, design principles can be agreed to increase the minimum cable depth to provide confidence that the risk of effects would be extremely low. It should be noted that the recently consented Gate Burton Energy Park and Cottam Solar Project both included 400kV cables under the River Trent, which is tidal at that point. On those projects the Outline Design Principles specified a minimum depth beneath the River to conclude no significant effects, as the Applicant proposes to adopt for this DCO Application.

11.5.3.6 There are a small number of residential properties, not named on base mapping, located adjacent to the draft Order Limits of Solar Development Sites 1, 4 and 5.

11.5.4 Future baseline

11.5.4.1 The future baseline for EMFs is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding. However, changes to the land use within or immediately adjacent to the draft Order Limits may occur as a result of the

introduction of committed developments which may either introduce new sources of EMF or new sensitive receptors to EMF (for, example human residing in residential properties, or utilising new community assets and recreational facilities).The approach to assessing cumulative effects from the interrelationship between different projects along with the Proposed Development is described in Chapter 20: Cumulative and in-combination effects. At present the potential for cumulative impacts is unknown and these will be considered in the assessment.

11.6 Potential impacts

11.6.1.1 The Proposed Development will use cables and infrastructure with a maximum voltage up to and including 275kV. Within each of the Solar Development Sites 1-5 the on-site cabling is expected to be under 132kV and are therefore not expected to result in significant EMF effects on adjacent receptors. The cables to be installed between areas of the Solar Development Sites, and between the Solar Development Sites and the Monk Fryston substation will be installed underground and could be up to 275kV. Overhead power lines are a source of two fields; the electric field and the magnetic field. Underground power cables eliminate the electric field altogether because it is screened out by the sheath around the cable, but they still produce a magnetic field (National Grid, 2015) [208].

11.6.1.2 Government planning policy relating to EMF for electricity infrastructure can be found in two National Policy Statements (NPS); the NPS for Renewable Energy Infrastructure (EN-3) and the NPS for Electricity Networks Infrastructure (EN-5). Section 2.8.246 of EN-3 states that 'burial of the cable increases the physical distance between the maximum EMF intensity and sensitive species.' No recommended burial depth is provided. The National Grid (2015) states that 'cables are typically installed 1 m below ground' [208]. This document also illustrates (through a table in Section 9) the typical μT for a 400kV buried cable at 0.9m depth. It states that at 0m from the centreline (i.e. directly above the cable) this typically results in 24μT exposure, reducing to 3μT at 5m and 0.9μT at 10m. As discussed above in paragraph 11.5.3.1, natural sources of EMF are estimated to be 50μT and permitted levels of public exposure are set at 360μT. Given that cables between Solar Development Sites will be installed to approximately 1m below ground will be considerably less than the 400kV example (they will be up to 275kV) and will be significantly below the permitted public exposure limits, this is considered sufficient mitigation for the Cable Corridor.

11.6.1.3 The other sources of EMF will all be from within the solar sites themselves, comprising the new substations and the battery energy storage system (BESS). The substations and BESS would not be publicly accessible. Employees accessing the on-site substations and BESS would be protected under exposure limits set in the Control of Electromagnetic Fields at Work Regulations 2016 [209].

11.6.1.4 EMF are expected to be at generally low levels and modern electricity infrastructure is designed to minimise EMF. EMFs can be harmful at high-enough levels. However, the fields needed to interfere with the body's nervous system is much greater than those produced by the UK electricity system. As part of the Proposed Development, the substations and BESS would be situated away from sensitive receptors to reduce noise, landscape and visual impacts and to ensure sufficient distance in case of a fire. Given these separation distances required for other purposes would exceed those required to mitigate the impacts of EMF, there is not considered to be a risk of significant effects due to these

elements of the project [206]. Overall, there are minimal elements of the project generating EMF and the distance of these sources from sensitive receptors will be minimised either by being placed underground or away from receptors. In light of this, there are not expected to be any potential impacts related to EMFs to human or ecological receptors both within and immediately adjacent to the Proposed Development.

11.7 Design, mitigation and enhancement measures

11.7.1 Embedded measures

11.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a design vision and a series of corresponding design principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

11.7.1.2 Embedded measures are modifications to the design of a scheme, made during the pre-application phase, that are an inherent part of the design. Embedded measures are also taken into account in the assessment of the likely significant effects.

11.7.1.3 Embedded measures for the Proposed Development relevant to EMF are to include the following:

- The use of underground cabling;
- Locating BESS and substations away from residential and ecological receptors;
- A minimum 15m offset from all infrastructure (including fencing) to PRoW; and
- The design of the Proposed Development's electrical infrastructure will be in accordance with all relevant codes and practices.

With the embedded mitigation measures outlined above, no significant EMF effects are expected to result from the Proposed Development.

11.7.2 Management plans

11.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to EMFs include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Operation Environmental Management Plan (oOEMP); and
- Outline Decommissioning Environmental Management Plan (oDEMP).

11.7.2.2 The management plans will include mitigation measures to protect against any interference with below ground utilities during construction and decommissioning. Specific mitigation relating to EMFs is not expected to be necessary.

11.7.3 Further mitigation

11.7.3.1 No further mitigation is anticipated for EMFs. However, should further mitigation be required following refinement of the cable alignments, this will be incorporated to retain no significant effects. This could include installation of cables at greater depths under watercourses.

11.7.3.2 Any embedded to further mitigation can be secured through design principles submitted as part of the DCO application.

11.8 Likely significant effects

11.8.1.1 No likely significant effects are expected for the topic of EMFs. Assessment is therefore proposed to be scoped out.

11.9 Proposed assessment methodology

11.9.1.1 Further assessment is proposed to be scoped out.

11.10 Assumptions, limitations and uncertainties

11.10.1.1 None.

11.11 Summary

Table 11.4 Electromagnetic fields scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects
Electromagnetic fields	All	Scoped out	Due to the design, avoidance and mitigation measures proposed, no significant effects on EMF receptors are anticipated. The full justification for scoping out EMF is provided in Section 11.6 and 11.7.

12. Ground conditions

12.1 Introduction

12.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of ground conditions.

12.1.1.2 It sets out ground conditions receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

12.1.1.3 The following aspects have been considered as part of the scope and methodology for ground conditions:

- Potential effects on geology and geodiversity;
- Potential effects of contamination with regard to human health;
- Potential effects of contamination with regard to biodiversity; and
- Potential effects on controlled waters.

12.1.1.4 This chapter is supported by the following figures:

- Figure 12.1: Superficial Geology;
- Figure 12.2: Bedrock Geology;
- Figure 12.3: Groundwater Source Protection Zones and Licensed Abstractions;
- Figure 12.4: Coal Mining Records; and
- Figure 12.5: Historic and Authorised Landfills.

12.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 7: Biodiversity; and
- Chapter 19: Water Resources and Flood Risk.

12.2 Relevant legislation, policy, standards and guidance

12.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for ground conditions and have informed the scope of the assessment.

12.2.2 Legislation

Table 12.1 Ground conditions - Legislation

Legislation	Relevance to assessment
Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance **[210]**	Part 2A of the Environmental Protection Act 1990 (as amended) (EPA 1990) establishes the legal framework for dealing with land contamination in England and is the primary UK legislation specifically relating to land contamination. It provides a means of dealing with unacceptable risks posed by land contamination to human health and the environment.
The Control of Asbestos Regulations 2012 **[211]**	Provides regulations relevant to risks from exposure to asbestos in soils.
The Contaminated Land (England) Regulations 2006 **[212]**	Regulations relevant to the designation and remediation of contaminated land.
The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 **[213]**	Requirement to ensure that the Proposed Development will not cause damage to ecosystems, Controlled Waters or land.
The Control of Pollution (Oil Storage) Regulations 2001 **[214]**	Relate to the environmentally safe storage of diesel/petrol fuels.
The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 **[215]**	Provides legislative context for the protection of organisms within the surface water bodies of England and Wales.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 **[216]**	The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, transpose into English and Welsh law the Water Framework Directive 2000/60/EC and contain provisions to protect rivers, lakes, estuaries, coastal waters and groundwater. These regulations provide for protection of all types of water bodies and include environmental objectives and compliance parameters to be assessed. These requirements underpin the impact assessment for the water environment.

12.2.3 Policy

Table 12.2 Ground conditions - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[217]**	Sets broad national policy approach. Section 5.11 addresses ground conditions, outlining approach to assessment of impacts and determining requirement for mitigation (if required), including the following paragraphs of relevance: Paragraphs 5.11.4 and 5.11.5 state: *"Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.* *Where pre-existing land contamination is being considered within a development, the objective is to ensure that the site*

Policy	Relevance to assessment
	is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance as a minimum." Paragraph 5.11.8 states: *"The ES (see Section 4.3) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this."* Paragraph 5.11.14 states: *"Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination."* Paragraphs 5.11.17 and 5.11.8 state: *"Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination. For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination, and where contamination is present, applicants should consider opportunities for remediation where possible. It is important to do this as early as possible as part of engagement with the relevant bodies before the official pre-application stage."*
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[218]**	The relevant paragraphs for ground conditions are as follows: Paragraph 2.10.34 states: *"Applicants are encouraged to develop and implement a Soil Resources and Management Plan which could help to use and manage soils sustainably and minimise adverse impacts on soil health and potential land contamination. This should be in line with the ambition set out in the Environmental Improvement Plan to bring at least 40% of England's agricultural soils into sustainable management by 2028 and increase this up to 60% by 2030."* Paragraph 2.10.60 states: *"As set out above applicants will consider several factors when considering the design and layout of sites, including proximity to available grid capacity to accommodate the scale of generation, orientation, topography, previous land–use, and ability to mitigate environmental impacts and flood risk."*

Policy	Relevance to assessment
National Policy Statement for electricity networks infrastructure (EN-5), 2024 **[219]**	NPS EN-5 addresses policy for energy transmission. EN-5 does not include further requirements for ground conditions, beyond those general requirements for 'good design' in accordance with the Holford and Horlock Rules (paragraphs 2.9.16 – 2.9.19) and with reference to undergrounding and subsea cables (paragraph 2.9.25).
National Planning Policy Framework, 2023 **[220]**	National planning policy is set out in the National Planning Policy Framework 2023 (NPPF (23)). The underlying principle of the NPPF (23) is a presumption in favour of sustainable development. It requires that both geology and ground conditions are considered as a resource and that the effects that they may have, including as a result of contamination, are taken into account in the planning process. Key to this assessment are paragraphs 180, 189 and 190. The National Planning Practice Guidance (PPG) for land affected by contamination has been produced by the Government to support the NPPF (23). Key to this assessment is paragraph 007 Reference ID: 33-007-20190722, Revision date: 22nd July 2019 of the PPG states that if contamination could be an issue: *"applicants should provide proportionate but sufficient site investigation information (a risk assessment) prepared by a competent person to determine the existence or otherwise of contamination, its nature and extent, the risks it may pose and to whom/what (the 'receptors') so that these risks can be assessed and satisfactorily reduced to an acceptable level".* The paragraph goes on to state that the risk assessment should *"identify the potential sources, pathways and receptors ('pollutant/ contaminant linkages') and evaluate the risks. This information will enable the local planning authority to determine whether more detailed investigation is required, or whether any proposed remediation is satisfactory".*
Selby District Core Strategy Local Plan, adopted 2013 **[221]**	The Selby District Core Strategy Local Plan includes the following relevant policies: Policy SP15 – Sustainable Development and Climate Change, sets out the principles for promoting sustainable development by ensuring development proposals respond to land characteristics to minimise risks of erosion, subsidence and instability, and to exploit opportunities for reclamation and reinstatement of contaminated land. Policy SP18 – Protecting and Enhancing the Environment, sets out the principles for safeguarding and enhancing the natural environment by ensuring development retains, protects and enhances features of biological and geological interest and ensuring that new development protects soil, air and water quality from all types of pollution.
Selby District Local Plan, adopted 2005 **[222]**	The Selby District Local Plan includes the following relevant policies:

Policy	Relevance to assessment
	Policy ENV2 A – "*Proposals for development which would give rise to, or would be affected by, unacceptable levels of noise, nuisance, contamination or other environmental pollution including groundwater pollution will not be permitted unless satisfactory remedial or preventative measures are incorporated as an integral element in the scheme. Such measures should be carried out before the use of the site commences.*" Policy ENV 2 B – *"Where there is a suspicion that the site might be contaminated, planning permission may be granted subject to conditions to prevent the commencement of development until a site investigation and assessment has been carried out and development has incorporated all measures shown in the assessment to be necessary."* Policy ENV8 – *"Proposals for development within, or which may affect, sites of special scientific interest or national nature reserves will be subject to strict control. Development which is likely to harm the site's nature conservation or geological interest will not be permitted unless there are no reasonable alternative means of meeting the development need and the reasons for the development clearly outweigh the value of the site itself and the national policy to safeguard the intrinsic nature conservation and geological value of the national network of such sites."* Policy ENV9 – *"Proposals for development which would harm a local nature reserve, a site of local importance for nature conservation or a regionally important geological/geomorphological site, will not be permitted unless there are no reasonable alternative means of meeting the development need and it can be demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic local nature conservation value of the site or feature."*
Selby District Council Contaminated Land Strategy 2019-24 **[223]**	Strategy which explains how Selby District Council will inspect the district for contaminated land and how it will deal with land found to be contaminated.

12.2.4 Policy

Table 12.3 Ground conditions - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[217]**	Sets broad national policy approach. Section 5.11 addresses ground conditions, outlining approach to assessment of impacts and determining requirement for mitigation (if required), including the following paragraphs of relevance: Paragraphs 5.11.4 and 5.11.5 state: *"Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.*

Policy	Relevance to assessment
	Where pre-existing land contamination is being considered within a development, the objective is to ensure that the site is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance as a minimum." Paragraph 5.11.8 states: *"The ES (see Section 4.3) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this."* Paragraph 5.11.14 states: *"Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination."* Paragraphs 5.11.17 and 5.11.8 state: *"Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination. For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination, and where contamination is present, applicants should consider opportunities for remediation where possible. It is important to do this as early as possible as part of engagement with the relevant bodies before the official pre-application stage."*
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Policy	Relevance to assessment
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Policy	Relevance to assessment
	Policy ENV2 A – "*Proposals for development which would give rise to, or would be affected by, unacceptable levels of noise, nuisance, contamination or other environmental pollution including groundwater pollution will not be permitted unless satisfactory remedial or preventative measures are incorporated as an integral element in the scheme. Such measures should be carried out before the use of the site commences.*" Policy ENV 2 B – *"Where there is a suspicion that the site might be contaminated, planning permission may be granted subject to conditions to prevent the commencement of development until a site investigation and assessment has been carried out and development has incorporated all measures shown in the assessment to be necessary."* Policy ENV8 – *"Proposals for development within, or which may affect, sites of special scientific interest or national nature reserves will be subject to strict control. Development which is likely to harm the site's nature conservation or geological interest will not be permitted unless there are no reasonable alternative means of meeting the development need and the reasons for the development clearly outweigh the value of the site itself and the national policy to safeguard the intrinsic nature conservation and geological value of the national network of such sites."* Policy ENV9 – *"Proposals for development which would harm a local nature reserve, a site of local importance for nature conservation or a regionally important geological/geomorphological site, will not be permitted unless there are no reasonable alternative means of meeting the development need and it can be demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic local nature conservation value of the site or feature."*
Selby District Council Contaminated Land Strategy 2019-24 **[223]**	Strategy which explains how Selby District Council will inspect the district for contaminated land and how it will deal with land found to be contaminated.

12.3 Consultation

12.3.1.1 The Applicant will consult with the following stakeholders with regards to ground conditions as part of the assessment process and non-statutory and statutory consultation:

- Environmental Health Officer (EHO) at North Yorkshire Council; and
- Environment Agency.

12.3.1.2 Consultation will be undertaken to agree on the proposed assessment methodology outlined in this chapter, including details of the geoenvironmental preliminary risk assessment (PRA). It is also proposed that consultation will seek to agree the likely DCO controls related to construction activities and operational emissions to the ground for the Proposed Development.

12.3.1.3 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to ground conditions.

12.3.1.4 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

12.4 Study area

12.4.1.1 The draft Order Limits are split into two broad areas, the Solar Development Sites 1-5 and the Cable Corridor Options Area, within which the Proposed Development would be located as described in Chapter 2 The Proposed Development and as shown on Figure 1.1 Draft Order Limits.

12.4.1.2 The ground conditions study area is defined by the draft Order Limits, and includes all land within the draft Order Limits plus a 250m buffer.

12.4.1.3 The study area used to assess the potential impacts on hydrogeology considers features within the draft Order Limits plus a 1km buffer.

12.4.1.4 This study area is based on professional judgement and takes account of the potential for contamination outside the boundary that has the potential to affect receptors within the Proposed Development area and vice versa.

12.4.1.5 The Solar Development Sites and Cable Corridor Options Area are indicative at this stage while optioneering is ongoing to finalise the best Cable Corridors that underground electric cable connections would be located within. Therefore, these areas of the draft Order limits are likely to reduce in size as the design is refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. Therefore, as the draft Order Limits are refined the study areas will reduce accordingly which will be described in the PEIR and ES.

12.5 Baseline conditions

12.5.1 Desktop sources used

12.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- British Geological Survey (BGS) 1:50,000 scale digital geology [224];
- BGS 1:50,000 geological map series Sheets 71, 78 and 79 [225] [226] [227] [228];
- BGS historical borehole records [224];
- Defra Multi-Agency Geographic Information for the Countryside (MAGIC) website [229];

- Groundsure.io environmental data viewer [230];
- North Yorkshire Geodiversity Partnership Geological Sites [231];
- Historical Ordnance Survey mapping (National Library of Scotland) [232];
- Google Earth Pro aerial images;
- Coal Authority interactive map viewer [233];
- North Yorkshire Council online contaminated land information [234];
- Zetica UXO online unexploded ordnance (UXO) risk maps [235]; and
- Licensed abstraction data provided by the Environment Agency.

12.5.2 Surveys undertaken and proposed

12.5.2.1 No surveys for ground conditions have been completed at the time of writing.

12.5.2.2 The following surveys are planned to be undertaken, and will inform the PEIR and ES:

- A geo-environmental preliminary risk assessment (PRA) desk study report will be produced and presented as a technical appendix to the PEIR and ES. The PRA will build upon this scoping report by supplementing it with data purchased from specialist providers and requests for information (RFI) from local authorities and the Environment Agency and the completion of a site reconnaissance visit.

12.5.3 Existing baseline

Site topography and land use

Solar Development Site 1

12.5.3.1 The land within Solar Development Site 1 consists of a series of agricultural field separated by hedgerows, land drains and trees and some small woodland parcels. A number of farmyards, residential dwellings and woodland areas are immediately adjacent to the site boundary. The fields are accessed via existing farm tracks. The surrounding area is predominantly rural agricultural land with the village of Escrick 430m to the northwest.

12.5.3.2 The topography of the site is undulating with a general slope down towards the south from 16mOD in the north to 5mOD in the south.

Solar Development Site 2

12.5.3.3 The land within Solar Development Site 2 consists of a series of agricultural field separated by hedgerows and land drains. The surrounding area is predominantly rural agricultural land with nearby farmyards and woodland areas. The site is located 1.4 km east of the junction of Water Lane and the A63 in Monk Fryston. Local transport network consists of Fryston Common Lane which cuts through the north of the site. The A63 runs parallel to the southern boundary with an unnamed road running vertically through the

centre of the site connecting the A63 and Fryston Common Lane. The A63 provides connection between the A1(M) and Selby.

12.5.3.4 The topography of the site is relatively flat at an elevation of approximately 10mOD.

Solar Development Site 3

12.5.3.5 The land within Solar Development Site 3 consists of a series of agricultural field separated by hedgerows, land drains and occasional trees. The surrounding area is predominantly rural agricultural land. The village of Monk Fryston is present approximately 500m to the west of the site.

12.5.3.6 The topography of the site is relatively flat at an elevation of approximately 10mOD.

Solar Development Site 4

12.5.3.7 The land within Solar Development Site 4 consists of a series of agricultural field separated by hedgerows, land drains and occasional trees. A number of farmyards, residential dwellings and woodland areas are immediately adjacent to the site boundary. The surrounding area is predominantly rural agricultural land. The River Aire flows adjacent to the southern boundary of the site.

12.5.3.8 The topography of the site is relatively flat at an elevation of approximately 8mOD.

Solar Development Site 5

12.5.3.9 The land within Solar Development Site 5 consists of a series of agricultural field separated by hedgerows, land drains and occasional trees. A number of farmyards and residential dwellings are immediately adjacent to the site boundary. A rail line runs adjacent to the eastern boundary of the site with a second rail line running south to northwest through the northeast of the site. The A19 is to the west of the site. The surrounding area is predominantly rural agricultural land with the River Aire to the south.

12.5.3.10 The topography of the site is relatively flat.

Cable Corridor Options Area

12.5.3.11 The land uses within the Cable Corridor Options Area are predominantly agricultural land with local farm holdings. In some areas the Cable Corridor Options Area is crossed by highways (including the A19 and A63), rail lines and the River Ouse.

History

Solar Development Site 1

12.5.3.12 The earliest Ordnance Survey historical mapping from the 1850s [232] shows the draft Order Limits of Solar Development Site 1 and surrounding area comprised undeveloped agricultural land with drainage channels and some small ponds. The majority of the existing farm buildings were present adjacent to the site. Three old clay, sand and gravel

pits were present to the south of the site and an old gravel pit was present 230m to the north.

12.5.3.13 Apart from minor changes to field boundaries no significant changes to the site and surrounding area are observed on the available historical maps and the site has continued to be used for agricultural land to present day.

Solar Development Site 2 and Site 3

12.5.3.14 The earliest Ordnance Survey historical mapping [232] from the 1850s shows the draft Order Limits of Solar Development Site 2 and 3 and surrounding area comprised undeveloped agricultural land with drainage channels.

12.5.3.15 No significant changes in land use within the sites and surrounding area are observed on the available historical maps and the sites have continued to be used for agricultural land to present day.

Solar Development Site 4

12.5.3.16 The earliest Ordnance Survey historical mapping [232] from the 1850s shows the draft Order Limits of Solar Development Site 4 and surrounding area comprised undeveloped agricultural land with drainage channels. An area of woodland known as Thorny Hagg and Little Wood was present in the centre of the site from the mid-1800s until at least the 1970s. By the early 2000s the woodland had been cleared and the area was ploughed fields.

12.5.3.0 The site has continued to be used for agricultural land to present day.

Solar Development Site 5

12.5.3.1 The earliest Ordnance Survey historical mapping [232] from the 1850s shows the draft Order Limits of Solar Development Site 5 and surrounding area comprised undeveloped agricultural land with a rail line running adjacent to the eastern site boundary. By the early 1980s the railway line which bisects the northeast of the site had been built.

12.5.3.2 The site has continued to be used for agricultural land to present day.

Cable Corridor Options Area

12.5.3.3 Based on a review of available Ordnance Survey historical mapping the draft Order Limits of the Cable Corridor Options Area predominantly comprised undeveloped agricultural land. Minor development for the construction of roadways, rail lines and changes to farm holdings and filed boundaries have occurred. The predominant land use has continued to be agricultural land to present day.

Geology

12.5.3.4 The published BGS geological mapping is shown on Figures 12.1: Superficial Geology and 12.2: Bedrock Geology.

Solar Development Site 1

12.5.3.5 Published British Geological Survey (BGS) data indicates Solar Development Site 1 to be underlain by superficial deposits comprising:

- Skipwith Sand Member (clayey, gravelly sand) beneath the southern part of the site;
- Sutton Sand Formation (sand) in localised areas beneath the centre and south of the site;
- Thorganby Clay Member (silty clay) beneath the southeast and north of the site;
- Escrick Moraine Member (clay, sandy, gravelly) and Escrick Moraine Member (sand, gravelly) beneath the north of the site;
- Elvington Glaciolacustrine Formation (silty clay) to the north of the site; and
- Naburn Sand Member (silty sand) to the north of the site.

12.5.3.6 There are no made ground deposits mapped within the Solar Development Site 1 boundary however made ground is present within the study area: 230m to the north (infilled ground associated with a gravel pit) and 100m to the northwest (worked ground).

12.5.3.7 The bedrock beneath the site comprises the Sherwood Sandstone Group (sandstone). The BGS describes the Sherwood Sandstone as red, yellow and brown sandstone, conglomeratic in the lower part with subordinate red mudstone and siltstone.

12.5.3.8 Available historical BGS borehole records within the site boundary indicate the superficial deposits extend to depth of 23 to 30m over the sandstone bedrock which has been proven to be at least 25m thick.

Solar Development Site 2

12.5.3.9 Published BGS data indicates Solar Development Site 2 to be underlain by superficial deposits comprising:

- Hemingbrough Glaciolacustrine Formation (silty clay) beneath the majority of the site.
- Breighton Sand Formation (sand) beneath the northeast of the site and in localised areas in the east.
- Alluvium (clay, silt, sand and gravel) beneath the northeast boundary of the site.

12.5.3.10 There are no made ground deposits are mapped within the site boundary or within 250m.

12.5.3.11 The bedrock beneath the site comprises the Sherwood Sandstone Group (sandstone) beneath the east of the site and Roxby Formation (calcareous mudstone) beneath the centre

and west of the site. The BGS describes the Roxby Formation as reddish-brown mudstone and siltstone with subordinate sandstone.

12.5.3.12 Available historical BGS borehole records within the site boundary indicate the superficial deposits are between 9 to 18m thick.

Solar Development Site 3

12.5.3.13 Published BGS data indicates Solar Development Site 3 to be underlain by superficial deposits comprising:

- Breighton Sand Formation (sand) beneath the central part of the site; and
- Hemingbrough Glaciolacustrine Formation (silty clay) beneath the west and southeast of the site.

12.5.3.14 There are no made ground deposits mapped within the site boundary or within 250m.

12.5.3.15 The bedrock beneath the site comprises the Roxby Formation (calcareous mudstone).

12.5.3.16 Available historical BGS borehole records within 250m of the site boundary indicate the superficial deposits are between 9 to 15m thick.

Solar Development Site 4

12.5.3.17 Published BGS data indicates Solar Development Site 4 to be underlain by superficial deposits comprising:

- Hemingbrough Glaciolacustrine Formation (silty clay) beneath the north, east and centre of the site;
- Breighton Sand Formation (sand) beneath the north, west and south of the site; and
- Alluvium (clay, silt, sand and gravel) beneath the south of the site.

12.5.3.18 There are no made ground deposits are mapped within the site boundary or within 250m.

12.5.3.19 The bedrock beneath site comprises the Sherwood Sandstone Group (sandstone) beneath the majority of the site and Roxby Formation (calcareous mudstone) beneath the north of the site and immediately to the west.

12.5.3.20 Available historical BGS borehole records within the site boundary indicate the superficial deposits are between 6 to 20m thick.

Solar Development Site 5

12.5.3.21 Published BGS data indicates Solar Development Site 5 to be underlain by superficial deposits comprising:

- Hemingbrough Glaciolacustrine Formation (silty clay) beneath the majority of the site;

- Breighton Sand Formation (sand) beneath the southeast and southwest of the site; and
- Alluvium (clay, silt, sand and gravel) beneath the southwest of the site.

12.5.3.22 There are no made ground deposits are mapped within the site boundary or within 250m.

12.5.3.23 The bedrock beneath the site comprises the Sherwood Sandstone Group (sandstone).

12.5.3.24 Available historical BGS borehole records within 250m of the site boundary indicate the superficial deposits are between 7 to 16m thick.

Cable Corridor Options Area

12.5.3.25 Published BGS data shows areas of made/artificial ground to be locally present within the Cable Corridor Options Area.

12.5.3.26 Superficial deposits are present beneath almost the entire Cable Corridor Options Area with the exception of an area to the southeast of Hambleton and southwest of Monk Fryston. The geological map shows the majority of the Cable Corridor Options Area is underlain with Breighton Sand Formation (sand), Hemingbrough Glaciolacustrine Formation (silty clay, Alluvium (clay, silt, sand and gravel) and Skipwith Sand Member (clayey, gravelly sand).

12.5.3.27 The bedrock beneath the majority of the Cable Corridor Options Area comprises the Sherwood Sandstone Group (sandstone). The southwestern extent of the Cable Corridor Options Area is underlain by the Roxby Formation (calcareous mudstone) and Brotherton Formation (dolomitic limestone). The BGS describes the Brotherton Formation as a grey dolomitic limestone with abundant Calcinema.

Geodiversity

12.5.3.28 No geological Sites of Special Scientific Interest (SSSI) or locally designated geodiversity sites have been identified within the site boundaries, or within 250m.

Hydrogeology

12.5.3.29 The groundwater source protection zones (SPZ) and licensed groundwater abstractions are shown on Figures 12.3: Ground Water Source Protection Zones.

Solar Development Site 1

12.5.3.30 The Environment Agency (EA) classify the Skipworth Sand Member, Sutton Sand Formation, Escrick Moraine Member and Naburn Sand Member as Secondary Undifferentiated Aquifers. The Thorganby Clay Member and Elvington Glaciolacustrine Formation are classified as Unproductive strata.

12.5.3.31 The bedrock of the Sherwood Sandstone Group is classified as a Principal Aquifer.

12.5.3.32 The EA also indicate that Solar Development Site 1 does not lie within a groundwater SPZ. There are two Zone 1 SPZs within 1km of the site located 340m to the southeast and 950m to the north. There are six licensed groundwater abstractions within 1km of the site which are all for agricultural use.

Solar Development Site 2

12.5.3.33 The EA classify the Breighton Sand Formation and Alluvium as a Secondary A Aquifer. The Hemingbrough Glaciolacustrine Formation is classified as Unproductive strata.

12.5.3.34 The bedrock of the Sherwood Sandstone Group is classified as a Principal Aquifer and the Roxby Formation is classified as a Secondary B Aquifer.

12.5.3.35 The EA also indicate that Solar Development Site 2 does not lie within a groundwater SPZ. There are two Zone 1 SPZs within 1km of the site located 50m to the west and 320m to the northeast. There are three licensed groundwater abstractions within 1km of the site which are all for agricultural use.

Solar Development Site 3

12.5.3.36 The EA classify the Breighton Sand Formation as a Secondary A Aquifer. The Hemingbrough Glaciolacustrine Formation is classified as Unproductive strata.

12.5.3.37 The bedrock of the Roxby Formation is classified as a Secondary B Aquifer.

12.5.3.38 The EA also indicate that Solar Development Site 3 does not lie within a groundwater SPZ and there are none within 1km. There are no licensed groundwater abstractions within 1km of the site.

Solar Development Site 4

12.5.3.39 The EA classify the Breighton Sand Formation and Alluvium as a Secondary A Aquifer. The Hemingbrough Glaciolacustrine Formation is classified as Unproductive strata.

12.5.3.40 The bedrock of the Sherwood Sandstone Group is classified as a Principal Aquifer and the Roxby Formation is classified as a Secondary B Aquifer.

12.5.3.41 The EA also indicate that Solar Development Site 4 does not lie within a groundwater SPZ. There is a Zone 3 SPZ 400m to the southeast. There are two licensed groundwater abstractions within 1km of the site which are for agricultural use.

Solar Development Site 5

12.5.3.42 The EA classify the Breighton Sand Formation and Alluvium as a Secondary A Aquifer. The Hemingbrough Glaciolacustrine Formation is classified as Unproductive strata.

12.5.3.43 The bedrock of the Sherwood Sandstone Group is classified as a Principal Aquifer.

12.5.3.44 The EA also indicate that the south and east of Solar Development Site 5 lies within a groundwater SPZ Zone 3 for several public water supply abstractions which are over

3.5km to the southeast. There are no licensed groundwater abstractions within 1km of the site.

Cable Corridor Options Area

12.5.3.45 The EA classify the superficial deposits beneath the Cable Corridor Options Area as a mixture of Secondary A aquifers and Unproductive strata.

12.5.3.46 The bedrock of the Sherwood Sandstone Group and Brotherton Formation is classified as a Principal Aquifer and the Roxby Formation is classified as a Secondary B Aquifer.

12.5.3.47 The EA also indicates that the majority of the Cable Corridor Options Area is not located within a groundwater SPZ, except for the area between Hambleton and Thorpe Willoughby which is located within a Zone 3. There are six licensed groundwater abstractions within the Cable Corridor Options Area and 32 groundwater abstractions within 1km.

Hydrology

12.5.3.48 A summary of surface watercourses present within the study area is provided below. More detail on watercourses is presented in Chapter 19 Water Resources and Flood Risk.

Solar Development Site 1

12.5.3.49 There are a series of ordinary watercourses (OWCSs) and land drains across Site 1 and in the surrounding area. Whinchat Dyke and Chatterton Dyke are present in the south of Solar Development Site 1 and flow into the Pallion Dike. There are also some small ponds within the site.

12.5.3.50 The EA indicates that there is one licensed surface water abstraction on the Pallion Dyke located on the southeastern boundary for agricultural use.

Solar Development Site 2

12.5.3.51 The Fleet Dyke flows west to east through the centre of Solar Development Site 2 and there are several unnamed land drains in the surrounding area. The Causeway Dyke is present along the southern boundary of the site.

12.5.3.52 The EA indicates that there are two licensed surface water abstractions on the Fleet Dike located on the west and east site boundary for agricultural use.

Solar Development Site 3

12.5.3.53 The Maspin Moor Drain crosses the Site parallel to Woodlands Lane. An OWC is present along the southern boundary of Solar Development Site 3. There are a series of unnamed land drains in the surrounding area.

12.5.3.54 There are no licensed surface water abstractions within 500m of the site.

Solar Development Site 4

12.5.3.55 There are a series of OWCs across the site and in the surrounding area. The Maspin Moor Drain, Mearley Drain and Fleet Drain all flow through Solar Development Site 4. The River Aire flows to the south of the site .

12.5.3.56 The EA indicates that there are eleven licensed surface water abstractions within 500m of the site for agricultural use.

Solar Development Site 5

12.5.3.57 There are several OWCs across the site and in the surrounding area. The Temple Drain flows southwards through Solar Development Site 5. An unnamed watercourse flows along the western boundary and crosses the site to join the Temple Drain. An unnamed drain follows the boundary of the southwest land parcel The River Aire flows adjacent to the southern site boundary.

12.5.3.58 The EA indicates that there are eight licensed surface water abstractions within 500m of the site for agricultural and production of energy use.

Cable Corridor Options Area

12.5.3.59 Several main rivers and watercourses are located within the Cable Corridor Options Area. These include the River Ouse, Selby Dam, Bishop Dike and Selby Canal.

12.5.3.60 Cockret Dike and Holmes Dike are located to the east of the Cable Corridor Options Area and the River Aire lies to the south, flowing eastward.

12.5.3.61 There are several OWCs and unnamed land drains within the Cable Corridor Options Area and surrounding area.

12.5.3.62 The EA indicates that there are seven licensed surface water abstractions within the Cable Corridor Options Area and 65 surface water abstractions within 1km.

Coal, other mining and mineral extraction

12.5.3.63 Solar Development Sites 1 to 4, the Cable Corridor Options Area and the west and south part of Solar Development Site 5 are located within the Coal Authority Coal Mining Reporting Area (as shown on Figure 12.4: Coal Mining Records).

12.5.3.64 Coal mining in the area is understood to have taken place at depth. Coal Authority records indicate that there is no past or current surface mining and no past or probable shallow coal mine workings within 250m of Solar Development Sites 1 to 5 and the Cable Corridor Options Area.

12.5.3.65 There are no recorded mine entries or development high risk areas within 250m. Therefore, the risk of ground instability due to former coal mining to the Proposed Development is considered to be very low.

12.5.3.66 The are no mines or quarries recorded by the BGS within 250m of Solar Development Sites 2, 3 and 4.

12.5.3.67 There are four recorded pits for clay, sand and gravel extraction within 250m of Solar Development Site 1 and one sand pit adjacent to the southeast boundary of Solar Development Site 5. There are a number of locally present pits for clay, sand and gravel extraction within the Cable Corridor Options Area. All pits are no longer in operation and historical mapping indicates they were typically in use in the late 1800s.

12.5.3.68 There are no mineral safeguarding areas within 250m of the draft Order Limits.

Potentially contaminative land uses

12.5.3.69 No site-specific ground investigation information is available to inform an assessment of contamination within the draft Order Limits. Made ground may be present in localised areas where there are infilled drainage ditches, ponds or road and rail embankments. If present it is anticipated that any contamination associated with these features is unlikely to be widespread. Across the wider draft Order Limits, no historical uses have been identified which could have resulted in significant contamination.

12.5.3.70 There are no known landfills within the draft Order Limits (Figure 12.5: Historic and Authorised Landfills).

12.5.3.71 There is one permitted waste site and on historical landfill located 200m and 220m respectively from the western extent of the Cable Corridor Options Area. The permitted waste site is identified as accepting household, commercial and industrial waste and its permit is currently at closure status. Licensing information indicates the landfill permit is at closure status. The historical landfill is recorded as accepting waste in 1973 with no further information provided.

12.5.3.72 A second historical landfill is located approximately 100m from the Cable Corridor Options Area, northeast of Biggin. The landfill is recorded as accepting waste in 1973 with no further information provided.

12.5.3.73 There are no sites that have been determined as contaminated land under Part 2A of the Environmental Protection Act 1990 [234] within 250m of the draft Order Limits.

Unexploded ordnance (UXO)

12.5.3.74 The Zetica online risk mapping [235] shows the draft Order Limits as low risk of UXO and there are no strategic targets within 250m.

Biodiversity

12.5.3.75 Chapter 7 Biodiversity describes ecological receptors that are likely to be present within the study areas.

12.5.3.76 There are no statutory designated nature conservation sites within the draft Order Limits. The following statutory designated sites are within a 250m area (zone of influence for ground conditions) of the draft Order Limits:

- Skipwith Common (215m east of the Cable Corridor Options Area) designated as a Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR) and Special Area of Conservation (SAC); and
- Burr Closes, Selby SSSI (adjacent to Cable Corridor Options Area).
- Non-statutory designated sites (Sites of Importance for Nature Conservation) within 250m of the draft Order Limits identified in Chapter 7 Biodiversity are:
- Riccall Dam, Riccall (within Cable Corridor Options Area);
- York and Selby Cycle Track (within Cable Corridor Options Area);
- Small Lakes, Riccall Ings (within Cable Corridor Options Area);
- Ouse Bank, Westfield, Riccall Ings (within Cable Corridor Options Area);
- Common Wood (adjacent to Cable Corridor Options Area);
- Hollicarrs Wood (adjacent to Cable Corridor Options Area);
- Nightingale Wood (adjacent to Cable Corridor Options Area);
- Mulberry Farm Ponds (adjacent to Cable Corridor Options Area);
- Bishop Wood (adjacent to Cable Corridor Options Area);
- Barber Rein (adjacent to Cable Corridor Options Area);
- Bywater Wood (adjacent to Cable Corridor Options Area);
- Far Carr Meadow, Wistow Deleted SINC (adjacent to Cable Corridor Options Area);
- Swamp On Selby Dam Near Low Rest Park Farm Deleted SINC (adjacent to Cable Corridor Options Area);
- Meadow Near Hillam Gates Level Crossing Deleted SINC (adjacent to Cable Corridor Options Area);
  - Gilbertsons Plantation – Wheldrake, adjacent to the northeast boundary of Site 1;
  - Gashouse Plantation, 125m northwest of Site 1; and
  - Borrow Pit East of Birkin, 10m south of Site 4.

12.5.3.77 Designated Groundwater Dependent Terrestrial Ecosystems (GWDTEs) within 250m of the draft Order Limits are identified in Chapter 7 Biodiversity are:

- Burr Closes, Selby (adjacent to the Cable Corridor Options Area); and
- Skipwith Common (215m east of the Cable Corridor Options).

12.5.4 Future baseline

12.5.4.1 Excluding potential future development pressures that may come forward, the future baseline for ground conditions is expected to remain as the current existing baseline in the absence of the Proposed Development proceeding.

12.6 Potential impacts

12.6.1 Construction

12.6.1.1 Disturbance of potentially contaminated soil during construction activities (such as excavation of cable trenches and other earthworks) may pose a potential risk to human health (both construction workers and site neighbours) and ecological receptors. Adjacent human receptors are limited to residents and workers on the adjacent farms.

12.6.1.2 Construction activities and movement/stockpiling of soils (if required) have the potential to create dust and/or release asbestos fibres (if present).

12.6.1.3 Disturbance of made or infilled ground may also cause an increase in the leaching and mobilisation of contamination, along new or existing surface or sub-surface pathways. A number of surface water receptors are located within the draft Order Limits including the River Ouse, Sleby Dam, Selby Canal, numerous OWCs and land drains.

12.6.1.4 The creation of piled foundations may create new pathways by which contamination could reach the underlying bedrock aquifer

12.6.1.5 Construction activities could result in localised temporary sterilisation of potential mineral deposits by preventing access for future exploitation.

12.6.2 Operation and maintenance

12.6.2.1 Disturbance of potentially contaminated soil during maintenance activities may pose a risk to human health (site staff), ecological receptors or controlled waters.

12.6.2.2 During operation or during maintenance activities, accidental releases of contaminants from leaks and spillages from the proposed infrastructure, such as during replacement of solar PV modules and batteries, has the potential to impact soils or groundwater where runoff to ground occurs.

12.6.2.3 Surface runoff in the event of a major incident such as an unplanned fire has the potential to impact soils or groundwater where runoff to ground occurs.

12.6.3 Decommissioning

12.6.3.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors would remain in place following decommissioning. Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2m bgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay.

12.6.3.2 The decommissioning phase of the Proposed Development at the Solar Development Sites 1-5 will comprise activities similar to the construction phase. Therefore, the decommissioning activities have the potential to expose made ground and contaminated soils that may pose a potential risk to human health, ecological receptors and controlled waters.

12.6.3.3 Following decommissioning access to potential mineral deposits for exploitation would be possible.

12.6.4 Cumulative and in-combination effects

12.6.5 The approach to assessing cumulative and in-combination effects is described in Chapter 21 Cumulative and in-combination effects. The potential for in-combination and cumulative impacts is considered to be highly unlikely following the application of mitigation measures.

12.7 Design, mitigation and enhancement measures

12.7.1 Embedded measures

12.7.2 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

12.7.3 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimize impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

12.7.3.1 Embedded measures for the Proposed Development relevant to ground conditions are likely to include:

- The placement of BESS Development and other infrastructure will avoid historic mine entries and where practicable compressible ground. There are no historic mine entries within the draft Order Limits and therefore part of this design principle has been achieved;
- Sustainable drainage solutions (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing site conditions;
- A minimum offset of 7m from bank top of Selby IDP watercourses, and 9m from bank top of Ouse IDP watercourses, and 10m from bank top for all other watercourses from all infrastructure (including fencing) and construction works, except where watercourse crossing are required (access tracks / cable routing /fencing will be located to pass across existing watercourse crossings where feasible). This design principle has been achieved in the current Proposed Development Layout for the Solar Development Sites shown in Figure 1.2 (Solar Development Concept Layout Plan);

- Construction/decommissioning workers would be provided with appropriate Personal Protective Equipment (PPE) and required to follow best practice measures with regards to limiting the risks associated with ground contamination;
- The Outline Construction Environmental Management Plan (oCEMP) will be prepared that will provide measures to minimise construction environmental effects and ensure activities avoid or minimise environmental impacts, including measures to manage the risk from pollution including the preparation of a drilling fluid breakout plan and to provide an emergency spill response procedure;
- Where underground cables are required to be installed across watercourses an appropriate trenchless methodology will be used;
- Where possible, underground cables would be installed using a cable plough or trenching. These are considered the most efficient and least impactful methods of cable installation, causing minimal disruption to the ground by cutting, installing and back-filling in one operation;
- Use of piling methodology that minimises the likelihood of creating pollution pathway to groundwater;
- An Outline Operational Environmental Management Plan (oOEMP) would regulate operational environmental effects and ensure activities avoid or minimise environmental impacts, including measures to manage the risk from pollution from small leaks and spillages from proposed infrastructure; and
- An Outline Battery Fire Safety Management Plan (oBFSMP) will require the detailed design of the BESS to include measures to avoid ground and groundwater contamination.
- The oBFSMP will require the Applicant to develop an emergency response plan with North Yorkshire Fire Services at the detailed design stage, to minimise the impact of an incident during construction, operation, and decommissioning of the facility. The emergency response plan should include containment of fire water runoff.

12.7.4 Management plans

12.7.4.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to ground conditions include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Operational Environmental Management Plan (oOEMP);
- Outline Decommissioning Environmental Management Plan (oDEMP);
- Outline Materials Management Plan (oMMP);
- Outline Site Waste Management Plan (oSWMP);
- Outline Drainage Strategy;
- Outline Soil Resource Management Plan (oSRMP); and
- Outline Battery Fire Safety Management Plan (oBFSMP).

12.7.5 Further mitigation

12.7.5.1 Further mitigation is actions that require further activity in order to achieve a reduction in significance of an effect, and/or anticipated outcome. Further mitigation for ground conditions will be defined through the PRA. It is considered that with appropriate site-specific construction and decommissioning mitigation in place, including management plans listed in section 12.7.4 above, the residual effects on receptor locations during the construction, operation and decommissioning phases are anticipated to be not significant. Options for further mitigation for the Proposed Development that could become relevant to ground conditions may include:

- Arisings from earthworks to be stockpiled separately and an appropriate distance from other material, until laboratory analysis has confirmed suitability for re-use or waste classification for disposal; and
- Excavations and storage of stockpiles to be undertaken in accordance with an appropriate materials management plan (MMP) and under DoWCoP (Definition of Waste: Code of Practice).

12.8 Likely significant effects

12.8.1 Construction

12.8.1.1 There is potential to encounter minor deposits of made ground associated with infilled drains and ponds and there may be localised hotspots of contamination, however this is not expected to be widespread. Risks to human health, ecological/biodiversity and environmental receptors during construction are typically mitigated by applying good working practices set out in a Construction Environmental Management Plan (CEMP). Assuming appropriate good working practices are undertaken during construction, the risk of likely significant effects relating to ground contamination is low and has been **scoped out**.

12.8.1.2 Disturbance of contaminated ground may cause an increase in leaching and mobilisation of contamination along new or existing subsurface pathways. There are a number of surface water receptors within the draft Order Limits. The creation of piled foundations may create new pathways by which contamination could reach the underlying Principal Aquifer. However given the historical and current land use, widespread contamination is not anticipated and the impact on controlled waters is likely to be low.

12.8.1.3 The risks to surface water bodies and groundwater during construction are typically mitigated by applying good working practices set out in the CEMP and the implementation of embedded mitigation measures; for example, the appropriate location of stockpiles away from surface watercourses, selection of appropriate piling methods and installing underground cables using techniques that minimise ground disturbance. Assuming such good working practices are implemented during construction, the risk of likely significant effects to groundwater and surface water quality is likely to be negligible to low and has therefore been **scoped out** for further assessment.

12.8.1.4 The risk of encountering UXO is considered to be low based on online risk maps. All appropriate good practice measures commensurate with an assessment of the UXO risk will be employed during construction and this has therefore been **scoped out**.

12.8.1.5 A search of nearby geological SSSIs and Regionally Important Geological Sites (RIGS) indicates that there are none within 250m of the draft Order Limits and impacts and potential effects from disturbance and mobilisation of contamination to these receptors are therefore **scoped out**.

12.8.1.6 With respect to mineral there are no mineral safeguarding areas within 250m of the draft Order Limits and potential impacts of sterilisation and prevention of future exploitation are therefore **scoped out**.

12.8.2 Operation and maintenance

12.8.2.1 Any contaminated land which has been identified as having potential to cause harm to human health, ecological receptors or controlled waters would have been removed and /or treated during the construction phase, reducing the potential for contact with contaminated soils during the operation phase including replacement activities. Therefore, risks to human health, ecological receptors or controlled waters from contaminated land would be very low and would not result in significant effects. Therefore, further assessment of this in the PEIR and ES has been **scoped out**.

12.8.2.2 It is considered that appropriate site-specific risk assessments and method statements would be prepared to control any future exposure to maintenance workers or utility workers. Therefore, human health risks for future site users would be low and not result in significant effects. Therefore, further assessment of this in the PEIR and ES has been **scoped out**.

12.8.2.3 During operation or during maintenance activities, accidental releases of contaminants from leaks and spillages from the proposed infrastructure and surface runoff in the event of a major incident such as a fire would be managed in accordance with standard measures set out in the Operational Environmental Management Plan and Battery Fire Safety Management Plan. These events are considered unlikely to occur and environmental management measures would be in place as described in section 12.7 to avoid or minimise any environmental impacts and as a result no significant impacts would be anticipated. Therefore further assessment of this in the PEIR and ES has been **scoped out**.

12.8.3 Decommissioning

12.8.3.1 Decommissioning will involve the removal of all proposed infrastructure to 1.2m bgl (including solar PV module and mounting structure piles, substation and BESS foundations, and associated infrastructure). Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2mbgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay. This is unlikely to result in significant ground contamination effects. As a result of the mitigation measures implemented during construction and operation within the CEMP and OEMP, there is a low risk that contamination would be present at the start of decommissioning as any new spills would have been managed. Furthermore, the oDEMP will provide the mitigation measures required and ensure this risk remains low, and therefore is **scoped out** of this assessment.

12.8.4 Cumulative and in-combination effects

12.8.4.1 As stated at section 12.6.4, it is unlikely that there would be any significant cumulative effects and this aspect is **scoped out** of further assessment.

12.9 Proposed assessment methodology

12.9.1.1 Further assessment of ground conditions is scoped out of assessment. However, a geoenvironmental preliminary risk assessment (PRA) desk study report will be produced and presented as a technical appendix to the PEIR and ES. The PRA will build upon this scoping report by supplementing it with data purchased from specialist providers and requests for information (RFI) from local authorities and the Environment Agency and the completion of a site reconnaissance visit. The PRA will include a section on coal mining risk and an appropriate Coal Authority Consultant Coal Mining Report would be commissioned to inform the PRA.

12.9.1.2 The PRA will be used to establish a conceptual site model (CSM) for the Proposed Development, developed in accordance with the EA LCRM guidance [236]. The CSM will be used to establish the risks posed by any viable pollution linkages and to inform the construction management approach. The PRA will recommend appropriate mitigation measures that can be incorporated within the design of the Proposed Development, to ensure it minimises potential risks to site users and the wider environment. It is expected that the PRA will confirm that significant effects would be unlikely.

12.10 Assumptions, limitations and uncertainties

12.10.1.1 The current baseline understanding is summarised in the baseline section detailed in section 12.5. This assessment has been collated based on a range of publicly available data and information. The accuracy of the baseline condition assessment is reliant upon the accuracy of the data available from the sources.

12.10.1.2 The data will be supplemented with additional data as part of the geo-environmental PRA which will be produced as a technical appendix to the PEIR and ES. This will include information gathered during a site visit to identify potential contamination sources. The ability to conduct site visits and walkovers is subject to permission from landowners. Limitations will be reported in the geo-environmental PRA.

12.10.1.3 Any uncertainties associated with the geo-environmental PRA will be reported in the geo-environmental PRA.

12.10.1.4 Intrusive ground investigation specifically for the geo-environmental PRA, PEIR and ES is not planned. However, a post-consent ground investigation is likely to be required to provide site-specific information on ground conditions to facilitate the detailed design of foundations and specification of control measures for the Proposed Development.

12.11 Summary

Table 12.4 Ground conditions scoping summary

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
Effects on geology	Construction	Scoped out	No sensitive geodiversity sites or mineral resources have been identified within 250m of the draft Order Limits.
	Operation	Scoped out	
	Decommissioning	Scoped out	
Effects from contamination on surface water and groundwater resources	Construction	Scoped out	Based on historical and current land uses, widespread contamination is not anticipated. The risks to surface water bodies and groundwater during construction will be mitigated by applying good working practices set out in the CEMP and the implementation of embedded mitigation measures. The full justification for scoping out this aspect is provided in section 12.8.
	Operation	Scoped out	Any contaminated land which has been identified as having potential to cause harm to controlled waters would have been removed and /or treated during the construction phase. Accidental releases of contaminants from leaks and spillages and surface runoff in the event of a major incident would be managed in accordance with standard measures set out in OEMP, and BFSMP. The full justification for scoping out this aspect is provided in in section 12.8.
	Decommissioning	Scoped out	As a result of the mitigation measures implemented during construction and operation, there is a low risk that contamination would be present at the start of decommissioning. Furthermore, the DEMP will provide the mitigation measures required. The full justification for scoping out this aspect is provided in Section in section 12.8.

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
Effects from contamination on human health/ built environment/ecology	Construction	Scoped out	Based on historical and current land uses, widespread contamination is not anticipated. Risks to receptors during construction are typically mitigated by applying good working practices set out in a CEMP. The full justification for scoping out this aspect is provided in in section 12.8
	Operation	Scoped out	Any contaminated land which has been identified as having potential to cause harm to controlled waters would have been removed and /or treated during the construction phase. Appropriate site-specific risk assessments and method statements would be prepared to control any future exposure to maintenance workers. The full justification for scoping out this aspect is provided in section 12.8.
	Decommissioning	Scoped out	As a result of the mitigation measures implemented during construction and operation, there is a low risk that contamination would be present at the start of decommissioning. Furthermore, the DEMP will provide the mitigation measures required. The full justification for scoping out this aspect is provided in in section 12.8.
Effects from UXO on human health/built environment	Construction	Scoped out	The risk of encountering UXO is considered to be low based on online risk maps. All appropriate good practice measures commensurate with an assessment of the UXO risk will be employed during construction. The full justification for scoping out this aspect is provided in in section 12.8.
	Operation	Scoped out	N/A
	Decommissioning	Scoped out	N/A

13. Human health

13.1 Introduction

13.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of human health.

13.1.1.2 It sets out human health receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and maintenance, and decommissioning.

13.1.1.3 The following aspects have been considered as part of the scope and methodology for human health:

- Environmental amenity;
- Accessibility and active travel;
- Health and social care and other social infrastructure;
- Access to open land and nature;
- Access to work and training; and
- Community safety.

13.1.1.4 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development; and
- Chapter 17: Socioeconomics.

13.1.1.5 This scoping assessment uses a broad definition of health, defined by the World Health Organisation as 'a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity' [237]. As such, the consideration of both mental and physical health effects are embedded within the assessment. The terms 'health' or 'health and wellbeing' may refer to mental and/or physical health and wellbeing.

13.1.1.6 Health assessment is based on the 'wider determinants of health' model, which recognises that health is influenced by a range of social, economic and environmental factors known as health determinants, such as access to health and education services, availability of training and employment opportunities, quality of the built and natural environment, and neighbourhood amenity.

13.1.1.7 As stated in the IEMA Guide to Determining Significance **[9]**, the consensus in literature and among public health practitioners and impact assessors is that a 'population health' approach should be taken when assessing health effects in the EIA. 'Population health' refers to the health outcomes of a group of individuals, including the distribution of such

outcomes within the group. Health effects on individuals (or individual residential receptors) are therefore not included in the assessment scope.

13.1.1.8 Chapter 17: Socioeconomics considers the socioeconomic effects on the local population. This Human Health assessment considers the effects of the Proposed Development on the health of the local population.

13.2 Relevant legislation, policy, standards and guidance

13.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for human health and have informed the scope of the assessment.

13.2.2 Legislation

Table 13.1 Human health - Legislation

Legislation	Relevance to assessment
Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[238]**	5(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors— population and human health.

13.2.3 Policy

Table 13.2 Human health - Policy

Policy	Relevance to assessment
Overarching National Policy Statement (NPS) for energy (EN-1), 2024 **[239]**	Indirect impacts on health may arise from: increased traffic • air or water pollution • dust, odour • hazardous waste and substances • noise • exposure to radiation, and • increases in pests As described in the relevant sections of this NPS and in the technology specific NPSs [*note that there are no specific mentions in EN-3 relevant to health], where the proposed development has an effect on humans, the ES should assess these effects for each element of the proposed development, identifying any potential adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[240]**	Not relevant to human health assessment
National Planning Statement for Electricity Networks	2.9.46 states that all overhead power lines produce electromagnetic fields (EMFs) and that putting cables underground eliminates electric fields but the cables can still produce magnetic fields.

Policy	Relevance to assessment
Infrastructure (EN-5), 2024 **[241]**	EMFs can therefore have direct and indirect effects on human health.
National Planning Policy Framework, 2023 **[13]**	The NPPF policies in Section 8 relate to urban renewal projects, provision of social, recreational and cultural facilities, and estate regeneration projects and are not directly relevant to the Proposed Development. However, Section 8 provides a general statement that 'Planning policies and decisions should aim to achieve healthy, inclusive and safe places.'
Selby District Council Local Plan, adopted 2013 **[242]**	The Selby District Council Local Plan makes reference to health in the following policies: Policy SG4 - Development in the Countryside (Strategic Policy) Policy SG9 - Design (Strategic Policy) Policy IC1 - Infrastructure Delivery (Strategic Policy) Policy NE2 - Protecting and Enhancing Green and Blue Infrastructure (Strategic Policy) Policy NE7 - Air Quality
Selby District Local Plan, adopted 2005 **[243]**	No relevant policies to consider at this stage.
North Yorkshire Joint Local Health and Wellbeing Strategy 2023-2030 **[244]**	The North Yorkshire Joint Local Health and Wellbeing Strategy 2023-2030 includes three key priorities for the strategy and the area: Prevention - improve the health and wellbeing of all our residents by concentrating on the big actions that will make the most difference to our population. Place – making sure that where you live does not unfairly reduce the quality of your health or length of your life. People - working with communities who experience the poorest health outcomes to make sure that they make the most difference to the local population.

13.2.4 Standards and guidance

Table 13.3 Standards and guidance

Standards and guidance	Relevance to assessment
Planning Practice Guidance: Healthy and safe communities, 2022 **[245]**	Guidance on promoting healthy and safe communities, particularly Paragraph: 004 Reference ID:53-004-20190722.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[246]**	The Planning Inspectorate provides guidance on the scope of solar projects. With regard to human health it states that if scoping out an assessment of vehicular emissions & dust and noise & vibration from a health assessment, this should be appropriately cross-referenced to the air quality and noise sections of the scoping report. The appropriate cross reference is provided in the 'Likely significant effects' section, along with the ways this is proposed to be secured and mitigated as set out in 'Design, mitigation and enhancement' section below.

Standards and guidance	Relevance to assessment
Institute of Environmental Management and Assessment (IEMA) Guide to: Determining Significance For Human Health In Environmental Impact Assessment **[247]**	Guidance on the consideration of health as a topic in environmental impact assessment.
Institute of Environmental Management and Assessment (IEMA) Guide to: Effective Scoping of Human Health in Environmental Impact Assessment **[248]**	Guidance on the consideration of human health within EIA scoping reports.

13.3 Consultation

13.3.1.1 Stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to human health.

13.3.1.2 A period of non-statutory consultation commenced on 24 October and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals.

13.3.1.3 Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

13.4 Study area

13.4.1.1 The study area for the health scoping assessment aligns with related topics such as noise, air quality and population, and would comprise:

- A local study area, comprising the Solar Development Sites 1-5 and the surrounding area up to 300m from that boundary, in which direct impacts on health determinants (e.g. land take, noise, air emissions, visual impacts) are most likely to occur, with consideration given to the conclusions of the landscape and visual, air quality and noise chapters if any likely significant effects are identified outside of that 300m.
- Settlements located along the local road network which may be indirectly affected, including:
  - Solar Development Site 1: Escrick, 430m west, and Wheldrake, 1.9km north east of the draft Order Limits
  - Solar Development Site 2: Hambleton, 1km west, and Monk Fryston, 1.1km east of the draft Order Limits
  - Solar Development Site 3: Hillam, 400m west of the draft Order Limits
  - Solar Development Site 4: Chappel Haddlesey, adjacent to the south of the draft Order Limits
- A wider study area, comprising the former Selby District Council local authority area, in which potential economic and employment effects arising from the Proposed Development are most likely to occur. The former local authority area of Selby is

used as the majority of the data used in the human health assessment was produced when Selby District Council was the operational authority.

13.4.1.2 Due to the nature of the cabling works, there is no potential for health effects arising from the Cable Corridor Options Area (see paragraph 13.6.1.1) and therefore the Cable Corridor Options Area are not included in the study area.

13.5 Baseline conditions

13.5.1 Desktop sources used

13.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Office for National Statistics, Census 2021; and [249]
- English indices of deprivation 2019. [250]

13.5.2 Surveys undertaken and proposed

13.5.2.1 No surveys are required in respect of human health.

13.5.3 Existing baseline

Built environment and community infrastructure

13.5.3.1 The Selby District has a population of 92,000 as of the 2021 Census. Land uses on and in the areas surrounding the Sites are focused on agricultural activities with dispersed settlements which support local services. York City Centre is approximately 9.2km north-west of Solar Development Site 1 providing a typical supply of local services expected of a city. Selby is located approximately 6km east of Site 2, 7.5km north-east of Solar Development Site 3, 5.5 km north-east of Solar Development Site 4 and 5km north of Solar Development Site 5.

13.5.3.2 There are no health and social care facilities within the local study area. Neighbourhood amenities within the local study area are limited given the rural nature of the area. The rural community is served by facilities in larger settlements and urban centres outside the local study area, such as York, Selby, Castleford and Sherburn in Elmet. There are also local amenities within the villages along the local road network including:

- Escrick: St Margaret School for Girls, Escrick C of E Primary School, Escrick Surgery, Dr. Aimee Moss Medical Spa, Sang Thai Restaurant, The Fat Abbot pub and A Traves and Sons pub, Parsonage Hotel and Spa, Field House and Farm Caravan Site and Holiday Lodge.
- Hambleton: Hambleton Methodist Chapel and St Mary's Church Hambleton, Hambleton Village Hall, Hambleton C of E Primary School, Hambleton Court Care Home, Copper Top Coffee café, The Red Lion pub, and the Oval Hotel.
- Monk Fryston and Hillam: Smart Sports Therapy, Monk Fryston and Hillam Community Centre, and The Crown Inn pub, and three hotels: Monk Fryston Hall Hotel, The Barn and Hall Farms Barn.

- Chappel Haddlesey: St John the Baptist Church, Chappel Haddlesey C of E Primary School.

13.5.3.3 Residential properties in the villages of Chapel Haddlesey and Temple Hirst are located adjacent to Solar Development Site 5. There are also individual and small groups of houses and farms dispersed around the Proposed Development.

13.5.3.4 Members of the public can access open land and nature through a network of rural public rights of way (as shown on Figure 17.1 Public Rights of Way) through the draft Order Limits and the local study area.

13.5.3.5 There are no rail stations in close proximity to the Sites. The nearest rail stations and bus stops are outlined in Table 13.4.

Table 13.4 Closest rail station and bus stops

Site	Nearest rail station	Bus stops
1	York – 9.9 km north-west of Site 1	Nearest bus stop to Solar Development Site 1 is approximately 1km away (bus service 415)
2	South Milford – 2.8 km north-west of Site 2	Nearest bus stop to Solar Development Site 2 is immediately adjacent to the site on the A63 (bus services 64 and 164)
3	South Milford – 3.9 km north-west of Site 3	Nearest bus stop to Solar Development Site 3 is approximately 1km away (bus service 496)
4	Whitley Bridge – 3.4 km south of Site 4	Nearest bus stop to Solar Development Site 4 is approximately 1.1km away (bus service 496)
5	Hensall – 2.8 km south of Site 5	Nearest bus stop to Solar Development Site 5 is approximately 600m away (bus services 476 and 496)

13.5.3.6 National Cycle Network route 62 runs adjacent to Solar Development Site 5.

13.5.3.7 In 2022, the latest data available [251], there were zero serious road traffic accidents within the local study area. Three “slight” road traffic accidents occurred on the A63 adjacent to Solar Development Site 2.

Health and social baseline – Selby District area (wider study area)

13.5.3.8 There are low levels of deprivation in Selby & Ainsty as defined by the Index of Multiple Deprivation (IMD) 2019, with only 1.4% of the area’s population living in the top 20% of the most deprived areas in England. The corresponding rate for North Yorkshire as a whole is 5.8%, with England as a whole at 20.0% [252].

13.5.3.9 1.4% of the population of the Selby & Ainsty area live in one of the top 20% of Health Deprivation Hotspots for England. The corresponding rate for North Yorkshire as a whole is 6.2% and for England as a whole 19.6% [252].

13.5.3.10 In the 2021 Census 49.3 % of residents in Selby described their health as “very good” which was an increase from 47.5% in the 2011 Census. 34.3% of those surveys in 2021 descried their health as “good”. 0.9% of Selby residents described their health as "very

bad" in 2021 (similar to 2011), while those describing their health as "bad" reduced from 3.8% in 2011 to 3.3% in 2021 [249].

13.5.3.11 The male life expectancy at birth in Selby is 76.89 years, and the female life expectancy at birth is 83.77 years. This is slightly lower than the England average of 79.25 years for men, yet female life expectancy is similar to the England average of 83.12.

Health and social baseline – local study area

13.5.3.12 Solar Development Site 1 is located within lower super output areas (LSOAs) Selby 003F and Selby 003C. There are low levels of deprivation, with both LSOAs within the 20% least deprived LSOAS with regards to overall deprivation as defined by the IMD. Residents of this area generally rank their health as good, with 87% reporting good or very good health, and 4% reporting bad or very bad health

13.5.3.13 Solar Development Site 2 is located within LSOAS Selby 009D and Selby 009C. Levels of overall deprivation in these LSOAs is very low, and they are within the 10% least deprived LSOAs. Residents of this area generally rank their health as good, with 84% reporting good or very good health, and 4% reporting bad or very bad health.

13.5.3.14 Solar Development Sites 3 and 4 are both located within LSOA Selby 009A. Overall deprivation in Selby 009A is low, and it is within the 30% least deprived LSOAs. Residents of this area generally rank their health as good, with 82% reporting good or very good health, and 5% reporting bad or very bad health.

13.5.3.15 Solar Development Site 5 is located within LSOA Selby 0010B and Selby 007E. Overall deprivation in these LSOAs is lower than average, with Selby 0010B in the 40% least deprived LSOAs and Selby 007E in the 30% least deprived LSOA. Residents of this area generally rank their health as good, with 82% reporting good or very good health, and 4% reportion bad or very bad health.

Wider determinants of health baseline conditions

13.5.3.16 For topic specific baseline conditions of relevance to human health, refer to the following sections of the EIA scoping report:

- Chapter 6: Air quality
- Chapter 8: Climate change resilience
- Chapter 11: Electric, magnetic and electromagnetic fields
- Chapter 12: Ground conditions
- Chapter 14: Landscape and visual
- Chapter 15: Major accidents and disasters
- Chapter 16: Noise and vibration
- Chapter 17: Socioeconomics
- Chapter 18: Traffic and transport

- Chapter 19: Water resources and flood risk

13.5.4 Future baseline

13.5.4.1 The North Yorkshire Joint Strategic Needs Assessment [253] states that the population in Selby District is ageing. By 2025, there will be 3,300 additional people aged 65+, a 19% increase from 2018, but an unchanged working-age population. This will lead to increased health and social care needs with no extra people available to work in health and care roles.

13.5.4.2 The influence of climate change will also affect health priorities and health risks in the future. This may include the risks to health from increased heatwaves or other extreme weather events. General climate change trends projected over UK land for the 21st century in UKCP18 [254] are broadly consistent with earlier projections (UKCP09) showing an increased chance of warmer, wetter winters and hotter, drier summers along with an increase in the frequency and intensity of extremes.

13.6 Potential impacts

13.6.1 Construction

Environmental amenity

13.6.1.1 Traffic, air quality, noise, visual amenity and lighting effects during construction would affect local environmental amenity. Construction of the cable corridor would result in localised, short term impacts, the scale and duration of which would not give rise to potential health and wellbeing effects. The duration and scale of construction activities for the solar farm could have the potential effects on quality of life and health and wellbeing for local residents. However, based on the likely effects identified in Chapter 6: Air quality, Chapter 14: Landscape and visual, and Chapter 16: Noise and vibration, the scale and severity of environmental impacts during construction are not considered to give rise to any potential effects on health and wellbeing at the population level.

Accessibility and active travel

13.6.1.2 Impacts from construction traffic and temporary lane closures during construction have the potential to cause delays to drivers and bus service users, reducing access to local services and amenities. Construction traffic may also disrupt journeys for non-motorised road users, potentially deterring some walkers and cyclists from using the affected routes. Based on assessment presented in Chapter 18: Traffic and movement, the scale and duration of construction traffic effects is not considered to have a material impact on access to services or levels of engagement in active travel. Therefore, no potential health effects are identified.

Access to health and social care and other social infrastructure

13.6.1.3 The presence of the temporary construction workforce has the potential to create additional demand for local services. Based on the location of the Proposed Development, it is considered that the majority of construction workers that do not commute to the site will find accommodation in urban areas such as York, Knottingley, Pontefract or Castleford, which are within easy reach of the site, rather than in the smaller rural

settlements. Workers dispersed throughout these settlements will not have an impact on demand for services. Furthermore, the majority are unlikely to register with local services such as GPs whilst residing in the area temporarily. Therefore, no potential impacts on local services are identified.

Access to open land and nature

13.6.1.4 Rural PRoW (PRoW herein are defined as National Trails, National Cycle Network Routes and definitive PRoW as per the definitive PRoW map) in and around the sites have the potential to be impacted by closures, diversions and amenity impacts during construction. Measures to reduce the direct and indirect impacts on PRoW are described in Chapter 14: Landscape and visual, Chapter 16: Noise and vibration, and Chapter 17: Socioeconomics. Construction impacts will reduce the value of these routes. However, due to the rural nature of the study area, local residents will have access to alternative recreational routes locally. Overall, the impacts on PRoW are not considered to materially affect local people's ability to enjoy green space and engage in outdoor activity, and therefore no potential health effects are identified.

Access to work and training

13.6.1.5 The construction phase will provide temporary employment opportunities, some of which may be taken by local people. Construction also has the potential to benefit to local businesses and suppliers (see Chapter 17: Socioeconomics). While some benefits may be felt by a small number of individuals, the number of local construction jobs and the scale of local economic benefit is not considered to affect the health and wellbeing of communities in the local or wider study area.

Community safety

13.6.1.6 Construction projects have the potential to impact community safety by mobilising ground contamination or increasing flood risk. These issues will be assessed and mitigated in accordance with regulatory requirements to protect human health (see Chapter 12: Ground conditions and Chapter 19: Water resources and flood risk). The requirement to mitigate potential adverse effects in line with regulations means that no potential impacts on community safety are identified.

13.6.1.7 The presence of construction traffic, including HGVs, on local roads has the potential to increase the risk of road traffic accidents for drivers, walkers, cyclists and horse riders. Good practice measures to minimise the risk of accidents will be set out in an outline Construction Traffic Management Plan, and the increase in traffic is not considered to pose a risk to community safety.

13.6.2 Operation and maintenance

Environmental amenity

13.6.2.1 There are no significant noise or traffic impacts during operation (see Chapter 16: Noise and vibration and Chapter 18: Traffic and movement). Visual impacts of the Proposed Development have the potential to affect local amenity, including views from some residential properties, local roads and rural PRoW. However, planting will be used to screen the sites and views of the Proposed Development will be intermittent. The scale of

change in amenity is not considered to potentially affect the quality of life and wellbeing of the local community.

Accessibility and active travel

13.6.2.2 Traffic generated by the development during operation will be minimal (see Chapter 18 Traffic and movement) and no potential impacts on accessibility and active travel are identified.

Access to health and social care and other social infrastructure

13.6.2.3 There are no potential impacts on health, social care or other community infrastructure during operation, since no traffic-related severance impacts are identified (see Chapter 18: Traffic and movement) and the development will not introduce a new population.

Access to open land and nature

13.6.2.4 There are no potential health effects associated with reduced access to open land and nature. There may be some permanent diversion of rural PRoW as a result of the Proposed Development and some routes may be affected by intermittent views of the sites. However, due to planned mitigation measures (screening and planting) to be incorporated into the design, the scale of impact is not likely to deter the use of these routes.

Access to work and training

13.6.2.5 The number of local jobs created during operation will be small (see Chapter 17: Socioeconomics) and will not affect health and wellbeing outcomes.

Community safety

13.6.2.6 Electromagnetic fields generated by cables, substations and battery energy storage systems can be damaging to health. These elements will be designed and installed in accordance with required safety standards, as described in Chapter 11: Electric, magnetic and electromagnetic fields. The requirement to comply with existing safety standards will remove the potential for impacts on community safety.

13.6.3 Decommissioning

13.6.3.1 Underground cables, located within the Cable Corridors that will be defined in the PEIR and ES, will not be removed as part of the decommissioning process as these would be located below 1.2mbgl. It is expected that the infrastructure above 1.2mbgl most likely removed along the Cable Corridors will be above ground manholes which are required to allow access to the joint bay and link boxes located at each joint bay.

13.6.3.2 The decommissioning phase of the Proposed Development at the Solar Development Sites 1-5 will comprise activities similar to the construction phase.

13.6.3.3 Impacts on health determinants during decommissioning are likely to comprise environmental impacts such as air quality, noise, lighting and traffic. These impacts would

be temporary, are considered to be no greater than during construction and are not considered to give rise to potentially significant effects on health and wellbeing.

13.6.4 Cumulative

13.6.4.1 Cumulative human health impacts may arise where other committed developments are proposed within the zone of influence of the Proposed Development. The potential for cumulative impacts from other committed developments in the local area will be assessed in Chapter 21: Cumulative and in-combination effects.

13.7 Design, mitigation and enhancement measures

13.7.1 Embedded measures

13.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (as described in Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

13.7.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures.

13.7.1.3 Embedded measures also include the management plans that will be prepared and implemented in a final form following granting of the DCO, but which are prepared in an outline from and submitted with the DCO application.

13.7.1.4 Embedded measures are taken into account in the assessment of the likely significant effects.

13.7.1.5 Relevant embedded measures for the Proposed Development, of relevance to human health, are outlined in the following chapters of the EIA scoping report:

- Chapter 6: Air quality
- Chapter 11: Electric, magnetic and electromagnetic fields
- Chapter 12: Ground conditions
- Chapter 14: Landscape and visual
- Chapter 15: Major accidents and disasters
- Chapter 16: Noise and vibration
- Chapter 17: Socioeconomics
- Chapter 18: Traffic and movement

13.7.2 Management plans

13.7.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to human health include:

- Outline Construction Environmental Management Plan (oCEMP), to consider air quality, noise and vibration, lighting, landscape and visual and ecological measures including PRoW.
- Outline Construction Traffic Management Plan (oCTMP).
- Outline Landscape and Ecological Management Plan (oLEMP) to consider neighbourhood quality and residential amenity effects, including general operational measures alongside those specific to landscape and ecology related to open land, nature and lighting and PRoW.
- Outline Operation Environmental Management Plan (oOEMP).
- Outline Battery Fire Safety Management Plan (oBFSMP) – to include general operational measures alongside those specific to community safety.
- Outline Decommissioning Environmental Management Plan (oDEMP).

13.7.3 Further mitigation

13.7.3.1 Further mitigation are actions that require further site and project specific activity in order to achieve a reduction in effect, and/or anticipated outcome. Further mitigation for the Proposed Development, of relevance to human health, is outlined in the following chapters of the EIA scoping report:

- Chapter 6: Air quality
- Chapter 11: Electric, magnetic and electromagnetic fields
- Chapter 12: Ground conditions
- Chapter 14 Landscape and visual
- Chapter 15: Major accidents and disasters
- Chapter 16: Noise and vibration
- Chapter 17: Socioeconomics
- Chapter 18: Traffic and transport
- Chapter 19: Water resources and flood risk

13.8 Likely significant effects

13.8.1 Construction

13.8.1.1 As described in Section 13.6, there are no potential health effects identified during the construction phase. Effects on health determinants at individual receptors will be assessed elsewhere in the ES as follows:

- Effects on environmental amenity at sensitive receptors will be assessed in Chapter 6: Air quality, Chapter 14: Landscape and visual and Chapter 16: Noise and vibration.
- Effects on accessibility and active travel will be assessed in Chapter 17: Socioeconomics (PRoW effects) and Chapter 18: Traffic and movement.
- Effects on public open land and community facilities will be assessed in Chapter 17: Socioeconomics.
- Effects on employment will be assessed in Chapter 17: Socio-economic effects.
- Effects on community safety will be assessed and mitigated to prevent significant risks to public safety. This will be addressed in Chapter 11: Electric, magnetic and electro-magnetic fields, Chapter 12: Ground conditions, Chapter 18, Traffic and movement and Chapter 19: Water resources and flood risk.

13.8.1.2 As described in Section 13.6, any likely significant effects on individual sensitive receptors identified in these assessments are not considered to give rise to potential effects on population health. Accordingly, a separate human health assessment is not considered to be required and is therefore **scoped out**.

13.8.2 Operation and maintenance

13.8.2.1 As described in Section 13.6, there are no potential effects on population health during the operation and maintenance phase. Effects on health determinants at individual receptor locations will be assessed elsewhere in the ES as follows:

- Effects on environmental amenity at sensitive receptors will be assessed in Chapter 6: Air quality, Chapter 14: Landscape and visual and Chapter 16: Noise and vibration.
- Effects on accessibility and active travel will be assessed in Chapter 17: Socioeconomic effects and Chapter 18: Traffic and movement.
- Effects on public open land and community facilities will be assessed in Chapter 17: Socioeconomic effects.
- Effects on employment will be assessed in Chapter 17: Socioeconomics.
- Effects on community safety will be assessed and mitigated to prevent significant risks to public safety. This will be addressed in Chapter 11: Electric, magnetic and electro-magnetic fields, Chapter 12: Ground conditions, Chapter 18, Traffic and movement, Chapter 19: Water resources and flood risk, and in a Glint and glare assessment appended to the ES. Further information on design measures to ensure the safe operation of the Proposed Development are provided in Chapter 15: Major accidents and disasters.

13.8.2.2 As described in Section 13.6, any likely significant effects on individual sensitive receptors identified in these assessments are not considered to give rise to potential effects on population health. Accordingly, a human health assessment is not considered to be required and is therefore **scoped out**.

13.8.3 Decommissioning

13.8.3.1 As described in Section 13.6, there are no potential effects on population health during the decommissioning phase. Effects on health determinants, such as noise and air quality, at individual receptor locations will be assessed elsewhere in the ES. A human health assessment is not considered to be required and is therefore **scoped out**.

13.8.4 Cumulative

13.8.4.1 As stated above it is unlikely that there would be any significant human health effects as a result of the Proposed Development. Given the low level of effects that are likely from this type of development, it is considered unlikely that there would be any cumulative effects with other committed developments. Therefore, cumulative effects to human health are **scoped out** of further assessment. Cumulative effects in terms of individual topics would be considered in the Cumulative Effects and Interactions chapter of the ES.

13.9 Proposed assessment methodology

13.9.1.1 The assessment of human health, as a separate ES chapter, is **scoped out** of further assessment.

13.9.1.2 As discussed within Section 13.7.2.1, the relevant topics and suite of management plans will cover the required aspects associated with human health.

13.10 Assumptions, limitations and uncertainties

13.10.1.1 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. It is assumed that the data collated is accurate. It is assumed that the data, information, and sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

13.10.1.2 There are no specific limitations and uncertainties to note.

13.11 Summary

Table 13.4 Human Health scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Environmental amenity	All	Scoped out	Considered in the Landscape and visual, Air quality and Noise and vibration chapters of the ES. Mitigation measures will be detailed in the ES, oCEMP and oLEMP, with no likely significant health effects expected.
Accessibility and active travel	All	Scoped out	Considered in the Traffic and movement chapter of the ES. Further consideration and appropriate mitigation

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			measures will be detailed in the oCEMP, oLEMP and oDEMP, with no likely significant health effects expected.
Access to health and social care and other social infrastructure	All	Scoped out	No potential direct or indirect impacts on existing social infrastructure identified. Accordingly, it is expected that the Proposed Development will not have a likely significant effect on human health arising from changes to access to health and social care and other social infrastructure.
Community safety	All	Scoped out	Compliance with environmental regulations and design standards will ensure to risk to public health from ground and water contamination, flood risk or electromagnetic fields. Accordingly, it is expected that the Proposed Development will not have a likely significant effect on human health arising from changes to community safety.
Access to open land and nature	All	Scoped out	Impacts on rural PRoW from diversions and amenity impacts not considered to give rise to likely significant effects on health and wellbeing.
Access to work and training	All	Scoped out	Scale of economic benefits and new employment opportunities not considered to give rise to potential health benefits at the population level. Accordingly, it is expected that the Proposed Development will not have a likely significant effect on human health arising from changes to access to work and training.

14. Landscape and visual

14.1 Introduction

14.1.1.1 This chapter outlines the scope and methodology for the Landscape and Visual Impact Assessment (LVIA). The LVIA will assess the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, on landscape and visual receptors.

14.1.1.2 There are clear differences between landscape effects and visual effects and the following distinctions have been made:

- **Landscape effects** relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities, and landscape character.
- **Visual effects** relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of features within their view due to the Proposed Development.

14.1.1.3 Landscape effects and visual effects will therefore be assessed and reported separately.

14.1.1.4 This chapter is supported by the following figures:

- Figure 14.1: Site Location and Study Area;
- Figure 14.2: Environmental Designations;
- Figure 14.3: Published Landscape Character Areas;
- Figure 14.4: Zone of Theoretical Visibility (ZTV) and Viewpoints.

14.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 5: Agricultural land and soils;
- Chapter 7: Biodiversity; and
- Chapter 10: Cultural heritage.

14.2 Relevant legislation, policy, standards and guidance

14.2.1.1 This section identifies the key legislation, planning policy, standards and guidelines and explains, where relevant, how they have informed the assessment and design of the Proposed Development.

Table 14-1 Landscape and visual - Legislation

Legislation	Relevance to assessment
European Landscape Convention (ELC)	Paragraph 2.1 of Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255] states that: "*The UK has signed and ratified the European Landscape Convention (ELC) since 2002, when the last edition of this guidance was published. The recognition that government has thus given to landscape matters raises the profile of this important area and emphasises the role that landscape can play as an integrating framework for many areas of policy. The ELC is designed to achieve improved approaches to the planning, management and protection of landscapes throughout Europe and to put people at the heart of this process."* (Landscape Institute and Institute of Environmental Management and Assessment, 2013) *The ELC defines landscape as:* *"…an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.*"

Table 14-2 Landscape and visual - Planning policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024	Section 4.6 of NPS EN-1 (2023) sets out policies with respect to environment and Biodiversity Net Gain. It requires applicants to submit a statement with applications for development consent, demonstrating how opportunities for delivering wider environmental net gains have been considered, and where appropriate, incorporated into proposals as part of good design of the project (Department for Energy Security & Net Zero, 2023c) [256]. Section 4.7 of NPS EN-1 notes the need for careful siting and criteria for good design which takes account of potential impacts on landscape and visual amenity in order to minimise negative effects and recognising opportunities for enhancement (Department for Energy Security & Net Zero, 2023c). NPS EN-1 section 5.10 recognises that virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape (Department for Energy Security & Net Zero, 2023c). It sets out the requirements for applicants to carry out a landscape and visual impact assessment, including cumulative effects in accordance with relevant guidance (Department for Energy Security & Net Zero, 2023c). Content should include effects on landscape character, landscape components and visibility during construction and operation.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024	NPS EN-3 sets out relevant considerations for applicants with regards to renewable energy infrastructure, including solar farm development and its potential impacts on landscape and visual amenity, including visual impacts from public rights of way, visual impacts of security and lighting measures and the need to mitigate these as far as possible (Department for Energy Security & Net Zero, 2023b) [257]. In the cases of solar farm development, it states in paragraph 2.10.95 that whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised (Department for Energy Security & Net Zero, 2023b).

Policy	Relevance to assessment
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024	2.10 (2.10.5) states the principal opportunities for mitigating adverse landscape and visual impact of electricity network infrastructure include *"selection of the most suitable type and design of support structure in order to minimise the overall visual impact on the landscape. In particular, ensuring that towers are of the smallest possible footprint and internal volume".*
National Planning Policy Framework, 2023	Chapter 12 of the NPPF requires that planning decisions ensure developments *"…are sympathetic to local character"* (paragraph 135c) (Ministry of Housing Communities & Local Government, 2023) Chapter 15 requires planning decisions to *"contribute to and enhance the natural and local environment, by: a)* [inter alia] *protecting and enhancing valued landscapes…"* and *"b) recognising the intrinsic character and beauty of the countryside"* (paragraph 180a) (Ministry of Housing Communities & Local Government, 2023) [258]
Selby District Core Strategy Local Plan, adopted 2013	SP17 Low Carbon and Renewable Energy outlines that new developments should be designed and located to protect the environment or demonstrate that the wider environmental, socioeconomic benefits outweigh any harm caused to the environment; local amenity and impacts on local communities should be minimised (Selby District Council, 2013) [259]. SP18 Protecting and enhancing the environment outlines the importance of conserving historic assets, natural environment including the landscape character and protecting the District's wildlife. New developments should ensure protection against all types of pollution, minimise resource consumption, and enhance locally distinctive landscapes (Selby District Council, 2013). Policy SP 19 Design Quality provides guidance for all new developments through having regard to local character, identity and the context of its surroundings (Selby District Council, 2013).
Selby District Local Plan, adopted 2005	ENV1 sets out the parameters for understanding the impact on local amenity and integration within existing or proposed developments, in the context of the Local Plan which supports renewable energy, including solar power, as part of overall development design (Selby District Council, 2005) [260]. ENV3 Light Pollution sets criteria for outdoor lighting, permitting it only if it represents the minimum level required for security or operations, minimises glare and spillage, does not compromise highway safety or local amenity, and does not detract from the rural character of the area (Selby District Council, 2005). ENV6 Renewable energy policy allows renewable energy projects if they do not significantly affect the landscape, do not cause excessive noise, traffic, emissions or electromagnetic interface and meet high standards of design, materials and landscaping (Selby District Council, 2005). ENV15 Conservation and enhancement of locally important landscape areas sets out that in locally important landscape areas, priority will be given to conserving and enhancing the landscape's character and quality. Attention should focus on design, layout, landscaping, and materials to minimize impact and enhance the area's traditional buildings and landscape (Selby District Council, 2005). As part of ENV20 Strategic Landscaping, the District Council will require the incorporation of fully integrated landscaping proposals on a scale which will provide effective screening and enhancement of development, particularly along the approaches to settlements (Selby District Council, 2005). ENV21 Landscaping Requirements outlines that development proposals should incorporate landscaping, retaining existing trees and hedgerows, and planting native locally occurring species (Selby District Council, 2005).

Table 14-3 Landscape and visual - Standards and guidance

Standards and guidance	Relevance to assessment
An Approach to Landscape Character Assessment (2014), Natural England [261]	Informs the methodology for defining and describing the landscape character baseline.
Assessing landscape value outside national designations, Technical Guidance Note 02/21 (2021), Landscape Institute [262]	Informs the methodology for assessing the value attached to the landscape and whether a landscape can be considered *"valued landscape"* in the context of NPPF paragraph 180(a).
Design Principles for National Infrastructure, National Infrastructure Commission (2020) [263]	Informs the development of design principles.
Project Level Design Principles – Guidance from the National Infrastructure Commission (2024) [263]	Informs the development of design principles.
Guidelines for Landscape and Visual Impact Assessment, 3rd edition (2013), Landscape Institute and Institute of Environmental Management and Assessment [264]	Underpins the methodology for undertaking LVIAs.
Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment 2024-01 (2024), Landscape Institute [265]	Clarifications on GLVIA3.
Infrastructure, Technical Guidance Note 04/20 (2020), Landscape Institute [266]	Background information for the planning and design process for infrastructure projects for landscape.
Planning Practice Guidance (PPG), Natural Environment (Landscape) [37]	Sets out the benefits of landscape character assessments and the importance of considering Green Infrastructure in the early stages of schemes.
Planning Practice Guidance, Renewable and Low Carbon Energy [267]	Sets out that planning has an important role in the delivery of new renewable and low carbon energy infrastructure. The PPG identifies several LVIA considerations, including visual impact, mitigation through screening and glint and glare.
Visual Representation of Development Proposals, Technical Guidance Note 06/19 (2019), Landscape Institute [268]	Informs the process for producing visualisations and photomontages.
Planning Inspectorate Technical Advice Page for Scoping Solar Development [196]	The Planning Inspectorate provides guidance on the scoping of solar projects. For landscape and visual it proposes that lighting should be considered and assessed within the landscape and visual chapter of the ES.

14.2.2 Consultation

14.2.2.1 Consultation with North Yorkshire Council will be undertaken to inform the location of viewpoints and to invite feedback on the methodology and proposed approach to photomontages.

14.2.2.2 A period of non-statutory consultation commenced on 24 October and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and

invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process

14.2.2.3 A request for landscape advice from Natural England was sought in August 2024 (Natural England reference 484692 / 484696); however, as impacts to protected landscapes are not anticipated, Natural England advised that further advice was not required.

14.3 Study area

14.3.1.1 The study area for the LVIA is illustrated on Figure 14.1: Site Location and Study Area. The study area comprises a 3km radius from the Solar Development Areas and a 500m radius from the Cable Corridor Options Area. This is considered sufficient to enable the assessment of potentially significant landscape and visual effects, in accordance with GLVIA3. A site visit undertaken in May 2024 informed an understanding of the wider landscape. This, in combination with analysis of a zone of theoretical visibility (ZTV), and the Applicant's experience of working on similar solar farm projects, has informed the definition of the study area. The study area will be kept under review as the design of the Proposed Development progresses, and will be further refined once a preferred cable corridor has been identified. The justification for its final extent will be set out in the PEIR and ES.

14.3.2 Zone of theoretical visibility (ZTV)

14.3.2.1 The first stage of defining the study area was informed by detailed desk study, including the preparation of a computer-generated Zone of theoretical visibility (ZTV). A ZTV is defined in GLVIA3 as "*a map, usually digitally produced, showing areas of land within which, a development is theoretically visible*." (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [264]. ZTVs do not indicate how much of the Proposed Development will be visible. The purpose of the ZTV is to:

- Identify the theoretical extents of visibility of the Proposed Development i.e. areas from which it would not be visible and areas from which it could potentially appear in existing views;
- Assist in the identification of the study area;
- Identify areas of landscape and visual receptors likely to be affected by the Proposed Development;
- Identify locations that are representative of the views experienced by visual receptors at different locations within the study area (representative viewpoints); and
- Inform the design, including the extent and type of proposed mitigation.

14.3.2.2 A preliminary ZTV is shown in Figure 14.4: ZTV and Viewpoints. This has been prepared to inform this Scoping Report, based on the current maximum parameters of the proposed solar panels (4.5m height). As certain features of the Proposed Development are unknown at this stage, such as the location of ancillary buildings and structures, these have not been included in the ZTV. Further ZTVs will be produced to support the PEIR and ES.

14.3.2.3 The ZTV has been modelled using the 'Viewshed' tool in ESRI ArcMap GIS Software. The ZTV shows areas from which the Proposed Development is theoretically visible or not visible. ZTVs have been modelled using the 'Viewshed' tool in ESRI ArcMap GIS Software which shows areas from which the Proposed Development is theoretically visible or not visible. The ZTV was prepared using digital surface model (DSM) data with a resolution of 1m. It is based on maximum solar panel heights of 4.5m. For all of ZTVs an assumed viewing height of 1.7m above ground level has been used to simulate the eye level of a person at the top of the range set out in paragraph 6.11 of GLVIA3 to represent the worst-case scenario.

14.4 Baseline conditions

14.4.1 Data sources

14.4.1.1 The data sources that will inform the landscape and visual baseline are set out in Table 14-4. This list will be reviewed during the course of the assessment.

Table 14-4 Data sources

Data	Source
Ordnance Survey Mapping and Aerial Imagery	Ordnance Survey
LiDAR Digital Terrain Model – 1m resolution LiDAR Digital Surface Model – 1m resolution	Environment Agency
National Character Area 28 Vale of York [269] National Character Area 30 Southern Magnesian Limestone [270] National Character Area 39 Humberhead Levels [271]	Natural England (2015)
North Yorkshire and York Landscape Characterisation Project	North Yorkshire County Council (2011) [272]
Selby Landscape Character Assessment	Selby District Council (2019)
Selby District Landscape Sensitivity Study	Selby District Council (2021)
Selby District Local Landscape Designation Review	Selby District Council (2019)
Public Rights of Way	North Yorkshire Council (June 2024)

14.4.2 Surveys proposed

14.4.2.1 Further fieldwork will be undertaken to inform the PEIR and ES. This will cover winter and summer seasons. Fixed-point photography will be captured for each viewpoint and measured surveys will be carried out for viewpoints where photomontages are proposed.

14.4.2.2 The LVIA will also be informed by arboricultural surveys, which will record the extent, type and condition of trees within and surrounding the Order limits. The results of these surveys, along with habitat surveys, including hedgerow surveys, will inform an assessment of landscape features and the mitigation and enhancement measures embedded in the design.

14.5 Existing baseline

14.5.1 Site context

14.5.1.1 The study area is located in the Selby area of North Yorkshire, within the administrative boundary of North Yorkshire Council. The study area is generally characterised by a rural farmed lowland character. Two river corridors flow through the study area: the River Aire to the south, and the River Ouse crossing between Solar Development Site 1 and Solar Development Sites 2, 3, 4 and 5 within the Cable Corridor Options Area.

14.5.1.2 Solar Development Site 1 is located to the east of Escrick. The low-lying, gently undulating vale landscape is characterised by open arable farmland with small patches of mixed woodland which provide a sense of enclosure in places. The patchwork of arable fields are generally delineated by hedgerows and fencing; copses and shelterbelts are also key features of the wider landscape. The A19 is located west of Solar Development Site 1, and a minor rural road network connects the farmsteads and small villages across the wider landscape. The village of Escrick lies approximately 430m west of Solar Development Site 1; part of Escrick is designated a conservation area and contains a number of listed buildings.

14.5.1.3 Solar Development Sites 2, 3, 4 and 5 lie between the settlements of Monk Fryston and Temple Hirst, within a low-lying area with few topographic undulations. The landscape comprises a patchwork of arable fields with a large scale, open character. Land use is primarily intensive arable farming within large rectilinear fields, with dykes or ditches often forming field boundaries. Smaller semi-regular fields are found around the settlements such as Monk Fryston, Hillam and Wistow with hedgerows and trees providing limited boundary definition. Numerous minor roads and footpaths cross the rural landscape, connecting small villages, hamlets and individual properties. There are limited amounts of small woodland areas scattered within the peripheral boundaries of the Sites.

14.5.1.4 Monk Fryston and Hillam include designated conservation areas, approximately 1km from Solar Development Site 2 and 0.5km from Solar Development Site 3. Solar Development Site 2 is located adjacent to the A63 between Monk Fryston and Hambleton. Solar Development Site 3 lies adjacent to the village of Birkin, and Solar Development Site 5 is located approximately 0.5km from the village of Chapel Haddlesey. The southern parts of Solar Development Sites 4 and 5 lie within the Aire valley, characterised by flat, low lying flood plains to the north and south of the meandering River Aire and its densely vegetated riverbanks of shrub, natural grassland and trees.

14.5.2 Landscape designations

14.5.2.1 There are no statutory landscape designations (i.e. National Parks or National Landscapes) within the study area. The Howardian Hill National Landscape is the nearest statutory landscape to the study area, and this lies approximately 20km north of Solar Development Site 1.

14.5.2.2 There are several existing local landscape designations within the study area. These Locally Important Landscape Areas (LILA) are shown on the Policies Map associated with the Selby District Local Plan (2005) [260] but the rationale for their designation and qualities which merit protection have not been consistently documented.

14.5.2.3 To the south-west of Selby, the Hambleton Hough and Brayton Braff LILAs are situated approximately 1.5km and 3km at their closest points from the draft Order Limits of Solar Development Site 4, respectively. The Local Plan 2005 notes *'their significance is attributable to the outcropping of Triassic sandstone above the glacial till of the surrounding area. Both are extensively wooded, further enhancing their prominence.'* It should be noted that NSIP scale solar farm developments have been consented within local landscape designations (e.g. Gate Burton Energy Park) and these separation distances are important in this context.

14.5.2.4 In addition, four candidate areas were identified and assessed in the Selby District Local Landscape Designation Review[5] as part of the most recent Local Plan review before the formation of the North Yorkshire Unitary Authority. This concluded that these candidate areas merited recognition under a local landscape designation policy. If adopted, the draft Order Limits (Solar Development Site 4) would be approximately 1km from the Hambleton Hough and Brayton Barff LILA and 3km from the draft Order Limits (Solar Development Site 1) from a new LILA proposed along the Derwent Valley.

14.5.2.5 The existing LILAs and recommended candidate areas will be considered in the assessment of the value attached to the landscape within the LVIA, in line with the methodology presented in section 14.10.

14.5.3 Other relevant designations

14.5.3.1 Other relevant designations within the study area are shown in Figure 14.2: Environmental Designations. Ecological, heritage and policy designations are included because of their contribution to landscape character and visual amenity, in particular to the value attached to the landscape. Further detail regarding these designations is provided in Chapter 7 Biodiversity and Chapter 10 Cultural heritage.

14.5.4 Landscape character

14.5.4.1 GLVIA3 defines landscape receptors as "*aspects of the landscape resource that have the potential to be affected by a proposal*" (Landscape Institute and the Institute of Environmental Management and Assessment, 2013) [255]. Landscape receptors have been identified via a review of published landscape character assessments, maps and aerial photography, relevant planning policy and fieldwork surveys.

14.5.4.2 Landscape character is defined by GLVIA3 as "*a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse*." (Landscape Institute and the Institute of Environmental Management and Assessment, 2013) [255].

14.5.4.3 Published landscape character assessments at the national, regional and district level have been reviewed to understand the landscape character area of the area. The published landscape character areas (LCA) are mapped in Figure 14.3: Published LCAs.

14.5.4.4 The geographical extent of LCAs in published assessments at the national level are generally large and extend beyond the study area. As explained in paragraph 5.14 of

[5] Selby District Local Landscape Designation Review (December 2019) LUC for Selby District Council

GLVIA3, "*broad-scale assessments at national or regional level can be helpful in setting the landscape context, but are unlikely to be helpful on their own as the basis for LVIA*" (Landscape Institute and the Institute of Environmental Management and Assessment, 2013) [255]. LCAs defined at the national and regional scale will therefore be included to provide context but effects on these receptors will not be assessed.

14.5.4.5 The LCAs that will be referred to in the LVIA are listed in Table 14-5. The baseline landscape character will be mapped and described in detail in the PEIR and ES, with reference to the published LCAs. The assessment is proposed to be undertaken using the district level character areas defined within the Selby Landscape Character Assessment (Selby District Council, 2019).

Table 14-5 Published landscape character assessments and relevant landscape character areas

Landscape character assessment	Relevant character areas	Relationship to the Proposed Development
National – Natural England National Character Area (NCA) profiles	NCA 28: Vale of York	Within the Order limits – Solar Development Site 1
	NCA 30: Southern Magnesian Limestone	Within Cable Corridor Options Area
	NCA 39: Humberhead Levels	Within the Order limits – All Solar Development Sites
North Yorkshire and York Landscape Characterisation Project	LCT6: Magnesian Limestone Ridge	Within Cable Corridor Options Area
	LCT23 – Levels Farmland	Within the Order Limits – Solar Development Sites 2, 3, 4
	LCT24 – River Floodplain	Within the Order Limits – Solar Development Sites 4, 5
	LCT28 – Vale Farmland with Plantation Woodland and Heathland	Within the Order Limits - Solar Development Site 1
District –Selby Landscape Character Assessment	LCA2: York Fringe East	Within the Order Limits - Solar Development Site 1
	LCA3: Skipwith Lowlands	Within the Order Limits - Solar Development Site 1
	LCA 5: Ouse Valley	Within Cable Corridor Options Area
	LCA7: Aire Valley	Within the Order Limits – Solar Development Sites 4 and 5
	LCA8: West Selby Limestone Ridge	Within the study area and Cable Corridor Options Area
	LCA11: Sherburn Farmland	Within the Order Limits - Solar Development Site 2
	LCA 12: North Selby Farmland	Within Cable Corridor Options Area

Landscape character assessment	Relevant character areas	Relationship to the Proposed Development
	LCA13: Haddlesey Farmland	Within the Order Limits – Solar Development Sites 3 and 4
	LCA16: Eggborough	Within the study area
	LCA15: Camblesforth Farmland	Within the study area
	LCA14: Hambleton Sandstone Ridge	Within the study area and Cable Corridor Options Area
	LCA10: East Selby Farmland	Within the study area
	LCA6: Derwent Valley	Within the study area

14.5.5 Landscape features

14.5.5.1 Key landscape features which contribute to the character and value attached to the landscape include existing field boundaries and other vegetation within the Site, including hedgerows, trees and woodland, which may be directly affected by the Proposed Development. The LVIA will describe the patterns of landcover with reference to the Arboricultural Impact Assessment and habitat surveys included in the ES.

14.5.6 Views and visual amenity

14.5.6.1 A preliminary ZTV is shown in Figure 14.4: ZTV and Viewpoints. This has been prepared to give an indication of the potential visibility of the Proposed Development. This has been prepared to inform this Scoping Report, based on the design information currently available. As certain features of the Proposed Development are unknown at this stage, such as the location of ancillary buildings and structures, these have not been included in the ZTV. Further ZTVs will be produced to support the PEIR and ES.

14.5.6.2 The preliminary ZTV indicates that views of the Proposed Development are likely to be relatively contained in the vicinity of Solar Development Site 1. The Proposed Development is likely to be most visible in close proximity to Solar Development Site 1 from surrounding roads and public rights of way (PRoW - PRoW herein are defined as National Trails, National Cycle Network Routes and definitive PRoW as per the definitive PRoW map). The flatter and more open landscape around Solar Development Sites 2, 3, 4 and 5 mean that visibility of the Proposed Development may be more extensive, and there may be views from nearby and more distant roads and public rights of way, individual houses, farms and farmsteads. Due to intervening vegetation and buildings, views from nearby villages are likely to be contained to those locations on the edges of the settlements including Escrick, Birkin, West Haddlesey, Chapel Haddlesey and Kellington.

14.5.7 Visual receptor groups

14.5.7.1 Visual receptors are defined in GLVIA3 as "*individuals and/or defined groups of people who have the potential to be affected by a proposal*" (Landscape Institute and the Institute of Environmental Management and Assessment, 2013) [255]. This includes, for example, residents, users of public rights of way and motorists.

14.5.7.2 Visual receptors likely to experience views of the Proposed Development have been identified through interrogation of the ZTV, desktop analysis of maps and Google Earth, and fieldwork surveys. Where a collection of visual receptors in the same category are likely to experience similar views, they have been grouped. These are set out in Table 14-6.

14.5.7.3 GLVIA3 is clear that people living in the area of the Proposed Development have to be considered as receptors, and that views from settlements should be considered. The Landscape Institute Technical Guidance Note LITGN-2024-01 clarifies that an LVIA should *"consider views from local communities focussing on the way that a community currently experiences views from public locations such as streets and open spaces, and how these will change."* Therefore the local community (including people living in settlements, houses and farmsteads within the study area) will be considered as receptors.

14.5.7.4 The LI TGN-2024-01 goes on to state that *"Views from houses and individual properties are a matter of private amenity, noting that it is an established planning principle that there is no right to a view. However, it may be helpful for an LVIA to comment on changes to views that will be experienced from groups of properties, or in some cases individual properties, if these changes are likely to be significant."* Therefore, views for local community receptors will be considered via the inclusion of viewpoints, some of which represent groups of properties or individual properties, as identified in Table 14-6.

14.5.7.5 Residential visual amenity assessment (RVAA) considers effects on private amenity for people in their homes and gardens, in situations where it is possible that the effect on the outlook or visual amenity of a residential property is so great that the Proposed Development is against the public interest. Due to the nature of the Proposed Development, the approach to mitigation and the design assumptions, it is considered unlikely that changes to the outlook or visual amenity of a residential property or properties would be so great that the Proposed Development would be against the public interest. So, whilst an assessment of the likely effects on communities living in the area will be included in the LVIA, an assessment of private views (a residential visual amenity assessment (RVAA)) is **scoped out**. This is consistent with recently consented utility scale solar farms, including the Gate Burton Energy Park DCO and the Longfield Solar Farm DCO.

Table 14-6 Visual receptors

Receptor type	Receptor or receptor group
Solar Development Site 1	
Local community	Local community of Escrick.
Local community	Local community comprising residents isolated houses and farmsteads including Tileshed Farm, Manor Farm and Mount Pleasant Farm.
Recreational users	People travelling on PRoW within Solar Development Site 1 including bridleway (35.28/1/1), bridleway (35.67/6/1), and footpath (35.28/3/1).
Recreational users	People travelling on PRoW within proximity of Solar Development Site 1 including footpath (35.28/2/1), and footpath (35.67/5/1).
Transport users	People travelling along the local road network including Wheldrake Lane, Mill Hill, Skipwith Road and Cornelius Causeway.
Solar Development Site 2	
Local community	Local community comprising residents of isolated farmsteads including Fryston Grange, Siddle Farm House and Hagg Bush Farm.

Receptor type	Receptor or receptor group
Recreational users	People travelling on PRoW within proximity to Solar Development Site 2 including bridleway (35.48/4/1).
Transport users	People traveling along the local road network including A63, Common Lane, and Fryston Common Lane.
Solar Development Sites 3 and 4	
Local community	Local community comprising residents of Birkin and West Haddlesey.
Local community	Local community comprising residents of isolated farmsteads including Woodhouse Farm, Northfield Farm and Bower's House Farm.
Recreational users	People travelling on PRoW within Solar Development Site 4 including footpath (35.10/7/1), footpath (35.10/2/1), and footpath (35.10/3/1).
Recreational users	People travelling on PRoW within close proximity to Solar Development Site 4 including footpath (35.10/10/1), footpath (35.10/6/1), and footpath (36.7/3/1).
Transport users	People travelling along the local road network including Hillam Common Lane, Roe Lane, Haddlesey Road and Birkin Road.
Solar Development Site 5	
Local community	Local community comprising residents of Chapel Haddlesey.
Local community	Local community comprising residents of isolated farmsteads including Eastfield House Farm, Croft Farm and Stocking Green Farm.
Recreational users	People travelling on PRoW within Solar Development Site 5 including footpath (35.66/1/1).
Recreational users	People travelling on PRoW within proximity to Solar Development Site 5 including footpath (35.14/10/1), footpath (35.21/3/1), and bridleway (35.14/4/1).
Recreational users	People travelling on National Cycle Network route 62 adjacent to Solar Development Site 5
Recreational users	People travelling on the Trans Pennine Trail adjacent Solar Development Site 5
Transport users	People travelling along the local road network including A19, Fox Lane, Burn Lane, and unnamed lane between Chapel Haddlesey and Temple Hirst.
Transport users	People travelling along the railway between Selby and Doncaster. And EMCL

14.5.8 Viewpoints

14.5.8.1 Representative viewpoints will be used to assist in describing the baseline view and the effects likely to be experienced by visual receptor groups. These viewpoints have been selected on the basis that they cover a range of viewing distances, elevations and orientations from locations with different viewing experiences of the Proposed Development. The Applicant will seek to agree the proposed viewpoints with North Yorkshire Council and evidence of this consultation will be set out in the PEIR and ES. In some cases, a viewpoint may therefore be representative of more than one visual receptor group. These viewpoints are set out in **Table 14-7** and are shown in Figure 14.4: ZTV and Viewpoints. The selection of representative viewpoints has been informed by the following criteria:

- Accessibility to the public;
- Number and sensitivity of people whose can be affected;
- Viewing direction, distance, openness and elevation; and
- Nature of the viewing experience.

Table 14-7 Proposed viewpoints

Viewpoint number	Viewpoint location	Visual receptor type
1.	Public footpath (35.28/1/1) near Escrick	Recreational users
2.	Public footpath (35.28/2/1) south of Spring House Farm	Recreational users
3.	Wheldrake Lane adjacent to East Lodge	Local community and motorists
4.	Public bridleway (35.28/1/1) adjacent to Tileshed Farm	Local community and recreational users
5.	Wheldrake Lane adjacent to Gilbertson House	Local community and transport receptors
6.	Public bridleway (35.28/1/1) adjacent to Gray Reins woodland	Recreational users
7.	Public bridleway (35.58/1/1) between Bridge Farm and Thornhill Farm	Recreational users
8.	Mill Hill at private driveway to Mount Pleasant Farm	Transport receptors
9.	Public footpath (35.28/3/1) south of Mount Pleasant Farm	Recreational users
10.	Fryston Common Lane adjacent to Siddle Farm House	Local community
11.	Junction of Lowfield Road and A63	Transport receptors
12.	Junction of Fox Lane and A63	Transport receptors
13.	Public bridleway (35.32/1/1) adjacent to Owlett Hall	Recreational users
14.	Hillam Common Lane adjacent to Meadow Farm	Transport receptors and residents
15.	Public footpath (35.37/8/1) close to Hillam Common Lane	Recreational users
16.	Public footpath (35.37/7/1) adjacent to Bower's House Farm	Recreational users and local community
17.	Public footpath (35.10/7/1) at junction with Roe Lane	Recreational users and local community
18.	Public footpath (35.10/9/2) south of Northfield Farm	Recreational users
19.	Haddlesey Road at eastern settlement edge of Birkin	Transport receptors and residents

Viewpoint number	Viewpoint location	Visual receptor type
20.	Public footpath (35.10/2/1) adjacent to Gateforth Wood	Recreational users
21.	Public footpath (35.10/3/1) at junction with Birkin Road	Recreational users and transport receptors
22.	Public footpath (35.10/3/2) at bridge over the Old Eye	Recreational users
23.	Junction of Pale Lane and Birkin Road	Transport receptors and residents
24.	Marsh Lane south west of West Haddlesey	Recreational users
25.	Public footpath (35.41/7/1) at the western settlement edge of Kellington	Recreational users and residents
26.	Public footpath (35.7/12/1) close to the northern settlement edge of Beal	Recreational users and residents
27.	Public footpath (35.37/5/1) south of Hillam	Recreational users
28.	Fox Lane adjacent to Croft Farm	Transport receptors
29.	Fox Lane at the northern settlement edge of Chapel Haddlesey	Transport receptors and local community
30.	Junction of Eastfield Lane and Manor Farm	Transport receptors and local community
31.	Eastfield Lane adjacent to Major Cottages	Transport receptors and local community
32.	Eastfield Lane adjacent to Eastfield House Farm	Transport receptors and local community
33.	Public footpath (35.66/1/1) north of Temple Clough	Recreational users and transport receptors
34.	Public footpath (35.66/1/1) east of Eastfield House	Recreational users
35.	Common Lane (Trans Pennine Trail) north of Oak Cottage	Recreational users and transport receptors
36.	Public footpath (35.18/3/2) west of Quosquo Cottages	Recreational users and local community
37.	Burn Lane (Trans Pennine Trail) south of The Gatehouse	Recreational users and transport receptors
38.	Public footpath (35.14/10/1) south east of Stocking Green Farn	Recreational users
39.	Public bridleway (35.14/4/1) east of Burn Lodge Farm	Recreational users
40.	Public footpath (35.21/1/1) south of Paper House Farm	Recreational users

14.5.9 Cable Corridor Options area

14.5.9.1 It may be necessary to identify additional viewpoints to assess effects on views relating to the cable corridor once this has been identified. The Applicant will seek to agree any additional viewpoints with North Yorkshire Council and the outcome of this consultation will be reported in the PEIR and the ES.

14.5.10 Visual representations

14.5.10.1 Photographs taken during fieldwork surveys will be provided in the ES to help demonstrate the nature of baseline views including the extent of existing screening. These photographs will be presented as Type 1 annotated photographs.

14.5.10.2 Type 4 photomontages will also be provided for a selection of viewpoints to illustrate the likely extent and nature of changes in baseline views in winter and summer. All photographs and photomontages will be prepared in accordance with Landscape Institute TGN 06/19 (Landscape Institute, 2019) [268].

14.6 Future baseline

14.6.1.1 The future baseline will include committed developments of a similar type and scale to the Proposed Development where delivery will commence prior to the commencement of construction for the Proposed Development. This will be set out in the PEIR and ES.

14.7 Potential impacts

14.7.1.1 The Proposed Development has the potential to affect landscape and visual receptors during construction, in operation and during decommissioning.

14.7.2 Construction

14.7.2.1 The assessment of landscape and visual construction effects will identify and assess the temporary impacts which arise because of activities and elements that are unique to the construction phase. Sources of temporary construction impacts (the construction activities and processes) on landscape and visual receptors include:

- Alterations to surface landform and vegetation resulting in impacts on landscape features, landscape character and views.
- Excavation of the proposed underground cable routes.
- The presence of construction machinery and activity to construct or remove panels and associated structures, potentially affecting tranquillity and views.
- Temporary lighting during construction, the nature of which is currently not determined, and which may therefore result in impacts on landscape character.

14.7.3 Operation and maintenance

14.7.3.1 Sources of potentially significant temporary and permanent operational effects (e.g. the loss or changes to existing landscape features or characteristics, or the addition of new

infrastructure or features within the landscape or view) on landscape and visual receptors include:

- The presence and massing of the solar panels and associated structures, resulting in impacts on landscape character and views.
- Changes to land cover and new planting across the Order limits.
- Lighting, the nature of which is currently not determined, and which may therefore result in impacts on landscape character.

14.7.3.2 Glint and glare effects from the Proposed Development will be considered within a standalone Glint and Glare assessment, which will be appended to the ES to support the DCO application. The results of the glint and glare assessment will inform the assessment within the LVIA, particularly in relation to the magnitude of relevant impacts and the mitigation proposed.

14.7.4 Decommissioning

14.7.4.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, BESS and all associated infrastructure to 1.2m bgl. Removed materials would be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors between Solar Development Sites 1-5 and Monk Fryston Substation would remain in place following decommissioning. It is expected that relatively minor decommissioning activities would be required for the removal of the relatively small above ground control boxes in the vicinity of each joint bay.

14.7.4.2 The assessment of landscape and visual decommissioning effects will identify and assess the temporary impacts which arise because of activities during decommissioning. Landscape and visual effects arising from decommissioning of the Proposed Development are likely to be similar to, or less than, effects during construction, as the sources, nature and scale of impacts on landscape and visual receptors will be similar to, or less than, those during construction. For example, the presence of decommissioning activities will be similar to construction activities, although the majority of the proposed vegetation would remain in situ during decommissioning to provide additional screening compared with the construction phase. Furthermore, there will be no excavation associated with the underground cable routes, as they will remain in situ. There will be some alterations of vegetation to allow for decommissioning activities, however, there would not be alterations of surface landform. The decommissioning will be managed by a decommissioning environmental management plan (DEMP). Therefore, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

14.7.4.3 Please refer to Chapter 2 for further information on decommissioning.

14.7.5 Cumulative

14.7.5.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20: Cumulative and in-

combination effects. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the PEIR and ES.

14.8 Design, mitigation and enhancement measures

14.8.1 Embedded measures

14.8.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a design vision and a series of corresponding design principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

14.8.1.2 Embedded measures are modifications to the design of a scheme, made during the pre-application phase, that are an inherent part of the design. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

14.8.1.3 The LVIA will be key to achieving the criteria for good design set out in NPS EN-1 (Department for Energy, Security & Net Zero, 2023c) [256] and this has been a key consideration from the outset. Design principles will continue to be developed as the project evolves and will be summarised in the PEIR and ES. Areas have been identified for existing environmental features to be retained and/or enhanced (referred to as 'Retained and/or Environmental Mitigation/ Enhancement Areas' see Figure 1.2, as part of initial design development work.

14.8.1.4 The most effective mitigation for adverse landscape and visual effects is to avoid impacts at source as part of the design process, for example through the siting of infrastructure. This will be considered as part of the design development. Where effects cannot be avoided, the mitigation hierarchy requires that impacts should be minimised, rectified, reduced or finally offset/compensated. Most landscape mitigation is therefore considered embedded and primary. This will be supported by a comprehensive reinstatement strategy and appropriate management measures for landscape and ecology. Beneficial effects will be maximised wherever practicable, for example through the design of multi-functional green infrastructure which seeks to provide a range of ecosystem services.

14.8.1.5 Mitigation principles to avoid or minimise potential construction effects will focus on reducing the duration and footprint of construction activity, locating development in the least prominent positions and wherever practicable maximising the distance from nearby visual receptors. Other measures which will be considered include positioning the works to make use of existing natural features such as landform and vegetation to screen views.

14.8.1.6 There is no ancient woodland within the draft Order Limits and no loss of ancient woodland or veteran trees is anticipated as part of the Proposed Development.

14.8.1.7 The Proposed Development will be designed to avoid or minimise the loss of other existing landscape features of value, such as trees, woodland, and hedgerows wherever practicable. Any loss will be mitigated with replacement planting as close to the location, type and character of the existing vegetation to reduce effects resulting from such losses. The design will also identify opportunities for landscape restoration and enhancement, by

introducing planting which repairs or reinforces existing vegetation patterns and contributes to biodiversity net gain.

14.8.1.8 It will take time for planting proposed to reinstate vegetation lost as a consequence of construction or provided to mitigate other effects of the Proposed Development, for example for visual screening. Therefore, landscape and visual effects will be assessed at year 1 and year 15 for operation. Chapter 2 estimates that the solar PV modules could require replacement once, and the batteries twice, during the operational phase of the Proposed Development. The effects of replacement activities are anticipated to be no greater than the construction phase because effects would be controlled and managed through appropriate management plans. Effects which persist at year 15 of operation will be considered residual effects. Opportunities for advanced planting will be sought where this is practicable as this would allow for early establishment of mitigation.

14.8.1.9 The LVIA is informing the iterative design process of the Proposed Development, specifically with regards to the siting, layout and colour tones of the solar panels and associated structures to reduce their visibility and perceived scale and mass within the landscape, as well as identifying mitigation to reduce landscape and visual effects. The LVIA is also informing the identification of opportunities for new green infrastructure such as new habitats and permissive recreational routes.

14.8.1.10 The Applicant will set out the design principles in the DCO application. This will include consideration of siting relative to existing landscape character, landform and vegetation, as set out in paragraph 4.7.6 of NPS EN-1 (Department of Energy Security & Net Zero, 2023) [256]. The type, extent and functions of the proposed mitigation will be illustrated and set out on plans which will accompany the DCO application, and secured pursuant to the OLEMP (discussed below).

14.8.1.11 The relevant landscape and visual mitigation and enhancements, and how the LVIA has informed the design process to minimise negative effects, will be summarised in the PEIR and ES.

14.8.1.12 The Proposed Development is currently evolving through an iterative design process. Embedded measures for the Proposed Development relevant to LVIA are likely to include:

- Confirmation of existing vegetation that will be retained throughout the Site, wherever possible;
- suitable buffers to landscape features within the Site including public rights of way, woodlands and watercourses;
- reinforcement of existing field boundaries where appropriate; and
- new planting to provide visual screening, break up of the extent of development and linking of existing habitat to provide enhanced green infrastructure and biodiversity opportunities.

14.8.1.13 Further information on embedded mitigation measures proposed is available under ‘Environmentally led design’ within Chapter 2: The Proposed Development.

14.8.2 Management plans

14.8.2.1 A suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to LVIA include:

- outline Construction Environmental Management Plan (oCEMP);
- outline Operation Environmental Management Plan (oOEMP);
- outline Landscape and Ecological Management Plan (oLEMP), including general operational measures alongside those specific to landscape and ecology and a commitment to deliver the embedded design measures; and
- outline Decommissioning Environmental Management Plan (oDEMP).

14.9 Likely significant effects

14.9.1 Construction

14.9.1.1 Effects during construction will be temporary and adverse.

- Effects on landscape features within the draft Order Limits during the construction phase could result from construction-related activities and access requirements, and therefore are proposed to be **scoped in**.
- Effects on landscape character due to construction and the presence of machinery and activity, in relation to the following landscape character areas shown on Figure 14.3: Published LCAs and as defined by the Selby Landscape Character Assessment (2019) and the North Yorkshire and York Landscape Characterisation Project (2011) (for the area in the north-east of the study area not covered by the Selby Landscape Character Assessment):
  - The LCAs (Selby District Council, 2019) within the draft Order Limits (refer to Table 14-5) and which would therefore be directly affected by construction activities (LCA2, LCA3, LCA7, LCA11 and LCA13), are proposed to be **scoped in**.
  - LCA6: Derwent Valley and LCA10: East Selby Farmland (Selby District Council, 2019) are located approximately 2.5 to 3km from the draft Order Limits and the ZTV indicates there would be very little to no visibility of the Proposed Development, therefore they are proposed to be **scoped out**.
  - LCA8: West Selby Limestone Ridge (Selby District Council, 2019) is located over 1km from the draft Order Limits. Effects of construction activities on the perceptual qualities of the landscape are therefore considered unlikely to be significant due to distance, and this LCA is proposed to be **scoped out**.
  - LCA 14: Hambleton Sandstone Ridge (Selby District Council, 2019) is over 1km from the draft Order Limits, beyond a large block of woodland. There is minimal intervisibility indicated by the ZTV and therefore effects of construction activities on the perceptual qualities of the landscape are unlikely to be significant. This LCA is therefore proposed to be **scoped out**.
  - LCA 15: Camblesforth Farmland and LCA16: Eggborough (Selby District Council, 2019) are located approximately 1km from the draft Order Limits. Effects of construction activities on the perceptual qualities of these landscape are considered

unlikely to be significant due to distance, and these LCAs are proposed to be **scoped out**.

  - LCT28: Vale Farmland with Plantation Woodland and Heathland (Selby District Council, 2019) is outside the draft Order Limits. The ZTV indicates there will be very little intervisibility within this landscape due to intervening vegetation. It is therefore proposed to be **scoped out**.

  - The following landscape character areas not already scoped in to the assessment fall within the Cable Corridor Options Area: LCA 14: Hambleton Sandstone Ridge, LCA8: West Selby Limestone Ridge, LCA5: Ouse Valley and LCA12: North Selby Farmland, The relevant landscape character areas which fall within the preferred cable corridor option will be **scoped in.**

- Effects on the Howardian Hill National Landscape: due to the distance and intervening features, there are unlikely to be significant landscape and visual effects on the National Landscape, and assessment of effects are proposed to be **scoped out**.

- Effects on views and visual amenity due to construction and the presence of machinery and activity, may occur for the following visual receptor types:

  - Residents and recreational receptors within the study area could experience changes to the character and composition of their views as a result of the construction activities. Some residential and recreational receptors would view the works close up, whilst other residential and recreational receptors would experience the works in the distance. The visual amenity of residential and recreational receptors has the potential to be significantly affected by these works, and effects on these receptors are therefore proposed to be **scoped in**.

  - Transport receptors are generally less sensitive to changes in their view as their interest or appreciation of the view is secondary to the activity they are doing. Furthermore, their period of exposure to the view is limited due to the speed of travel. However, due to the rural nature of their view the visual amenity of transport receptors has the potential to be significantly affected by the construction activities. The assessment of effect on these receptors is therefore **scoped in**.

14.9.2 Operation and maintenance

14.9.2.1 Effects during operation will be long term and reversible. The direction of effects is likely to range between adverse and beneficial.

- Effects on landscape features within the draft Order Limits if any trees or vegetation require removal to accommodate the Proposed Development, as well as potential beneficial effects as a result of new planting associated with landscape enhancements within and around the draft Order Limits are proposed to be **scoped in**.

- Effects on landscape character may occur due to the presence of solar panels and associated structures, for the following landscape character areas:

  - The LCAs within the draft Order Limits (refer to Table 14-5) and which would therefore be directly affected by construction activities (LCA2, LCA3, LCA7, LCA11 and LCA13), are proposed to be **scoped in**.

  - LCA6: Derwent Valley and LCA10 East Selby Farmland (Selby District Council, 2019) are located approximately 2.5 to 3km from the draft Order Limits and the ZTV indicates there would be very little to no visibility of the Proposed Development, therefore they are proposed to be **scoped out.**

- LCA8, LCA 14, LCA15, LCA 16, lie outside of the draft Order Limits. However, there is potential these LCAs may experience changes to their perceptual qualities as a result of views of the Proposed Development, with the potential for significant effects on the perception of character or key characteristics. These LCAs are therefore proposed to be **scoped in**.
- LCT28: Vale Farmland with Plantation Woodland and Heathland (Selby District Council, 2019) is outside the draft Order Limits. The ZTV indicates there will be very little intervisibility within this landscape due to intervening vegetation. It is therefore proposed to be **scoped out**.

- Effects on the Howardian Hill National Landscape: due to the distance and intervening features, there are unlikely to be significant landscape and visual effects on the National Landscape, and assessment of effects are proposed to be **scoped out.**
- The following landscape character areas not already scoped in to the assessment fall within the Cable Corridor Options Area: LCA 14: Hambleton Sandstone Ridge, LCA8: West Selby Limestone Ridge, LCA5: Ouse Valley and LCA12: North Selby Farmland, The relevant landscape character areas which fall within the preferred cable corridor option will be **scoped in.**
- Effects on views and visual amenity due to due to the presence of solar panels, the BESS, substations and associated structures, may occur for the following visual receptor types:
  - Residents and recreational receptors within the study area could experience extensive changes to the character and composition of their views due to the presence of development within rural views. Some residential and recreational receptors would view the proposed solar panels close up, whilst other residential and recreational receptors would experience the panels in the distance. For both, the Proposed Development could change large parts of the landscape within the view. The visual amenity of residential and recreational receptors has the potential to be significantly affected by the Proposed Development, and effects on these receptors are therefore proposed to be **scoped in**.
  - Whilst transport receptors are generally less sensitive to changes in their view as their interest or appreciation of the view is secondary to the activity they are doing, the rural nature of the views and the proximity with which the Proposed Development would be seen in some views, means that visual amenity has the potential to be significantly affected. The assessment of effect on these receptors is therefore **scoped in**.

14.9.3 Decommissioning

14.9.3.1 Effects during decommissioning will be similar to those during construction, as described in 14.7. The assessment undertaken as part the ES will be based on current assumptions as to how decommissioning would take place, however it is noted that practices for decommissioning will likely evolve over time.

14.9.4 Cumulative

14.9.4.1 As stated at section 14.7, the assessment will consider the potential for cumulative effects.

14.10 Proposed assessment methodology

14.10.1 Overview

14.10.1.1 The methodology for the LVIA involves the following stages:

- Review published landscape character assessments, studies, relevant supporting evidence base documents, aerial photography and mapping, and undertake fieldwork to define the baseline and to define the extent of the study area within which there is potential for landscape and visual effects.
- Define the landscape and visual receptors and describe the landscape and visual baseline.
- Review the design to embed mitigation measures into the Proposed Development to avoid or minimise adverse landscape and visual effects and maximise opportunities for landscape integration and enhancement.
- Determine the sensitivity of landscape and visual receptors, by considering the value attached to the landscape or views and susceptibility to change of the receptor.
- Assess the magnitude of impact of the Proposed Development in relation to size or scale, geographical extent, duration and reversibility.
- Assess the significance of effect by considering the relationship between the sensitivity of the receptor and the magnitude of impact and determine which effects are significant.

14.10.2 Assessment scenarios

14.10.2.1 The assessment of the likely landscape and visual effects of the Proposed Development will be undertaken for the following scenarios:

- Current baseline (winter and summer) – reflective of the conditions which exist at the time of gathering baseline environmental data and undertaking the LVIA.
- Future baseline (winter and summer) – reflective of the conditions that will be experienced in the future, immediately prior to construction of the Proposed Development.
- The peak of construction activity, in winter.
- Year 1 of operation, in winter, to reflect a worst-case assessment scenario.
- Year 15 of operation, in summer, to reflect the entirety of the Proposed Development in operation, when proposed vegetation has matured or achieved its design intention.
- The peak of decommissioning activity, in winter.

14.10.3 Assessment of landscape effects

14.10.3.1 The assessment of landscape effects will address the effects of the Proposed Development on the landscape as a resource in its own right. Judging landscape effects requires consideration of the sensitivity of the receptor magnitude of impact.

14.10.4 Sensitivity of landscape receptors

14.10.4.1 Paragraph 5.39 of GLVIA3 states that "landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape" (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255].

14.10.4.2 Judging landscape sensitivity will thus be a two-part process of:

- Value attached to the landscape – relates to the existing landscape and this will be determined at the baseline stage in line with paragraph 5.19 of GLVIA3, which states that "*as part of the baseline description the value of the potentially affected landscape should be established*" (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255]; and
- Susceptibility to change – which is considered in relation to the Proposed Development.

14.10.5 Value attached to the landscape

14.10.5.1 Landscape Institute Technical Guidance Note (TGN) 02/21: Assessing landscape value outside national designations (Landscape Institute, 2021) defines landscape value as "*the relative value or importance attached to different landscapes by society on account of their landscape qualities*" (Landscape Institute, 2021) [262].

14.10.5.2 For assessing landscape value outside national designations, TGN 02/21 is now the primary source of guidance. The approach to assessing the value attached to the landscape will follow a three-stage process:

- **Stage 1:** identify if the landscape is covered by any landscape designations;
- **Stage 2:** consider each of the factors listed in Table 14-8, which have been developed with reference to Table 1 of TGN 02/21 and are pertinent and most important to understanding its value; and
- **Stage 3:** make an assessment the value attached to the landscape and assign value based on a five-point scale, clearly articulating the reasons for these judgements.

14.10.5.3 An overall conclusion will be drawn on the value attached to the landscape for each landscape receptor considering the overall weight of evidence.

Table 14-8 Establishing the value attached to the landscape

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Typical Description
Landscape with statutory status or national policy protection: National Park, National Landscape, or	**Natural heritage** - Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.	Very high	A designated landscape with statutory status (National Park or AONB). Valued landscape in the context of NPPF paragraph 180 (a)

Stage 1 – Landscape designations	Stage 2 - Define landscape value factors with reference to TGN 02/21	Criteria	Typical Description
World Heritage Site. Local landscape designation, such as Special Landscape Area or Area of Great Landscape Value, supported by policy and a detailed evidence base. No relevant designations.	**Cultural heritage** - Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape. **Landscape condition** - Landscape which is in a good physical state both with regard to individual elements and overall landscape structure. **Associations** - Landscape which is connected with notable people, events and the arts. **Distinctiveness** - Landscape that has a strong sense of identity. **Recreational** - Landscape offering recreational opportunities where experience of landscape is important. **Perceptual (Scenic)** - Landscape that appeals to the senses, primarily the visual sense. **Perceptual (wildness and tranquillity)** - Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies **Functional** - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.	High	A locally designated landscape supported by a detailed evidence base or with other strong indicators of value, which may include other relevant designations such as ancient woodland or conservation areas, with identified quality in the development plan or evidence base. May be considered valued landscape in the context of NPPF paragraph 180(a) with strong supporting evidence.
		Medium	Unlikely to be a designated for landscape quality but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
		Low	Not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base.
		Very low	A landscape dominated by industry or infrastructure or which is damaged or degraded landscape, not designated for landscape quality and not likely to exhibit indicators of value which are identified in the development plan or evidence base.

14.10.6 Valued landscape

14.10.6.1 The principle of *"valued landscape"* in England is supported by the NPPF 2023 (Chapter 15). Paragraph 180 requires that planning policies and decisions should contribute to and enhance the natural and local environment by, inter alia, (a) "*protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*" (Ministry of Housing, Communities & Local Government, 2023) [258]. NPS EN-1 is silent on the principles of *"valued landscape"*, but states that *"outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development"* (paragraph 5.10.12).

14.10.6.2 According to paragraph A4.2.11 of TGN 02/21, a 'valued landscape' is an area identified as having sufficient landscape qualities to elevate it above other more everyday landscapes (Landscape Institute, 2021) [262]. There is therefore a high bar for an area to be considered valued landscape in the context of the NPPF.

14.10.6.3 Paragraph A4.2.5 of TGN 02/21 states that, "*where a landscape has a statutory status, such as a National Park or AONB, it is self-evident that it is a valued landscape*" (Landscape Institute, 2021). There are no such landscapes present within the study area.

14.10.6.4 A different approach will be taken to determine whether landscapes outside of nationally designated landscapes can be considered valued landscape in the context of the NPPF. Paragraph A4.2.6 of TGN 02/21 states that the interpretation of 'identified quality in the development plan' is not clear and that there are two fundamentally different interpretations that have been adopted by inspectors, which are considered below in more detail (Landscape Institute, 2021) [262]:

1. It means non-statutory, locally designated landscapes;
2. It means any landscape where there is evidence to justify the identification of a 'valued landscape'. Local designation alone may not be sufficient evidence.

14.10.6.5 For a landscape without statutory status to be considered valued landscape in the context of the NPPF it must be supported by strong evidence. The assessment will therefore consider each of the criteria set out in Table 14-8, references in Local Plan policy and evidence base, including whether there are existing local landscape designations in forming an overall judgement on value. Landscapes with high value may also be considered valued landscapes in the context of the NPPF.

14.10.7 Susceptibility of landscape receptors to change

14.10.7.1 GLVIA3 paragraph 5.40 defines the susceptibility to change of landscape receptors as:

> *"the ability of the landscape receptor (whether it be overall character or condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies" (paragraph 5.40) " (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255].*

14.10.7.2 The features and characteristics which are more or less susceptible to the type of changes proposed will be set out for each LCA. The narrative will provide a clear explanation based upon analysis of the landscape receptor and the extent to which it is able to accommodate the type of change arising from the specific proposal.

14.10.7.3 Table 14-9 sets out examples of characteristics and features of landscapes which may indicate higher and lower susceptibility in respect of solar farm development**.**

Table 14-9 Considerations for landscape susceptibility

Landscape features or characteristics	Indicators of higher landscape susceptibility	Indicators of lower landscape susceptibility
Field pattern, scale and enclosure	• Small scale fields. • Complex or irregular field pattern. • Ancient field patterns. • Field boundaries formed by low fences or walls or hedges with few hedgerow trees.	• Large scale fields. • Simple, regular or rectilinear field pattern. • Uniform field pattern. • High field boundaries.
Landform	• Steep topography. • Exposed hillsides. • Irregular or complex landform. • Narrow valleys and ridges. • Distinctive landform features.	• Flat landscapes. • Expansive lowland landscapes. • Uniform landform. • Landscapes with no or minimal distinctive landform features.
Land cover	• Pastures, particularly where grazing forms key characteristic of the landscape. • Significant woodland cover. • Parkland or designed landscapes. • Natural or semi-natural land cover, particularly where conservation or restoration is a priority.	• Large-scale arable land, particularly monoculture or with evidence of intensive farming practices.
Tranquillity/ human influences	• Absence of human influences / natural landscapes. • Infrequent built form. • Overarching rural character. • Remote, tranquil, spiritual or peaceful landscape. • Sense of wilderness.	• Major infrastructure (transport, utilities, industry). • Large concentrations of residential, commercial, industrial development. • Character affected by urban development. • Noisy, settled landscapes. • Modern and developed landscapes with signs of human activity.
Condition / intactness	• Intact landscapes with natural or historic features in good condition.	• Degraded landscapes (likely to have evidence of human influences / modern intensive farming practices). • Degraded / intermittent boundary treatments.
Historic features and cultural heritage	• Ancient / historic field patterns. • Important, distinctive or remnant features of the landscape. • Cultural associations with a particular landscape.	• Modern / developed landscape with limited historic features.
Scenic quality and character	• High scenic quality. • Strong sense of place.	• Low scenic quality. • Weak sense of place.

Landscape features or characteristics	Indicators of higher landscape susceptibility	Indicators of lower landscape susceptibility
Intervisibility	• Open landscapes with exposed or far-reaching views. • Sparse woodland and vegetative cover. • Field systems defined by fences or managed low boundaries. • Strong intervisibility with sensitive landscapes.	• Confined or enclosed landscape with few inward or outward views. • Limited invisibility with sensitive landscapes, key views, or landmarks. • Intact, overgrown or tall vegetated boundaries with high proportion of hedgerow trees. • High proportion of woodland blocks, copses, connected woodlands and belts.

14.10.7.4 The susceptibility to change for each landscape receptor will be categorised with reference to the criteria in Table 14-10.

Table 14-10 Landscape susceptibility criteria

Landscape susceptibility	Typical description
Very high	The type of change arising from the specific proposal are very likely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
High	The type of change arising from the specific proposal are likely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Medium	The type of change arising from the specific proposal may lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Low	The type of change arising from the specific proposal are unlikely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Very low	The type of change arising from the specific proposal are very unlikely to lead to undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

14.10.8 Combining judgements to define landscape sensitivity

14.10.8.1 The sensitivity of each LCA will be defined by combining professional judgements on the value attached to the landscape and its susceptibility to change and will be supported by a clear narrative. Reference will be made to the criteria set out in Table 14-11.

Table 14-11 Sensitivity of landscape receptors criteria

Sensitivity	Typical description
Very high	Landscapes with statutory status or national policy protection with very limited ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
High	Landscapes which may be locally designated or otherwise supported by a detailed evidence base or landscape with other strong indicators of value with limited ability to

Sensitivity	Typical description
	accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Medium	Landscapes which are unlikely to be a designated for landscape quality but may exhibit some indicators of value and which may have some ability to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Low	Not designated for landscape quality and likely to exhibit few indicators of value and likely to accommodate the type of change no or limited undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.
Very low	Landscapes of very low value able to accommodate the type of change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

14.10.9 Magnitude of landscape impacts

14.10.9.1 Paragraph 3.28 of GLVIA3 notes that the magnitude is informed by combining considerations relating to the "*scale, extent and duration*" of impacts " (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255]. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.

14.10.9.2 In summarising the magnitude of landscape impacts, reference will be made to the following, with size and scale given the greatest 'weight':

- size or scale - the degree to which key characteristics or features identified in the baseline would change. Judgements on size or scale of change depend on the extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape. It is also influenced by the degree to which aesthetic or perceptual aspects of the landscape are altered through removal or addition of components such as solar panels, buildings, roads, paths and vegetation; and whether the effect changes the key characteristics of the landscape which are critical to its distinctive character;
- geographical extent – the area over which the change would occur. For example, whether the effects of the Proposed Development are perceived over a large or very localised area;
- duration – the time over which the change would occur, set out on the following scale: short term (0-5 years), medium term (5-15 years), or long term (over 15 years); and
- reversibility – related to whether the change can be reversed and is reported as reversible, partially reversible or permanent, e.g. effects arising from presence of construction traffic will cease at the end of construction and therefore is considered to be reversible, whereas effects arising from presence of new built development could be partially reversible or permanent.

14.10.9.3 The criteria set out in Table 14-12 will be referred to in determining the magnitude of landscape impacts.

Table 14-12 Magnitude of landscape impacts criteria

Magnitude of impact	Typical description
Very high	Substantial changes to key characteristics across most of the area or to unique and distinctive features at a local level. May be longer term impacts, and are more likely to be permanent than reversible
High	Changes to the character of the landscape across large parts of the area or to distinctive features at a local level. May be longer term impacts, permanent or reversible
Medium	Changes to the character of the landscape across parts of the area or to some existing features at a local level. May be medium term impacts, permanent or reversible.
Low	Slight change to landscape character or landscape features across a small area. May be short to medium term impacts, and are more likely to be reversible than permanent.
Very low	Barely perceptible change to the landscape receptor or may impact a limited area or no key characteristics. May be short term impacts, permanent or reversible.

14.10.9.4 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this will be recorded as no change.

14.10.10 Assessment of visual effects

14.10.10.1 The assessment of visual effects considers the effects of the Proposed Development on the views available to people and their visual amenity. Judging visual effects requires consideration of the sensitivity of the receptor and the magnitude of the impact. The criteria against which judgements are made are provided below.

14.10.11 Sensitivity of visual receptors

14.10.11.1 Paragraph 6.31 of GLVIA3 states that "each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views." (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255]. The sensitivity of visual receptors results from a combination of parameters, such as:

- The activity/occupation/ pastime of the receptors at particular locations;
- The extent to which their attention or interest may be focused on the views; and
- The visual amenity they experience.

14.10.11.2 Consideration will also be given to the:

- Location, focus and orientation;
- Features or characteristics of value within the view;
- Principal or secondary interests;

- Static or kinetic nature of views; and
- Duration of the view.

14.10.12 Value attached to views

14.10.12.1 A three-stage process will be used to determine the value attached to views. This relates to the features and characteristics of the baseline landscape within the view and other indicators of value, for example reference in policy, guide books, literature or art.

- **Stage 1**: identify if the view or the landscape within the view is covered by any relevant policy or designations and note features and characteristics of value with reference to the landscape baseline;
- **Stage 2**: identify if the view is identified on maps, is likely to be from a popular visitor location or has historical or cultural importance or associations; and
- **Stage 3:** Determine the value attached to the view with reference to the criteria provided in Table 14-13 using the evidence from stages 1 and 2.

Table 14-13 Value attached to views criteria

Value	Typical description
Very high	Views within or across a nationally or internationally designated landscapes and/or specific views designated in national or regional policy. Views are likely to have few or no detracting features and which may also have strong cultural associations supported by evidence, which could include links to historical events or people, representation in art or literature, for example.
High	Views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base. Views are likely to have few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Views across landscapes which are unlikely to be designated but may exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level. Views may have some detracting features and cultural associations supported by evidence.
Low	Views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value which are identified in the development plan or evidence base. Views are likely to have some detracting features and lack cultural associations supported by evidence.
Very low	View across landscapes which are neither designated, nor identified in the development plan or evidence base, and without cultural associations. The landscape in the view is in poor condition or notably detracts from the experience of the view.

14.10.13 Susceptibility of visual receptors to change

14.10.13.1 The sensitivity of visual receptors is also dependent upon their susceptibility to changes in views and the visual amenity they experience.

14.10.13.2 Paragraph 6.32 of GLVIA3 explains that "*the susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of:*

- *The occupation or activity of people experiencing the view at particular locations; and*
- *The extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations.*" (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255]

14.10.13.3 GLVIA3 notes that visual receptors *"most susceptible to change"*, include residents and visitors engaged in outdoor recreation "*whose attention or interest is likely to be focused on the landscape and on particular views*" (para 6.33) (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255].

14.10.13.4 Table 14-14 sets out the criteria referred to in determining the susceptibility of visual receptors to the Proposed Development.

Table 14-14 Susceptibility of visual receptors criteria

Susceptibility	Typical description
Very high	Visitors to nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are fundamental to the experience. People engaged in specific activities for enjoyment of dark skies.
High	Residents at home. Visitors to tourist hotspots, heritage assets or other attractions outside of nationally or internationally designated landscapes, particularly at specific viewpoints or viewing places, where views of the landscape are important to the experience. People engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views, for example those using promoted walking and cycling routes. People travelling along promoted scenic routes.
Medium	People engaged in outdoor recreation or travelling along public rights of way or local roads, which are not promoted routes but where an appreciation of the surrounding landscape are relevant to the experience. People working outdoors.
Low	People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape People travelling on major road, rail or other transport routes which are not recognised as scenic routes.
Very low	People working indoors.

14.10.14 Summarising the sensitivity of visual receptors

14.10.14.1 The sensitivity of visual receptors is based on professional judgement and will be informed by the criteria in Table 14-15, considering the value attached to views and susceptibility of visual receptors to the changes proposed.

Table 14-15 Sensitivity of visual receptors criteria

Criteria	Typical description
Very high	Activity where views are fundamental to the experience and are related to landscapes with national or international designation and with few or no detracting features and which may also have strong cultural associations supported by evidence.
High	Activity resulting in a particular interest or appreciation of the view and/or views within or across regionally or locally designated landscapes, other or landscapes with strong indicators of value, or views identified in the development plan or evidence base with few or no detracting features and may also have some cultural associations supported by strong evidence.
Medium	Activity resulting in a general interest or appreciation of the and/or a view, likely to exhibit some indicators of value which are identified in the development plan or evidence base and are important at the community level.
Low	Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited, and/or views across landscapes which are not designated for landscape quality and likely to exhibit few indicators of value and likely to have some detracting features and lack cultural associations supported by evidence.
Very low	Activity where interest or appreciation of the view is inconsequential to their activity, and/or across landscapes which are neither designated, nor recognised in policy, and without cultural associations or is in poor condition or notably detracts from the experience of the view.

14.10.15 Magnitude of visual impacts

14.10.15.1 The magnitude of visual impacts relates to the extent to which the baseline view would change as a result of the Proposed Development. This assessment will be made with reference to fieldwork observations, photographs and photomontages where relevant from the representative viewpoints identified.

14.10.15.2 Paragraph 3.28 of GLVIA3 notes that magnitude is informed by combining considerations relating to the "*scale, extent and duration*" (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255] of impacts. This includes the geographical extent of influence, the spatial extent of the impact, the level of integration of new features with existing elements, its duration and degree to which the impact is reversible.

14.10.15.3 Reference will be made to the following in summarising the magnitude of visual impacts:

- Size and scale – loss of existing features or addition and integration of new features and the time over which it will be experienced and whether views will be full, partial or glimpsed.
- Geographical extent – the angle of view in relation to the main activity of the receptor, the distance of the viewpoint from the Proposed Development and the extent of the area over which the changes would be visible.
- Duration and reversibility – the time over which the change would occur, set out on the following scale: short term (0-5 years), medium term (5-15 years), or long term (over 15 years).

14.10.16 Combining judgements to define magnitude of visual impact

14.10.16.1 The magnitude of visual impact is defined by combining judgements on size or scale, geographical extent, duration and reversibility, with reference to Table 14-16, based on guidance from GLVIA3 (Landscape Institute and Institute of Environmental Management and Assessment, 2013) [255].

Table 14-16 Magnitude of visual impacts criteria

Magnitude of impact	Typical description
Very high	The Proposed Development will result in extensive changes to the character and composition and will become the dominant feature of the landscape within the view. There may be longer term impacts, permanent or reversible.
High	The Proposed Development will change the character and composition of large parts of the landscape within the view. There may be longer term impacts, permanent or reversible.
Medium	The Proposed Development will change the character and composition of discrete parts of the landscape within the view. There may be medium term impacts, permanent or reversible.
Low	The Proposed Development will cause small changes to the character and composition of the landscape within the view. There may be short to medium term impacts, permanent or reversible.
Very low	The development will cause barely perceptible changes in the character and composition of the landscape within view. May be short term impacts, permanent or reversible.

14.10.16.2 There may be cases where there will be no impacts on a receptor, for example where the design has been changed to avoid such impacts. In such cases this will be recorded as no change.

14.10.17 Significance of landscape and visual effects

14.10.17.1 The approach to determining the significance of landscape effects and visual effects and whether these effects are considered significant in EIA terms will be the same.

14.10.17.2 Judgements on the sensitivity of each receptor and the magnitude of impact will be combined to establish the significance of effect and whether effects are considered significant in EIA terms. There are important distinctions between these two terms:

- Significance of effect relates to the level recorded for any effect, with reference to the matrix set out in Table 14-17 below.
- Significant effects are those which are required to be identified by an ES. An effect in this LVIA is considered significant in EIA terms if it is of major or moderate significance. All other effects will be categorised as not significant.

14.10.17.3 Table 14-17 will be used to guide judgements on the relationship between the sensitivity of a visual receptor, the magnitude of impact and the resulting significance of effect. Where conclusions differ from this guide, a reasoned explanation will be provided in the assessment text.

Table 14-17 Significance of landscape and visual effects

Sensitivity	Magnitude of impact: Very high	High	Medium	Low	Very low
Very high	Major	Major	Major or Moderate	Moderate	Moderate or Minor
High	Major	Major or Moderate	Moderate	Moderate or Minor	Minor
Medium	Major or Moderate	Moderate	Moderate or Minor	Minor	Minor or Negligible
Low	Moderate	Moderate or Minor	Minor	Minor or Negligible	Negligible
Very low	Moderate or Minor	Minor	Minor or Negligible	Negligible	Negligible

14.10.17.4 The identification of the likely significant effects on landscape and visual receptors will rely on detailed analysis and the professional judgement of competent experts, and consultation with stakeholders. Table 14-18 defines what the significance of effect terms mean.

Table 14-18 Typical descriptions of landscape and visual effects

Significance of effect	Landscape effects	Visual effects
Major beneficial	Effects that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced as part of the development.	Effects that result in a substantial improvement in the existing view.
Moderate beneficial	Effects that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Effects that result in a noticeable improvement in the existing view.
Minor beneficial	Effects that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Effects that result in a limited improvement in the existing view.
Negligible beneficial	Effects that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Effects that result in a barely perceptible improvement in the existing view.
Neutral	Effects which are a balance between adverse and beneficial effects and are neutral in their consequences for the landscape.	Effects that are a balance between adverse and beneficial effects and are neutral in their consequences for the view of visual receptors.
Negligible adverse	Effects that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Effects that result in a barely perceptible deterioration in the existing view.

Significance of effect	Landscape effects	Visual effects
Minor adverse	Effects that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Effects that result in a limited deterioration in the existing view.
Moderate adverse	Effects that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Effects that result in a noticeable deterioration in the existing view.
Major adverse	Effects that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Effects that result in a substantial deterioration in the existing view.

14.10.17.5 Whether effects are adverse, beneficial or neutral will be determined by considering the way in which the changes are likely to affect the baseline.

14.10.17.6 Adverse effects are likely to occur where the Proposed Development introduces new elements or changes which are discordant or intrusive resulting in a deterioration to existing character or valued features of the landscape or of views and visual amenity.

14.10.17.7 Beneficial effects are likely to occur where the Proposed Development enhances the character of the landscape or existing views.

14.10.17.8 Paragraphs 5.37 and 6.29 of GLVIA3 [255] state that is possible for effects to be neutral in their consequences for landscape and for visual receptors. Where a judgement of neutral effects has been reached, reference will be made to the contribution of the Proposed Development to the baseline and acknowledging the positive and negative aspects which have been considered.

14.10.17.9 Where the assessment has concluded that there will be no impacts on a receptor, this will be reported as no effect. This may, for example, be a consequence of changes to the design which has avoided impacts on receptors identified at the scoping stage.

14.10.17.10 Residual effects are those which remain even with embedded or primary mitigation at construction and year 15 of existence and operation and which cannot be further mitigated by design or other measures in this time period.

14.11 Assumptions, limitations and uncertainties

14.11.1.1 This section sets out the assumptions which have been made and the limitations which inform the scope of the LVIA.

14.11.1.2 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. It is assumed that the data collated is accurate. The data will be supplemented with additional data as part of the EIA process. It is assumed that the data, information, and sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been

obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

14.11.1.3 All fieldwork will be undertaken from publicly accessible locations. Professional judgement will be used to assess residents' views, aided by aerial photography and fieldwork observations.

14.11.1.4 Agreement will be sought on viewpoints through consultation with relevant local planning authorities and verified views and photomontages will be prepared from a select number of the viewpoints proposed.

14.11.1.5 For the construction phase assessment, the assumptions are that construction activity will be undertaken across the whole Site at the same time and during winter unless it is otherwise restricted by design principles and management plans. This assumes that existing deciduous vegetation is not in leaf, thereby representing a worst-case assessment scenario.

14.11.1.6 For the assessment of effects at year 15 of operation, the assumption is that all new planting would have successfully established, having increased in height by 4.5 metres since year 1 of operation (i.e. 30cm of growth per year).

14.11.1.7 For decommissioning, the assumptions are that the Proposed Development is no longer operational, and the solar panels and associated structures and equipment are being removed in a manner similar to the construction phase, requiring machinery and localised excavation.. Therefore, the effects on landscape and visual receptors would be the same as and not greater than the construction phase.

14.11.1.8 There are uncertainties at this stage regarding the final layout, siting and heights of the solar panels, sub-stations and associated structures. The LVIA study area and landscape and visual receptors considered will be reviewed accordingly in relation to the heights of these features, informed by further ZTVs.

14.11.1.9 The assessment will be based on the maximum parameters of the Proposed Development, taking account of embedded mitigation and design principles, to represent a reasonable worst-case.

14.11.1.10 Impacts to visual amenity resulting from the introduction of lighting during construction, operation and decommissioning which are likely to result in significant effects will be assessed in the PEIR and ES. Night time lighting effects will be considered for local community visual receptors only as it assumed that PRoW will not be used during hours of darkness.

14.12 Summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Landscape features within the draft Order Limits	All	Scoped in	N/A
Landscape character areas within the draft Order Limits (LCA2, LCA3, LCA7, LCA11 and LCA13)	All	Scoped in	N/A
LCA6, LCA10	All	Scoped out	The ZTV indicates there would be very little to no visibility of the Proposed Development from LCA6 and LCA10. Accordingly, it is expected that the Proposed Development will have no likely significant effects on LCA6 and LCA10 as a result of changes to the landscape and visual environment. The full justification for scoping out this aspect is provided in Section 14.9.
LCA8, LCA14, LCA15, LCA16	Construction	Scoped out	Due to the distance from the draft Order Limits, it is expected that the Proposed Development will have no likely significant effects on LCA8, LCA14, LCA15 and LCA16 as a result of changes to the landscape and visual environment during construction. The full justification for scoping out this aspect is provided in Section 14.9.
	Operation	Scoped in	N/A
	Decommissioning	Scoped out	Due to the distance from the draft Order Limits, it is expected that the Proposed Development will have no likely significant effects on LCA8, LCA14, LCA15 and LCA16 as a result of changes to the landscape and visual environment during decommissioning. The full justification for scoping out this aspect is provided in Section 14.9.
LCT28	All	Scoped out	The ZTV indicates there would be very little to no visibility of the Proposed Development from LCT28. Accordingly, it is expected that the Proposed Development will have no likely significant effects on LCA28 as a result of changes to the landscape and visual environment. The full justification for scoping out this aspect is provided in Section 14.9.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Howardian Hill National Landscape	All	Scoped out	Due to distance (approximately 20km) and limited intervisibility, it is expected that the Proposed Development will have no likely significant effects on the Howardian Hill National Landscape as a result of changes to the landscape and visual environment. The full justification for scoping out this aspect is provided in Section 14.9.
Views and visual amenity for local communities/ residents and recreational receptors within the study area	All	Scoped in	N/A
Views and visual amenity for transport receptors within the study area	All	Scoped in	N/A
Assessment of private views (a residential visual amenity assessment (RVAA)	All	Scoped out	Views from houses and individual properties (as opposed to views from local communities) are a matter of private amenity and are therefore not included in the LVIA in accordance with LITGN-2024-01 and GLVIA3. The full justification for scoping out this aspect is provided in Section 14.9.

15. Major accidents and disasters

15.1 Introduction

15.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of major accidents and disasters.

15.1.1.2 It sets out receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

15.1.1.3 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 6: Air Quality;
- Chapter 8: Climate Change;
- Chapter 12: Ground Conditions;
- Chapter 14: Landscape and Visual;
- Chapter 18: Traffic and Movement; and
- Chapter 19: Water Resources and Flood Risk.

15.2 Relevant legislation, policy, standards and guidance

15.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for major accidents and disasters and have informed the scope of the assessment.

15.2.2 Legislation

Table 15.1 Major Accidents and Disasters - Legislation

Legislation	Relevance to assessment
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[273]**	Schedule 4, paragraph 8 *"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. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council(3) or Council Directive 2009/71/Euratom(4) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies."*

15.2.3 Policy

Table 15.2 Major Accidents and Disasters - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[274]**	Section 4.13 addresses Safety and explains that the Health and Safety Executive (HSE) is responsible for enforcing a range of occupational health and safety legislation some of which is relevant to the construction, operation and decommissioning of energy infrastructure. Applicants should consult with the HSE on matters relating to safety.
National Policy Statement for renewable energy infrastructure (EN-3) 2024 **[275]**	Establishes policy specific to renewable energy schemes, including solar in Section 2.10. EN-3 aims to streamline the consenting process for large-scale solar developments by allowing decisions on solar applications to be made under section 104 of the Planning Act 2008. Solar energy is considered low carbon infrastructure and crucial for achieving net-zero goals, therefore designated Critical National Priority infrastructure under paragraphs 2.1.7, 2.1.8, and Section 3. Therefore, provided assessment principles and legal requirements are met, and the mitigation hierarchy has been applied to avoid, reduce and mitigate significant adverse effects, the benefits [of the infrastructure] will generally be considered to outweigh residual effects.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[276]**	NPS EN-5 addresses policy for energy transmission. EN-5 does not include further requirements for major accidents and disasters, beyond those general requirements for 'good design' for the design and siting of substations in accordance with the Horlock Rules (paragraphs 2.9.16 – 2.9.19).
Selby District Core Strategy Local Plan, adopted 2013 **[15]**	Relevant policies which refer to traffic and increased risk of accidents are addressed in Chapter 18.
Selby District Local Plan, adopted 2005 **[16]**	Relevant policies which refer to traffic and increased risk of accidents are addressed in Chapter 18.

15.2.4 Standards and guidance

Table 15.3 Major Accidents and Disasters - Standards and guidance

Standards and legislation	Relevance to assessment
Major Accidents and Disasters in EIA: A Primer, 2020. Institute of Environmental Management and Assessment **[277]**	Offers an assessment methodology based on known current practice within the UK and identifies key terminology that can be used.
The National Risk Register of Civil Emergencies, 2023. The Cabinet Office **[278]**	The National Risk Register outlines the most serious risks facing the United Kingdom.
North Yorkshire Community Risk Register **[279]**	Provides information on the biggest emergencies that could happen in North Yorkshire, together with an assessment of how likely they are to happen and the impacts if they do. This includes the impacts to people, their houses, the environment and local businesses.

Standards and legislation	Relevance to assessment
NFPA 855 Standard for the Installation of Stationary Energy Storage Systems (ESS) **[19]**	This standard provides the minimum requirements for mitigating the hazards associated with ESS (also applies to BESS).
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[22]**	The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar projects. The guidance recommends that information is included on major accidents and disasters' receptors and the anticipated impacts. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below. The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows: • explanation as to how potential major accident and disaster risks have informed the site selection and the Proposed Development description in the scoping request; • 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 Regulations (COMAH) sites. • The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register: • commitment to providing, or provision of plans to manage risks identified in the scoping request, for example drainage strategy, outline Construction Environmental Management Plan (oCEMP), battery safety management plan. Evidence and assumptions provided in this chapter: • Evidence relied upon in scoping out aspects of the assessment are provided within section 15.7 and 15.8. Associated assumptions are provided within section 15.10. • Mitigation and commitments register: • Section 15.7 provides further details of the proposed mitigation measures taking into account the above examples, as may be relevant. • The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

15.3 Consultation

15.3.1.1 The Applicant will consult with the following stakeholders with regards to major accidents and disasters as part of the assessment process and non-statutory and statutory consultation:

- North Yorkshire Fire and Rescue Service (NYFRS); and

- Health and Safety Executive (HSE).

15.3.1.2 NYFRS is the statutory fire and rescue service covering North Yorkshire. NYFRS will be consulted as part of the statutory consultation in relation to the outline Battery Fire Safety Management Plan (oBFSMP).

15.3.1.3 The HSE is a UK government agency responsible for the encouragement, regulation and enforcement of workplace health, safety and welfare, and for research into occupational risks in Great Britain. HSE has been closely studying battery safety for several years, using its bespoke battery testing facility to help customers understand how best to manage the risks faced by many industry sectors during battery manufacture, storage, transport and use. The HSE will be consulted as part of the statutory consultation in relation to the outline Battery Fire Safety Management Plan (oBFSMP).

15.3.1.4 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

15.4 Study area

15.4.1.1 There is no specific regulatory guidance or standardised methodology for defining a study area in relation to the assessment of major accidents and disasters. For EIA scoping the study area has been taken to cover the draft Order Limits and a 100m buffer. This study area is based on professional judgement that could be considered to give rise to, or be impacted by, a potential major accident or disaster. In addition to this general buffer, a 4.8km buffer has been used to identify any COMAH sites which is the HSE land use planning distance.

15.5 Baseline conditions

15.5.1 Desktop sources used

15.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- The National Risk Register of Civil Emergencies [278];
- North Yorkshire Community Risk Register [279];
- COMAH 2015 Public Information Search [280]; and
- Publicly available base mapping, such as Bing maps.

15.5.2 Surveys undertaken and proposed

15.5.2.1 There are no surveys required in respect of major accidents and disasters.

15.5.3 Existing baseline

15.5.3.1 It is considered that the baseline relevant to the major accidents and disasters topic comprises:

- Current existing (without the Proposed Development) major accident and disaster risks in the study area;
- Features separate to the Proposed Development in question, within the study area, that contribute a potential source of hazard to the Proposed Development under consideration and may make it vulnerable to a major accident and/or disaster; and
- Sensitive environmental receptors at increased risk of a significant effect if an external major accident and/or disaster occurred once the Proposed Development was present.

Existing major accident and disaster risks

15.5.3.2 The National Risk Register [278] is based on information from the National Security Risk Assessment, which is the government's assessment of the most serious risks facing the UK. The risks that meet the threshold for inclusion in the National Risk Register would have a substantial impact on the UK's safety, security and/or critical systems at a national level. The risk register classifies risks into categories including terrorism; cyber; state threats; geographic and diplomatic; accidents and systems failures; natural and environmental hazards; human, animal and plant health; societal; and conflict and instability.

15.5.3.3 The National Risk Register states that for risks that are most relevant to a local area, a review of the relevant Community Risk Register should be undertaken. The North Yorkshire Community Risk Register [279] covers local risks relevant to North Yorkshire and is considered relevant to the Proposed Development. Within the North Yorkshire Community Risk Register the following 'very high' level risks have been identified. These are those that the North Yorkshire Local Resilience Forum have identified as the most likely to have an impact on the local community:

- Pandemic Influenza;
- Flooding;
- Adverse/severe weather;
- Marine pollution;
- Disruption or failure to the Electrical Network;
- Food supply contamination;
- Air quality;
- Land movement;
- Terrorism; and
- Cyber security.

15.5.3.4 Major accident and disaster risks relevant to the baseline in the absence of the Proposed Development are, therefore, considered to include all of the above.

Potential sources of hazard

15.5.3.5 Features external to the Proposed Development that contribute a potential source of hazard are considered to be nearby Control of Major Accident Hazards (COMAH) sites. COMAH sites are establishments storing or otherwise handling large quantities of hazardous industrial chemicals. A review of sites listed by the COMAH 2015 Public Information Search [280] has been undertaken to identify any COMAH sites within the HSE land use planning distance of 4.8 km of the Solar Development Sites 1-5. One COMAH site has been identified approximately 3.4 km north-west of Solar Development Site 2 (Gower Chemicals Limited, LS25 6ES) specialising in hydrofluoric acid dilution and blending for over 40 years.

15.5.3.6 It is also considered that there are baseline features present within the study area that could present a potential source of hazard to the Proposed Development or the Proposed Development could present a source of hazard to the baseline feature. These include, but are not limited to:

- **Utilities**: gas and electricity transmission networks and major water services are present within the draft Order Limits;
- **Potential presence of unexploded ordnance**: the draft Order Limits are classified as low risk [281] (see Chapter 12 Ground Conditions for more details);
- **Unstable ground conditions** (including former coal mining): the draft Order Limits are not noted as a Development High Risk Area [282] but there are High Risk Areas approximately 6 km west and potential presence of coal-bed methane and shale gas [283] (see Chapter 12 Ground Conditions for more details);
- **Traffic and movements infrastructure:** A63 and the East Coast Main Line (ECML) (see Chapter 18 Traffic and movements for more details);
- **Aviation infrastructure:** Parts of the draft Order Limits (Solar Development Site 2, 3 and part of 4 and part of the Cable Corridor Options Area) are located within the Sherburn in Elmet Aerodrome and Leeds East Airport Flight Restriction Zones (FRZ). There are also some parts of the draft Order Limits located within the Runway Protection Zones (RPZs) associated with both aviation assets.
- **Flood Zones**: Flood Zone 2, 3a and 3b associated with the River Ouse extends across part of Solar Development Site 1, Flood Zone 2 associated with the Lower Aire River is present across part of Solar Development Site 2, and Flood Zone 2, 3a and 3b extend across Solar Development Sites 3, 4 and 5 [284] (see Chapter 19 Water Resources and Flood Risk for more details).

Environmental receptors

15.5.3.7 Environmental receptors are identified where there is potential pathway linking a source of a MAD risk or hazard source as identified above in section 1.6.3 to a receptor(s). These are identified in the screening risk assessment provided in section 1.9 below.

15.5.4 Future baseline

15.5.4.1 Future baseline changes where relevant to major accidents and disasters may include change in COMAH status' of nearby sites, committed development comprising COMAH sites, changes to baseline features, and a changing climate resulting in extreme weather events, that present a new or different (increased) hazard to the Proposed Development.

15.5.4.2 Future baseline changes to flooding as a result of climate change will be taken into account in the flood risk assessment.

15.5.4.3 Committed developments will be kept under review as explained in Chapter 20 Cumulative and in-combination effects during the preparation of the PEIR and ES. However, in the event that a new development presenting a new major accidents and disasters risk is identified (such as a COMAH site or new railway) it is unlikely that these would present any significant MAD effects due to vulnerability of the Proposed Development to major accidents and disasters risks and the H&S regulations and codes that would apply to those developments, as explained in the sections below.

15.6 Potential impacts

15.6.1.1 An internal Project high level screening exercise for the purposes of scoping, as recommended in the Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table [285] and IEMA guidance [277], has been undertaken in this chapter. The identification of potential impacts is described in this section based on the MAD risk or hazard source as identified above in section 1.6.3. An assessment of whether significant effects would be likely considering design and mitigation measures (provided in section 1.8) is presented in section 1.9. Major accidents or disasters with little relevance in the UK were not included, such as volcanic eruptions for example.

15.6.1.2 The IEMA guidance recommends consideration of the following two questions – which are considered by hazard or risk further below:

- Q1 - Is the Proposed Development a source of hazard itself that could result in a major accident and/or disaster occurring?
- Q2 - Does the development interact with any sources of external hazards that may make it vulnerable to a major accident and/or disaster. If an external man-made or natural hazard occurred, would the existence of the Proposed Development increase the risk of a significant effect to an environmental receptor occurring?

15.6.2 Electrical fires and explosions

15.6.2.1 The Proposed Development is a solar development using proven technology, with widespread use across the UK and beyond. The market is tightly regulated by design standards and operating procedures. However, there have been examples of fires associated with BESS so there is the potential for on-site fires associated with technology such as batteries as a form of energy storage. A fault on the National Electricity Transmission System could disrupt critical electrical safety systems which might result in an electrical fire within the Proposed Development.

15.6.2.2 Although rare, fires and associated explosions do have the potential to cause safety concerns to human health, including anyone undertaking construction, inspections, maintenance, replacement or decommissioning activities within the draft Order Limits, or within the area of fire spread/associated contamination fall out. Fires also have the potential to have an impact on the natural environment including the habitats and species in close proximity.

15.6.3 Glint and glare

15.6.3.1 Glint and glare in this context is the effect of reflected sunlight causing harm or discomfort to a sensitive receptor. A glint can be defined as the momentary receipt of a bright light and a glare can be defined as the receipt of a bright light over an extended or continuous period of time.

15.6.3.2 There are no published guidelines setting out a particular methodological approach to assessment, but the receptors of interest are specified in The National Planning Practice Guidance for Renewable and Low Carbon Energy [286] which states that: “Particular factors a local planning authority will need to consider include… the effect on landscape of glint and glare and on neighbouring uses and aircraft safety.”

15.6.3.3 As described in Chapter 4 (Approach to the EIA) a standalone Glint and Glare Assessment will support the ES where applicable, feed into the mitigation proposals for the Proposed Development, and accompany the DCO application. This assessment will consider the impact on aviation safety and neighbouring uses. The effect of glint and glare on landscape character and visual amenity (including PRoW) will be considered in the EIA and presented within the LVIA chapter of the ES Chapter 14 (Landscape and Visual).

15.6.4 COMAH sites

15.6.4.1 There are no COMAH sites within the study area. The nearest COMAH site is located 3.4 km north-west. This nearest COMAH site’s main risks are associated with the blending of hydrofluoric acid, which presents a potential off site risk from noxious gas release and water pollution. However, the Proposed Development is not likely to be affected by these risks because it is considered to be too far away. Furthermore, The Control of Major Accident Hazards (COMAH) Regulations 2015 are a set of regulations that cover establishments that store or handle large quantities of hazardous substances. The regulations aim to reduce the risk of major accidents involving these substances and limit the consequences if they do occur. Also, the Proposed Development is not considered to present a high risk to the COMAH site due to its nature and distance from the COMAH site.

15.6.5 Utilities

15.6.5.1 Solar farms have the potential to affect existing utility infrastructure below ground, but are not at a height to affect above ground telecommunications. The construction of the Proposed Development has the potential to interact with utilities during construction, operation (principally during maintenance and replacement) and decommissioning, with the potential to cause utility strikes. Depending on the nature of the strike this could cause supply disruption to users, and/or present a risk of danger to people and the natural environment within the draft Order Limits and in the surrounding area via contamination or potential fire or explosion.

15.6.6 Unexploded ordnance

15.6.6.1 It is possible that unexploded ordnance could be disturbed during construction, although the draft Order Limits are considered to have a low risk to unexploded ordnance based on the Zetica risk map, which is available publicly online [281].

15.6.7 Unstable ground conditions

15.6.7.1 There is potential for unstable ground conditions within the draft Order Limits associated with below ground hazards such as the historic mining use of the area. However, a review of the draft Order Limits has shown it is not in a Developable High Risk Area [282] (Chapter 12 Ground Conditions).

15.6.8 Traffic and movements infrastructure

15.6.8.1 Road accidents could occur during the construction, operation or decommissioning phases involving vehicles associated with the Proposed Development, leading to potential injury or fatality to members of the public.

15.6.8.2 As described above under Glint and Glare and in Chapter 4 (Approach to the EIA) a standalone Glint and Glare Assessment will support the ES where applicable, feed into the mitigation proposals for the Proposed Development, and accompany the DCO application. This assessment will consider the impact on neighbouring uses including traffic and movement infrastructure including aviation and highways, railways. The effect of glint and glare on landscape character and visual amenity including PRoW will be considered in the EIA and presented within the LVIA chapter of the ES Chapter 14 (Landscape and Visual).

15.6.9 Extreme weather-related events

15.6.9.1 Extreme weather conditions are a common cause of disruptions to power supplies at the distribution network level as such networks are more prone to wind-blown material, falling trees and other weather impacts. The threat from extreme weather events is predicted to increase due to the effects of climate change, though there is considerable uncertainty surrounding the projections. The impact of this in terms of a potential major accident or disaster occurring within the Proposed Development is taken into consideration under the Electrical Fires and Explosions section above.

15.6.9.2 There is the potential for flooding as a result of extreme weather events to be worsened due to the likely presence of the Proposed Development in flood zones (e.g. impacts to flood risk).

15.6.10 Accidental spillages

15.6.10.1 There is a risk that accidental spillage of contaminants, such as hydrocarbons, and their subsequent release into the drainage system could occur.

15.6.11 Marine pollution

15.6.11.1 Due to the terrestrial location of the Proposed Development, it is not likely to have an interaction with the marine environment in particular marine pollution. Therefore, this is not considered further in this chapter.

15.6.12 Influenza-type pandemic

15.6.12.1 There is the risk that an influenza-type pandemic could occur which may interact with the Proposed Development resulting in impacts on worker health and therefore could result in other health and safety concerns, such as a failure to undertake adequate inspections and maintenance activities.

15.6.13 Crime/terrorism

15.6.13.1 Solar energy systems are connected to the electrical grid through power electronic devices like inverters and may have frequent communication with utility control and automation systems. It is widely accepted that there are threats posed to critical national infrastructure from terrorism, both 'conventional' and cyber, due to the reliance on Information and Communications Technologies (ICTs) in the electricity system which presents vulnerability.

15.6.13.2 The Proposed Development could be vulnerable to crime such as vandalism or arson which may either result in death or injury to the person concerned or could results in a fire. Fire risk is considered under Electrical Fires and Explosions above.

15.7 Design, mitigation and enhancement measures

15.7.1 Embedded measures

15.7.1.1 Embedded measures are modifications to the design of a scheme, made during the pre-application phase, that are an inherent part of the design and do not require additional action to be taken.

15.7.1.2 The Proposed Development is currently evolving through an iterative design process. Embedded measures for the Proposed Development relevant to major accidents and disasters are likely to include:

- The design, construction and operation of the Proposed Development must comply with relevant health and safety legislation, regulations and industry guidance helping to control any risks that could arise from the Proposed Development at acceptable levels.
- As the Proposed Development design progresses, discussions will be held with utility providers to ascertain the locations of all assets, and the provider’s required offset distances will be implemented in the Proposed Development’s design. Good practice measures will also be included to protect against any interference with below ground utilities during construction and decommissioning (including relevant Protective Provisions within the DCO).

- The BESS will be located outside of Flood Zone 3a and 3b to minimise loss of flood plain and associated adverse flood risk effects. This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan.
- Avoid locating flood sensitive critical infrastructure within Flood Zones 2, 3a and 3b wherever possible, to avoid or reduce the potential for flood risk to the Proposed Development or to receptors as a result of the Proposed Development.
- Sustainable drainage solutions (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing site conditions.
- A minimum offset of 10m from bank top for all watercourses from all infrastructure (including fencing) and construction works, except where watercourse crossings are required (access tracks / cable routing /fencing will be located to pass across existing watercourse crossings where feasible). This Design Principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 (Solar Development Concept Layout Plan).
- Access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates.
- The BESS will not be located closer than 100m to sensitive human receptors (residential property, nursing/care home, place of worship, GP surgery or hospital) – a distance which far exceeds the NFPA 855 [19] minimum recommended 3m separation distances for BESS located outdoors from buildings. In addition, the BESS will not be located within 15m of a PRoW – a distance which far exceeds the NFPA 855 minimum recommended 3m separation distances for BESS located outdoors from PRoW - or within 3m of Solar Development Site boundaries, which is a distance that meets the NFPA 855 minimum recommended 3m separation distances for BESS located outdoors from site boundaries. These Design Principles have been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan. These minimum separation distances will be secured through the DCO.
- The BESS and other infrastructure will avoid historic mine entries and where practicable compressible ground. There are no historic mine entries within the draft Order Limits and therefore part of this Design Principle has been achieved.
- The BESS drainage design will allow for fire-water containment.
- A suite of management plans, including a Battery Fire Safety Management Plan (BFSMP), with measures provided in an outline version as part of the DCO application, will be in place as outlined further below, to incorporate standard industry best practice and identify specific controls to limit adverse impacts to the environment.
- Construction and decommissioning activities will be undertaken in accordance with a CEMP and DEMP, respectively with measures provided in outline versions as part of the DCO application.
- A Glint and Glare Assessment and used to inform design development to minimise glare. The Glint and Glare Assessment will be reported in the ES.
- Construction, operational and decommissioning activities will be undertaken in accordance with a CEMP, OEMP and DEMP with measures provided in outline

versions as part of the DCO application. The measures in the outline versions will refer to the requirement for the Applicant to provide relevant resilience plan(s) for business continuity, disaster recovery and crisis management in the event of a pandemic.

15.7.2 Management plans

15.7.2.1 As noted above, a suite of management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to major accidents and disasters include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Landscape and Ecological Management Plan (oLEMP), including general operational measures alongside those specific to landscape and ecology;
- Outline Decommissioning Environmental Management Plan (oDEMP);
- Outline Construction Traffic Management Plan (oCTMP); and
- Outline Battery Fire Safety Management Plan (oBFSPM).

15.7.2.2 Examples of the range of measures that would likely be included in the oBFSMP (subject to further discussion and the agreement of NYFS) include:

1. The detailed design of the BESS will include measures to avoid ground and groundwater contamination, watercourse pollution, and the release of toxic gases.
2. The BESS will be designed to provide measures to contain and restrict the spread of fire using fire-resistant materials, and adequate separation between elements of the BESS including between switchgear and batteries.
3. The BESS facilities will be designed to provide redundancy in the design to provide multiple layers of protection. Therefore, the electronic protection for the battery system is provided with multiple layers of redundancy. If battery abuse is detected, the battery module, rack or entire container will be isolated as fail safes and disconnected from the grid. An automatic water-based suppression system will also be included.
4. The BESS will be designed to provide automatic fire detection. It is likely that an early warning fire system would be provided such as an aspirating smoke detection system.
5. The BESS will be designed to provide automatic fire suppression. It is likely that the preferred design of a suppression system would be a water drenching system as fires involving lithium-ion batteries have the potential for thermal runaway. Other systems, such as inert gas, would be less effective in preventing reignition. The water supply for the water drenching system will be integrated into the design of the BESS and located either internally or externally adjacent to the BESS. Alternatively, the water supply and pumps will be located centrally in each BESS Development Area with underground connections to each BESS container.
6. The BESS will be designed to provide adequate ventilation or an air conditioning system to control the temperature. Ventilation is important since batteries will continue to generate flammable gas if they are hot. Also, carbon monoxide will be

generated until the batteries are completely cooled through to their core. The ventilation system will most likely be a permanent mechanical ventilation system with an air flow monitoring system to prevent concentration of hazardous gases.

7. The BESS will be designed to ensure that sufficient water is available for manual firefighting. The feasibility of providing an external fire hydrant in close proximity of the BESS containers will be investigated as part of the detailed design. However, due to the rural location it may be necessary to identify either a natural supply or the provision of a full holding capacity tank for firefighting operations. Where a natural water supply is used, then the seasonal availability of natural water supplies for each site applicable will be investigated and verified at detailed design stage. Natural water supplies will only be dedicated for use by fire hydrants and no other firefighting systems. If a natural water source is not available on site, a full holding capacity tank will then be used for fire and rescue services to relay water to the incident area and use the fire services own appliances for pumping operations. The minimum water supply requirements and detailed design solution will be discussed and agreed with NYFS.
8. Procuring components and using construction techniques which comply with all relevant legislation.
9. The Applicant will develop an emergency response plan with NYFS at the detailed design stage, to minimise the impact of an incident during construction, operation, and decommissioning of the facility. The emergency response plan should include details of the hazards associated with lithium-ion batteries, isolation of electrical sources to enable firefighting activities, measures to extinguish or cool batteries involved in fire, management of toxic or flammable gases, containment of fire water runoff, handling and responsibility for disposal of damaged batteries, establishment of regular onsite training exercises. The emergency response plan will be maintained and regularly reviewed by the Applicant and any material changes notified to NYFS.
10. A safe access route and alternative access route will be provided to the BESS Development Area within the Proposed Development. Where both access routes are located on the same road into a BESS Development Area, internal roads will be arranged to allow approach from an upwind direction.

15.7.3 Further mitigation

15.7.3.1 There are no further mitigation measures identified for the topic of major accidents and disasters.

15.8 Likely significant effects

15.8.1 Fire risk from the Proposed Development

15.8.1.1 The mitigation measures proposed will ensure that there is a very low risk of a fire resulting in a major accident and disaster. If such an event did occur (extremely rare likelihood) the mitigation measures secured via DCO requirements would ensure this would be managed effectively and there would be a low risk to the environment including human health. Therefore, no significant effects associated with battery fires or other electrical fires are likely and so further assessment of the risk and effects of fires is **scoped out** of the PEIR and ES.

15.8.2 Glint and glare risk from the Proposed Development

15.8.2.1 As described in Chapter 4 (Approach to the EIA) a standalone Glint and Glare Assessment will be provided a supporting document to the ES where applicable, feed into the mitigation proposals for the Proposed Development, and accompany the DCO application. This assessment will consider the impact on aviation safety and neighbouring uses and is **scoped in**. However, presentation of the assessment of the risk and effects from glint and glare to receptors from the Proposed Development in a Major Accidents and Disasters Chapter is **scoped out** of the PEIR and ES.

15.8.3 COMAH sites

15.8.3.1 As explained at Section 1.7, there is unlikely to be any significant effects as a result of interactions between the nearest COMAH site and the Proposed Development. Therefore, further assessment of the risk and effects from COMAH sites is **scoped out** of the PEIR and ES.

15.8.4 Utilities

15.8.4.1 As the Proposed Development design progresses, discussions will be held with utility providers to ascertain the locations of all assets, and the provider's required offset distances will be implemented in the Proposed Development's design to minimise the risk of a major accident and disaster as a result of interactions with utilities. Good practice measures will also be included to protect against any interference with below ground utilities during construction, operation and decommissioning in the various management plans (including relevant Protective Provisions within the DCO). The mitigation measures will be secured via DCO requirements.

15.8.4.2 Therefore, it is unlikely that there would be any significant environmental effects as a result of the low risk of a major accident or disaster event(s) occurring as a result of any interactions between the Proposed Development and existing utilities. Therefore, further assessment of the risk and effects from utilities in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.5 Unexploded ordnance

15.8.5.1 The low risk for presence of unexploded ordnance (UXO) is shown in the Zetica risk map [281] and appropriate best practice and mitigation measures will be in place via the CEMP. Operational inspections and maintenance, replacement and decommissioning phases would have an even lower risk of encountering UXO as the ground would have been disturbed during construction so if a UXO was identified it would have already been managed in accordance with the CEMP. However, the relevant management plans would include measures to manage UXO risks. Therefore, further assessment of the risk and effects from utilities in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.6 Unstable ground conditions

15.8.6.1 A Geo-environmental Preliminary Risk Assessment (including a section on coal mining risk) will be appended to the PEIR and the ES (as stated in Chapter 12 Ground Conditions). Risks will be fully understood and mitigation will be embedded into the design of the

Proposed Development where required and additional mitigation measures utilised where identified as required. There is a commitment to ensuring that The BESS and other infrastructure will avoid historic mine entries and compressible ground. This will minimise the risk to people working within the draft Order Limits, in terms of land collapse, throughout all phases of the Proposed Development.

15.8.6.2 Therefore, it is considered unlikely that there would be any significant environmental effects as a result of a major accident or disaster event(s) occurring as a result of interactions between the Proposed Development and unstable ground conditions. Therefore, further assessment of the risk and effects from unstable ground conditions in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.7 Traffic and movements infrastructure and users

15.8.7.1 The changes in traffic flows as a result of the Proposed Development during construction operation and decommissioning phases is expected to be within daily variation (as described in Chapter 2 Proposed Development, Chapter 18 Traffic and Movement), meaning there should be no significant increase in the potential road accidents (as described in Chapter 18 Traffic and Movement). In addition, the Construction Traffic Management Plan (CTMP) with measures provided in outline versions as part of the DCO application will carefully manage access and routing to ensure any potential risks are managed appropriately (see Chapter 18 Traffic and Movement).

15.8.7.2 The potential for railway or road accidents to members of the public during operation caused by glint or glare from installed solar panels will be assessed as part of a standalone Glint and Glare assessment, which will be appended to the ES to support the DCO application. Any identified mitigation proposals will be embedded into the design of the Proposed Development or applied in relation to the Proposed Development. The Glint and Glare Assessment will consider the impact on traffic and movements receptors so is **scoped in**. However, the presentation of the glint and glare assessment in a Major Accidents and Disasters Chapter is not proposed in the PEIR and ES.

15.8.8 Extreme weather events and in particular flood risk

15.8.8.1 The Proposed Development is likely to be vulnerable from extreme weather and climate change and the Proposed Development will be designed to comply with relevant health and safety legislation, regulations and industry guidance helping to control any extreme weather-related events.

15.8.8.2 Chapter 18 (Water Resources and Flood Risk) of this EIA Scoping Report covers the risks associated with flooding (including climate change) which is **scoped in** to the EIA and the assessment reported PEIR and ES. In addition, an outline Drainage Strategy and Flood Risk Assessment will be prepared to accompany the DCO application for the Proposed Development to ensure that the Proposed Development and its impact on drainage do not increase the risk of flooding on-or off-site.

15.8.8.3 The CEMP, outline Drainage Strategy, LEMP and DEMP with measures provided in outline versions as part of the DCO application will carefully manage flood risk and drainage to ensure any potential risks are managed appropriately and will be secured by way of requirement in the DCO.

15.8.8.4 The Water Resources and Flood Risk Chapter of the PEIR and ES and associated FRA and outline Drainage Strategy will consider the impact of extreme weather and flood risk so is **scoped in**. However, the presentation of the outline Drainage Strategy and Flood Risk Assessment in a Major Accidents and Disasters Chapter is not proposed in the PEIR and ES.

15.8.9 Accidental spillages

15.8.9.1 Accidental spillages as a result of the Proposed Development are considered to be low consequence events and should they occur they would be at a scale that do not meet the definition of a major accident or disaster, and are expected to be able to be managed and mitigated via the suite of management plans that will be in place. Therefore, there are unlikely to be any significant effects as a result of accidental spillages. Therefore, further assessment of the risk and effects from accidental spillages in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.10 Influenza-type pandemic

15.8.10.1 Since the impact of the Covid-19 pandemic it is common practice for businesses to undertake resilience planning, and to have created and maintained resilience plan(s) for business continuity, disaster recovery and crisis management. The CEMP, OEMP and DEMP will include details of the Applicant's relevant resilience plan(s) for business continuity, disaster recovery and crisis management in the event of a new pandemic, with measures provided in outline versions as part of the DCO application. Therefore, further assessment of the risk and effects from a pandemic in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.11 Crime/terrorism

15.8.11.1 Solar cyber security in the UK is important to protect the integrity of the energy supply and sensitive data from cyber threats. In the UK the Product Security and Telecommunications Infrastructure (PSTI) Regulations which came into effect on 29 April 2024 require manufacturers of connected consumer devices, including solar inverters, to comply with cyber security requirements. This would also apply to manufacturers who supply the solar inverters used on the Proposed Development.

15.8.11.2 Security measures including fencing, gates and CCTV will be included in the Proposed Development as described in Chapter 2 (The Proposed Development). Therefore, the risk of crime / terrorism is likely to be very low and therefore it is unlikely that there would be significant effects from a major accident or disaster due to crime or terrorism. Therefore, further assessment of the risk and effects from crime or terrorism in terms of major accident and disasters is **scoped out** of the PEIR and ES.

15.8.12 Overall conclusion

15.8.12.1 The Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table [285] recommends that "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" should be provided in an EIA scoping report to provide evidence to support scoping out major

accidents and disasters from an ES. A risk identification reining exercise is provided in this chapter.

15.8.12.2 The risk assessment has found that the probability, likelihood and frequency of a major accident or disaster is very low with respect to the Proposed Development and would be managed under established legislative requirements, the design process and/or the management plans proposed. As such, further assessment of the vulnerability to major accidents and disasters in a major accidents and disasters chapter of the PEIR and ES is **scoped out** of the assessment.

15.8.12.3 Nevertheless, it is proposed that the ES will include a detailed assessment of flood risk presented in the water resources and flood risk chapter, a supplementary glint and glare assessment will consider risks and effects associated with glint and glare, and the supplementary geoenvironmental PRA will consider risks associated with ground conditions (i.e. land stability from previous coal mining use of the draft Order Limits).

15.9 Proposed assessment methodology

15.9.1.1 The major accidents and disaster topic is **scoped out** from further assessment.

15.10 Assumptions, limitations and uncertainties

15.10.1.1 Scoping has been undertaken based on the information available on the Proposed Development available at the time of writing. The proposal is expected to be a type of development that has been successfully deployed globally previously, and as such would have a proven technology with a good safety record, with a low risk of giving rise to a major accident and/or disaster.

15.10.1.2 In accordance with good safety management principles, it is assumed that all risks that have the potential to be major accidents and/or disasters, and as such could impact a local environmental receptor, will be managed through best practice in construction techniques, compliance with relevant legislation and through adherence to the CEMP, LEMP and DEMP. A BFSMP will be in place to specifically manage risks related to battery fire safety.

15.11 Summary

Table 15.4 Major accidents and disasters scoping summary

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
Electrical fires and explosions	Construction / Decommissioning / Operation	Scoped out	The oCEMP will contain measures to reduce the risk of electrical fires and explosions which will be detailed in the CEMP prepared by the Contractor, which will be a requirement of the DCO. The oBFSMP will contain measures to reduce the risk of electrical fires and explosions from the BESS element of the Proposed Development which will be detailed in the BFSMP prepared at the detailed design stage post consent, which will be a requirement of the DCO.

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
			The measures are provided in section 1.8.
Glint and Glare	Construction / Decommissioning and Operation	Scoped in (but a Major Accidents and Disasters Chapter will not be provided in the PEIR or ES)	A standalone Glint and Glare Assessment will support the ES where applicable, feed into the mitigation proposals for the Proposed Development, and accompany the DCO application. This assessment will consider the impact on aviation safety and neighbouring uses. The effect of glint and glare on landscape character and visual amenity (including PRoW) will be considered in the EIA and presented within the LVIA chapter of the ES Chapter 14 (Landscape and Visual).
COMAH sites	Construction / Decommissioning and Operation	Scoped out	As explained at Section 1.7 and 1.9, there are unlikely to be any significant effects as a result of interactions between the nearest COMAH site and the Proposed Development.
Utilities	Construction / Decommissioning and Operation	Scoped out	As the Proposed Development design progresses, discussions will be held with utility providers to ascertain the locations of all assets, and the provider's required offset distances will be implemented in the Proposed Development's design to minimise the risk of a major accident and disaster as a result of interactions with utilities. Good practice measures will also be included to protect against any interference with below ground utilities during construction, operation and decommissioning in the various management plans (including relevant Protective Provisions within the DCO). The mitigation measures will be secured via DCO requirements.
UXO	Construction / Decommissioning and Operation	Scoped out	The low risk for presence of unexploded ordnance (UXO) is shown in the Zetica risk map [8] and appropriate best practice and mitigation measures will be in place via the CEMP. Operational inspections and maintenance, replacement and decommissioning phases would have an even lower risk of encountering UXO as the ground would have been disturbed during construction so if a UXO was identified it would have already been managed in accordance with the CEMP. However,

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
			the relevant management plans would include measures to manage UXO risks.
Unstable ground	Construction / Decommissioning and Operation	Scoped in (but a Major Accidents and Disasters Chapter will not be provided in the PEIR or ES)	A Geo-environmental Preliminary Risk Assessment (including a section on coal mining risk) will be appended to the PEIR and the ES (as stated in Chapter 12 Ground Conditions). Risks will be fully understood and mitigation will be embedded into the design of the Proposed Development where required and additional mitigation measures utilised where identified as required. There is a commitment to ensuring that the BESS and other infrastructure will avoid historic mine entries and compressible ground. This will minimise the risk to people working within the draft Order Limits, in terms of land collapse, throughout all phases of the Proposed Development.
Traffic and movement infrastructure and users	Construction / Decommissioning and Operation	Scoped in (but a Major Accidents and Disasters Chapter will not be provided in the PEIR or ES)	The changes in traffic flows as a result of the Proposed Development during construction operation and decommissioning phases is expected to be within daily variation (as described in Chapter 2 Proposed Development, Chapter 18 Traffic and Movement), meaning there should be no significant increase in the potential road accidents (as described in Chapter 18 Traffic and Movement). In addition, the Construction Traffic Management Plan (CTMP) with measures provided in outline versions as part of the DCO application will carefully manage access and routing to ensure any potential risks are managed appropriately (see Chapter 18 Traffic and Movement).
Extreme weather events and in particular flood risk	Construction / Decommissioning and Operation	Flood risk is scoped in (but a Major Accidents and Disasters Chapter will not be provided in the PEIR or ES)	The Proposed Development is likely to be vulnerable to extreme weather and climate change and the Proposed Development will be designed to comply with relevant health and safety legislation, regulations and industry guidance helping to control any extreme weather-related events. Chapter 18 (Water Resources and Flood Risk) of this EIA Scoping Report covers the risks associated with flooding (including climate change) which is scoped in to the EIA and the assessment reported PEIR and ES. In addition, an outline Drainage Strategy and Flood

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
			Risk Assessment will be prepared to accompany the DCO application for the Proposed Development to ensure that the Proposed Development and its impact on drainage do not increase the risk of flooding on-or off-site.
Accidental spillages	Construction / Decommissioning and Operation	Scoped out	Accidental spillages as a result of the Proposed Development are considered to be low consequence events and should they occur, they would be at a scale that do not meet the definition of a major accident or disaster, and are expected to be able to be managed and mitigated via the suite of management plans that will be in place. Therefore, there are unlikely to be any significant effects as a result of accidental spillages. Therefore, further assessment of the risk and effects from accidental spillages in terms of major accident and disasters is scoped out of the PEIR and ES.
Influenza type pandemic	Construction / Decommissioning and Operation	Scoped out	The CEMP, OEMP and DEMP will include details of the Applicant's relevant resilience plan(s) for business continuity, disaster recovery and crisis management in the event of a new pandemic, with measures provided in outline versions as part of the DCO application. Therefore, further assessment of the risk and effects from a pandemic in terms of major accident and disasters is scoped out of the PEIR and ES.
Crime / terrorism	Construction / Decommissioning and Operation	Scoped out	Regulations have come into effect in the UK which require manufacturers of connected consumer devices, including solar inverters, to comply with cyber security requirements. This would also apply to manufacturers who supply the solar inverters used on the Proposed Development. Security measures including fencing, gates and CCTV will be included in the Proposed Development as described in Chapter 2 (The Proposed Development). Therefore, the risk of crime / terrorism is likely to be very low and therefore it is unlikely that there would be significant effects from a major accident or disaster due to crime or terrorism. Therefore, further assessment of the risk and effects from crime or terrorism in terms of

Aspect	Phase	Scoped in/out	Justification for scoping out aspects
			major accident and disasters is scoped out of the PEIR and ES.

16. Noise and vibration

16.1 Introduction

16.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of noise and vibration.

16.1.1.2 It identifies noise and vibration sensitive receptors and describes the approach to the assessment of the impacts of the Proposed Development's impacts during construction, operation and decommissioning.

16.1.1.3 The following aspects have been considered:

- Construction and decommissioning noise and vibration;
- Construction and decommissioning traffic noise and vibration;
- Operational noise and vibration from stationary sources and maintenance activities; and
- Operational road traffic noise.

16.1.1.4 This chapter is supported by Figure 16.1 Noise and Vibration Study Area.

16.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development;
- Chapter 7: Biodiversity:
  - Figure 7.1: Statutory Designed Sites – International Designations
  - Figure 7.2: Statutory Designed Sites – National Designations
  - Figure 7.3: Sites of Special Scientific Interest (SSSI) Impact Risk Zones
  - Figure 7.4: Non-statutory designated sites
  - Figure 7.5: Priority Habitats
  - Figure 7.6: Protected and Priority Species Record; and
- Chapter 18: Traffic and Movement.

16.2 Relevant legislation, policy, standards and guidance

16.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology and have informed the scope of the assessment.

16.2.2 Legislation

Table 16.1 Noise and vibration - Legislation

Legislation	Relevance to assessment
Control of Pollution Act 1974 Part III Noise **[287]**	Relevant for the assessment and mitigation of construction and operational noise and vibration. Section 60 Control of noise on construction sites; Section 61 Prior consent for work on construction sites Section 72 Best practicable means
Environmental Protection Act 1990 **[288]**	Relevant for the assessment of construction and operation noise and vibration Section 79 states that statutory nuisance includes noise (including vibration) emitted from premises so as to be prejudicial to health or a nuisance. Section 79 defines best practicable means

16.2.3 Policy

Table 16.2 Noise and vibration - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[289]**	This document discusses the potential impacts of noise and vibration from energy infrastructure projects. It emphasises the importance of assessing and mitigating these impacts to protect human health and quality of life. It outlines the need for developers to provide noise assessments, consider noise mitigation measures, and comply with relevant regulations and guidelines to minimise adverse effects on nearby communities and environments. Section 5.12.17 reflects NPSE (see below) and provides three tests for award of development consent: Avoid significant effects in health and quality of life from noise; Mitigate and minimise other adverse impacts on health and quality of life from noise Where possible, contribute to improvements to health and quality of life through the effective management and control of noise
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[290]**	Provides policy for decisions by the Secretary of State on applications for nationally significant renewable energy infrastructure. With regards to solar photovoltaic generation projects, it notes that impacts may arise from construction activities and construction traffic.
National Policy Statement for Renewable Energy Infrastructure (EN-5), 2024 **[291]**	NPS EN-5 notes that audible noise effects can arise from substation equipment such as transformers and may generate low frequency hum. The policy refers to relevant British Standards which are adopted for this assessment as noted Table 16.3 below.
National Planning Policy Framework (NPPF), 2023 **[292]**	Relevant for the assessment of construction and operational noise and vibration, as NPPF contains key information regarding the assessment of environmental noise. NPPF also considers how planning policies and decisions should ensure that new developments take into account likely significant effects of noise, as well as mitigation measures to minimise potential adverse impacts.

Policy	Relevance to assessment
Noise Policy Statement for England (NPSE) **[293]**	Sets out the following noise policy aims which are adopted for this noise and vibration assessment: • avoid significant adverse effects on health and quality of life; • mitigate and minimise adverse effects on health and quality of life; and • where possible, contribute to the improvement of health and quality of life.
Selby District Core Strategy Local Plan, adopted 2013 **[294]**	Relevant policies to the noise and vibration assessment will be adopted for this assessment, including Policy SP19 Design Quality, which notes that new developments are required contribute to unacceptable levels of noise.
Selby District Local Plan, adopted 2005 **[16]**	Paragraph 4015 states that *"4.15 The extent to which proposals would impact on the character of an area and the amenity of adjoining occupiers is an important consideration. Particular attention will be paid to the effects of increased vehicular and pedestrian movements and associated car parking. There may also be occasions when otherwise compatible uses would not be acceptable because of the likely effects of noise and other forms of pollution. Where appropriate, the District Council will make a careful assessment of potential noise levels and other sources of pollution before determining planning applications. Conditions may be imposed to help regulate and minimise the impact."* Paragraph 4.39 states that *"The District Council attaches great importance to controlling and minimising pollution under available Environmental Health legislation and through the planning system. Where appropriate, the advice of relevant pollution control agencies, including the Environment Agency, will be sought.* *Development proposals likely to give rise to an unacceptable level of environmental pollution will be resisted, unless it can be demonstrated that adequate, enforceable measures will be taken to ensure environmental acceptability. Similarly, residential and other sensitive forms of development will not be permitted in locations where they are likely to be affected by existing sources of environmental pollution to an unacceptable degree, unless satisfactory mitigating measures are proposed."* Policy ENV 6 Proposal for the development of renewable energy will be permitted providing that: …3) The proposal would not give rise to nuisance by virtue of noise, vehicular movements, emissions and electromagnetic interference;… Therefore, the potential effects of noise are relevant and are considered in this EIA scoping report.

16.2.4 Standards and guidance

Table 16.3 Noise and vibration - Standards and guidance

Standards and guidance	Relevance to assessment
Planning Practice Guidance Noise **[295]**	Guidance notes that noise needs to be considered when development may create additional noise and that good acoustic design should be considered early in the planning process. It

Standards and guidance	Relevance to assessment
	reflects the need to take into account the three tests set out in NPSE (see above) and provides a semantic scale to define observed effect levels in an noise exposure hierarchy table. Requirements for the applicant (or agent of change), including providing mitigation of noise, are described.
British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) **[296]**	Relevant for the assessment of operational noise and for the environmental sound survey methodology
British Standard 5228:2014 Part 1 (Noise) and Part 2 (Vibration): Code of practice for noise and vibration control on construction and open sites (BS 5228) **[297]**	Describes methodologies and assessment criteria for the assessment of construction noise and vibration.
British Standard 7445-1 Description and measurement of environmental noise – Part 1; Guide to quantities and procedures (BS 7445-1) **[298]**	Defines how an environmental sound survey should be carried out.
British Standard 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration (BS 7385-2) **[299]**	Defines criteria for assessing vibration damage risk.
ISO 9613-2 Acoustics-Attenuation of sound during propagation outdoors **[300]**	Defines how propagation of sound should be calculated.
Highways England (2018) Design Manual for Road and Bridges (DMRB) LA 111 Noise and Vibration **[301]**	Defines the assessment methodology for construction traffic and operational road traffic noise.
Department for Transport (1988) Calculation of Road Traffic Noise (CRTN) **[302]**	Sets out the assessment methodology for operational road traffic noise.
World Health Organization (WHO) Guidelines for Community Noise (1999) **[303]** , Environmental Noise Guidelines for the European Region (2018) **[304]** and Night Noise Guidelines for Europe (2009) **[305]**	Relevant to establishing criteria to determine significance of effects associated with the construction and operation.
Institute of Environmental Management and Assessment - Guidelines for Environmental Noise Impact Assessment **[306]**	Relevant to the assessment methodology for likely significant effects.
Environmental sound measurement guide – ANC **[307]**	Provides guidance about measurement and analysis of environmental sound.
Procedure for the assessment of low frequency noise disturbance NANR45 **[308]**	Provides guidance about low frequency noise impacts.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[49]**	The Planning Inspectorate provides non-statutory guidance on the scope of NSIP solar projects. It proposes the following: Noise and Vibration: Information is included on noise and vibration receptors and the anticipated impacts. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below.

Standards and guidance	Relevance to assessment
	The guidance also provides examples of the types of evidence/assumptions to be provided in the EIA scoping request as follows: • anticipated noise generating activities and locations during each phase of the development, for example piling, removal of piles, trenching, if tracker panels are proposed • anticipated maximum duration of construction activities and timing across all phases • anticipated plant and non-road mobile machinery types for all phases • vehicle routing including access locations (where known) • vehicle type and number of movements for all phases • likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (for example Institute of Environmental Management and Assessment (IEMA) guidance) • identification of the locations of any sensitive receptors Evidence relied upon in scoping out aspects of the assessment are provided within Sections 16.7 and 16.8. Assumptions and any uncertainties are listed in one location at 16.10. The guidance also provides examples of the types of proposed mitigation to be summarised in the commitments register: • best practice noise management measures set out in a draft OCEMP, Outline Operational Environmental Management Plan (OOEMP) and Outline Decommissioning Environmental Management Plan (ODEMP) • buffer zones and/ or screening measures. • Commitments Register: • The guidance recommends the preparation of a commitment register: • The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

16.3 Consultation

16.3.1.1 The Applicant will consult with the following stakeholders with regards to noise and vibration as part of the assessment process and non-statutory and statutory consultation:

- Environmental Health Officer at North Yorkshire Council (NYC);
- Environment Agency; and
- Natural England.

16.3.1.2 Consultation will be undertaken to agree on the proposed assessment methodology outlined in this chapter, including details of the baseline environmental sound surveys. It is also proposed that consultation will seek to agree the likely DCO controls related to construction activities and operational noise emissions for the Proposed Development.

16.3.1.3 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to noise and vibration.

16.3.1.4 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

16.4 Study area

16.4.1.1 The draft Order limits are split into two broad areas, the Solar Development Sites 1-5 and the Cable Corridor Options Area, within which the Proposed Development would be located as described in Chapter 2 The Proposed Development and as shown on Figure 1.1 (Draft Order Limits). The study area for the noise and vibration assessment is a function of the extent of the draft Order limits and the type of impact as set out below.

16.4.1.2 The Solar Development Sites and Cable Corridor Options Area are indicative at this stage while optioneering is ongoing to finalise the best Cable Corridors that underground electric cable connections would be located within. Therefore, these areas of the draft Order limits are likely to reduce in size as the design is refined in response to environmental and technical factors identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback received from key stakeholders and the wider community. The study areas will therefore reduce as the draft Order Limits are refined, which will be described in the PEIR and ES.

16.4.2 Direct impacts

16.4.2.1 For construction noise, a study area of 300m around the draft Order Limits is considered sufficient to assess impacts, based on precedent from other projects and the limitations of prediction methods beyond this distance, as noted in British Standard BS 5228 [9]. For construction vibration, a study area of 100m is proposed since it is unlikely that significant effects from vibration would occur at greater distances.

16.4.2.2 For operational noise, a study area of 1km around the proposed draft Order Limits is proposed to assess impacts arising from operational sources of the Proposed Development. Sound levels are expected to be well below those likely to cause a risk of a significant effect at or beyond 1km. Operational vibration is proposed to be **scoped out** of this assessment since the nature of the plant is unlikely to transmit any appreciable vibration into the ground and the distances to any sensitive receptors will attenuate any residual vibration.

16.4.2.3 The study area for direct impacts is presented in Figure 16.1: Noise and Vibration Study Area.

16.4.3 Indirect impacts

16.4.3.1 Indirect impacts of road traffic noise and vibration are those arising at greater distances from the draft Order Limits and may result from changes in traffic flows on existing roads that are subject to a traffic noise change of more than 1dB(A). The study area for assessing indirect operational road traffic noise impacts extends along all affected roads within the surrounding network which are outlined in Chapter 18 Traffic and Movement (section 18.4). In line with DMRB LA 111 [13], the study area would extend 50m around such affected roads.

16.4.3.2 Construction traffic routes, diversions or road closures resulting from the construction will also be considered where a traffic noise change of more than 1dB(A) is indicated, with assessments conducted up to 50m from the affected road.

16.5 Baseline conditions

16.5.1 Desktop sources used

16.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Strategic noise mapping on Extrium England Noise and Air Quality Viewer website;
- OS Address Base Plus dataset;
- Proposed draft Order Limits; and
- Google Maps website.

16.5.2 Surveys undertaken and proposed

16.5.2.1 No surveys are required in respect of noise and vibration for the scoping stage.

16.5.2.2 Environmental sound level surveying will be undertaken to establish baselines at locations representative of existing sensitive receptors. Consultation will be undertaken with the Local Authority EHO prior to undertaking the surveys to confirm the assessment approaches, measurement locations and methodology.

16.5.3 Existing baseline

16.5.3.1 The sound environment surrounding the Proposed Development site is of a rural nature, with ambient sound levels likely dominated by road traffic from major nearby roads, as well as minor roads serving scattered receptors.

16.5.3.2 The primary traffic noise sources are expected to include the A19, A63, and M62, with additional contributions from traffic on the nearby road network. Further contributions to the overall sound environment are likely from the railways running between Selby and Leeds, Selby and Doncaster and the East Coast Main Line (ECML). Additionally, the Sherburn Aero Club, based at Sherburn in Elmet Airfield to the north of Monk Fryston and Leeds East Airport in Church Fenton, are also expected to contribute to the sound environment.

16.5.3.3 Noise sensitive receptors potentially include residential properties, sensitive commercial and community uses (such as educational premises, medical facilities, places of worship), and public open spaces, including public rights of way (PRoW). PRoWs are shown in Figure 18.1. Table 16.4 summarises the number of noise sensitive receptors. Further details on the nature of these receptors will be developed during the PEIR and ES stage, in consultation with the relevant local authorities.

Table 16.4 Summary of noise sensitive receptors

	Construction		Operation	
Receptor type	Number in study area	Number inside dOL	Number in study area	Number inside dOL
Residential	1310	1	1076	0
Non-residential	53	0	47	0

16.5.3.4 The closest noise sensitive receptors most likely to be impacted by the construction and operation of the Proposed Development are located in areas near Escrick, Temple Hirst, Chapel Haddlesey, Birkin, Hillam, Monk Fryston, and Hambleton.

16.5.3.5 Noise Important Areas (NIAs) are locations in England where Defra strategic noise mapping has identified that the population is exposed to high levels of noise and are therefore more sensitive to any increase in noise. The following road traffic NIAs are within 1km of the Proposed Development:

- 10207 A19 within Escrick, to the west of Solar Development Site 1; and
- 10250 and 10251A19, to the north of Chapel Haddlesey and to the west of Solar Development Site 5.

16.5.3.6 There are no railway NIAs in close proximity to the Proposed Development.

16.5.3.7 There are no Ramsar, Special Protection Areas (SPA), Special Conversation Areas (SCA) or SSSI within 2km of the draft Order Limits. There are non-statutory designated sites within 2km as well as priority habitats and priority species are presented in Figures 7.4 to Figures 7.6. Noise and vibration impacts upon these ecology receptors will be assessed as part of PEIR and ES.

16.5.4 Future baseline

16.5.4.1 The future sound baseline of the Proposed Development site may change due to the construction and operation of nearby local developments that include significant noise sources. Additionally, changes in road and railway traffic resulting from other local committed developments may also influence the future sound baseline.

16.5.4.2 The future baseline noise conditions will take into account anticipated changes in traffic on the surrounding network, considering forecasted traffic growth and the impact of committed developments.

16.6 Potential impacts

16.6.1 Construction

16.6.1.1 Whilst detailed information about the construction methodology and phases of construction work are not fully developed, it is possible that the construction works may give rise to the following temporary, short-term, reversible impacts:

- Construction activity noise;
- Construction vibration;
- Construction traffic vibration; and
- Construction traffic noise.

16.6.1.2 Vibration from construction traffic using the public highway would be negligible in terms of impacts on human receptors and risk of damage to buildings. Construction traffic vibration is therefore proposed to be **scoped out**.

16.6.2 Operation and maintenance

16.6.2.1 Temporary, long term, reversible impacts may occur at the closest existing noise sensitive receptors. Sources of operational noise from stationary equipment with the potential to cause significant effects include onsite substations, Battery Energy Storage System (BESS), inverters, transformers, compressors, switchgear, heating ventilation and cooling (HVAC) fans, and alarm systems. These sources are particularly relevant to the assessment as they are likely to be operational during the night-time, when potential adverse impacts are more likely to occur.

16.6.2.2 No appreciable vibration is expected to be transmitted into the ground from operation of any of the plant and equipment. The separation between the Proposed Development and sensitive receptors would attenuate any residual vibration that is transmitted into the ground.

16.6.2.3 Operational noise impacts associated with routine inspection and maintenance activities are not expected to be significant due to the small scale of activities required (which will not require heavy equipment), use of light vehicles only and they would be of short duration. Such activities would also only take place during daytime.

16.6.2.4 The proposed replacement of the solar PV modules once and batteries twice during the operational phase of the Proposed Development have the potential to result in temporary, short term, reversible adverse effects at the closest receptors. Noise and vibration impacts effects would not be worse than during construction and therefore unlikely to cause a significant effect. The approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

16.6.2.5 The Proposed Development is unlikely to result in significant road traffic noise or vibration impacts during operation and routine maintenance, as the increase in traffic flows is expected to be minimal as per section 18.6 of Chapter 18 Traffic and Movement. Slightly higher traffic flows would occur for short periods during the replacement of solar PV modules and batteries that would be no worse than those assessed during construction. Since fewer vehicle movements would be required than during construction and the period of time would be shorter.

16.6.3 Decommissioning

16.6.3.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, BESS and all associated infrastructure to 1.2m bgl. Removed materials would be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors between Solar Development Sites 1-5 and Monk Fryston Substation would remain in place following decommissioning. It is expected that relatively minor decommissioning activities would be required for the removal of the relatively small above ground control boxes in the vicinity of each joint bay .

16.6.3.2 Decommissioning activities at Solar Development Sites 1-5 are likely to generate noise and vibration levels similar to those associated with the construction of the Proposed Development at Solar Development Sites 1-5. Consequently, decommissioning activities also have the potential to result in temporary, short-term, reversible adverse effects on nearby sensitive receptors an are proposed to be **scoped in**. However, these effects would not be worse than during construction. Therefore, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

16.6.4 Cumulative

16.6.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20 Cumulative and in-combination effects. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment.

16.7 Design, mitigation and enhancement measures

16.7.1 Embedded measures

16.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 The Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding

Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

16.7.1.2 Embedded measures can comprise modifications to the design of a scheme, made during the pre-application phase that seek to avoid or minimize impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures.

16.7.1.3 Embedded measures are also taken into account in the assessment of the likely significant effects.

16.7.1.4 Embedded measures for the Proposed Development relevant to noise and vibration are likely to include the following:

16.7.2 Construction

16.7.2.1 Where possible, noisy construction works (a term which will be defined in the PEIR and ES) will be avoided within 300m of sensitive receptors such as residential properties, schools, hospitals, PRoW. Where construction works will be undertaken within 300m of sensitive receptors, other mitigation measures will be required as outlined below.

16.7.2.2 Construction compounds will be located as far as practicable from noise sensitive receptors.

16.7.2.3 Where reasonably practicable, routing of construction traffic will be away from sensitive receptors. Construction traffic information can be found in Chapter 18 Traffic and Movement.

16.7.2.4 Potential adverse effects associated with construction noise and vibration will be mitigated through use of best practicable means of working (BPM) as outlined in in Section 72 of the Control of Pollution Act 1974 [287] and Section 79 of the Environmental Protection Act 1990 [288] such as selection of quiet and low vibration equipment, control of working hours and screening of equipment where relevant. BPM will be implemented through a Construction Environmental Management Plan (CEMP). The CEMP will contain established control measures for environmental protection which will be adopted during construction. An outline CEMP (oCEMP) will be prepared as part of the PEIR and ES and submitted with the DCO application.

16.7.3 Operation and maintenance

16.7.3.1 The design of the Proposed Development would aim to minimise any noise impacts associated with its operation. This may include the following:

- The BESS will be located a minimum 100m from residential properties for fire safety reasons and to minimise potential human health effects from fire-related toxic emissions to air. This measure will also help minimise noise and vibration effects at sensitive receptors. This design principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 Solar Development Concept Layout Plan.

- Where reasonably practicable, all sources of operational noise and vibration, such as transformers, will not be located in close proximity to sensitive receptors (such as residences, schools, hospitals, places of worship, PRoW and outdoor amenity spaces).
- Where noise sources are necessarily located in close proximity to sensitive receptors, mitigation measures will be allowed for as outlined below:
  - Design of facility layouts to minimise operational noise emissions to nearby sensitive receptors e.g. allowing acoustic buffer zones between sources and receptors;
  - Design of building envelope and enclosures to control noise break-out to the environment;
  - Selection of quiet plant items and allow for acoustic enclosures, where required and practicable;
  - Using intervening structures as noise screening barriers; and
  - Scheduled and planned maintenance activities will be undertaken during the day only.

16.7.4 Management plans

16.7.4.1 Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to noise and vibration include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Construction Traffic Management Plan (oCTMP); and
- Outline Decommissioning Environmental Management Plan (oDEMP).

16.7.5 Further mitigation

16.7.5.1 Further mitigation is actions that require further activity to achieve a reduction in significance of effects. Further mitigation for noise and vibration will be defined through the PEIR and ES once the level of significance of effects is known.

16.7.5.2 Options for further mitigation for the Proposed Development relevant to noise and vibration may include additional measures such as installation of enhanced sound insulation at impacted receptors, where practicable.

16.7.5.3 Operational vibration is unlikely to be a risk for plant items associated with this type of Proposed Development. If the plant selected would transmit any vibration, adequate separation distances between sensitive receptors and these sources, along with mitigation measures such as anti-vibration mounts if required, would avoid potential impacts.

16.8 Likely significant effects

16.8.1 Construction noise and vibration

16.8.1.1 The Proposed Development site is in a rural sound environment and a number of sensitive receptors and communities are in close proximity to the site. As such, noise and vibration from construction activities would be likely to result in adverse effects.

16.8.1.2 With the implementation of a Construction Environmental Management Plan (CEMP), Construction Traffic Management Plan (CTMP) and Decommissioning Environmental Management Plan (DEMP) adverse impacts from construction noise and vibration can be minimised. However, as the design development is not yet complete and insufficient information is available to assess the risk of residual significant effects, construction noise and vibration are proposed to be **scoped in**.

16.8.1.3 Construction traffic noise also has the potential to result in a likely significant effect, considering the potential duration of the works and the sensitivity of nearby receptors. As such, construction traffic noise is proposed to be **scoped in**.

16.8.1.4 Based on guidance provided in British Standards BS5228-2 and BS7385-2, as well as DMRB LA 111, construction traffic vibration, including during replacement of BESS and solar PV modules, would be minimal in terms of impacts on people and risk of damage to any buildings or other structures and is proposed to be **scoped out**.

16.8.2 Operation

16.8.2.1 The operational noise sources that are part of the Proposed Development, with the potential to result in a likely significant effect at the closest receptors, are presented in section 16.6.2. These noise sources will be assessed as part of the EIA to determine whether they are likely to result in a significant effect and to identify any necessary mitigation measures to ensure no residual effects. As such, operational noise from stationary sources is proposed to be **scoped in**.

16.8.2.2 Operational traffic noise and vibration is unlikely to result in a significant effect, as the anticipated increase in flows associated with the Proposed Development is expected to be minimal, which would result in a negligible change in noise and vibration. Consequently, operational traffic noise and vibration during routine servicing and maintenance is proposed to be **scoped out**.

16.8.2.3 During the larger scale replacement of solar PV modules and batteries, there would be more traffic than required for routine operational activities but much less than would be required during construction. Noise and vibration effects during replacement would therefore not be worse than during construction. However, as stated at 1.8.2 the design development is not yet complete and insufficient information is available to assess the risk of residual significant effects, so the effects of construction noise and vibration during replacement are proposed to be **scoped in**. The approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality and not to undertake a bespoke additional assessment of replacement activities.

16.8.2.4 Vibration impacts from operational stationary sources, such as those described in 16.6.2, are unlikely to generate significant levels of vibration at the Proposed Development.

Propagation of any vibration through the ground between the sources and sensitive receivers will further reduce any vibration. Therefore, operational vibration from stationary sources and maintenance activities is proposed to be **scoped out** from further assessment.

16.8.3 Decommissioning noise and vibration

16.8.3.1 The construction works which take place during the decommissioning phase at Solar Development Sites 1-5 are expected to be similar in magnitude (or less extensive) compared to the construction phase.

16.8.3.2 As such, noise and vibration from decommissioning activities at Solar Development Sites 1-5 is **scoped in**, but since the effects are expected to be similar to or less than those during construction of the Proposed Development at Solar Development Sites 1-5, a qualitative assessment will be carried out.

16.8.4 Cumulative

16.8.4.1 As stated at section 16.6.4 the assessment will consider the potential for cumulative effects.

16.9 Proposed assessment methodology

16.9.1 Baseline surveying

16.9.1.1 Environmental sound level surveying will be undertaken at locations representative of existing sensitive receptors. The location of surveys will be consulted with relevant stakeholders as noted in section 16.3.

16.9.1.2 Surveys will be undertaken in accordance with BS 7445-1:2003 [298] and follow the guidance presented in the ANC Environmental Noise Measurement Guide [307]. Meteorological measurements will be taken in parallel with sound level measurements (where possible), to verify that appropriate conditions prevail during the surveys.

16.9.2 Construction activity noise

16.9.2.1 The assessment of construction noise will be undertaken in line with the methodologies presented in BS5228-1 [297]. The assessment will be carried out for the construction works that may cause the greatest impact within each phase of works at the closest sensitive receptors. This includes decommissioning works, ground works and excavation, concrete pouring, piling, erection of structures, alterations to roads and construction compounds.

16.9.2.2 The noise predictions will be based on information available at the time of writing, including the sound power level of construction plant items, percentage of on-time operation, number of items and any partial screening that could be implemented. In the absence of detailed information, assumptions will be made based on benchmarking and experience from other similar projects.

16.9.2.3 Annex E of BS 5228-1 [297] describes the 'ABC' method of assessment, which is proposed to establish the threshold of potential significant effects. These thresholds are based on baseline environmental sound measurements and predicted construction noise levels at locations representative of sensitive receptors.

16.9.2.4 It is noted that the potential impacts associated with decommissioning activities are likely to be comparable to those for construction activities.

16.9.2.5 Having established whether there is a potential significant effect using the 'ABC' method, the final assessment of significance is made by considering the following:

- Exceedance over the established thresholds of potential significant effect;
- The levels of noise exposure and character of existing sound environment;
- The sensitivity of receptors;
- Combined exposure to construction noise and vibration;
- The duration of the construction impact;
- Effectiveness of mitigation measures that may be provided; and
- Professional judgement.

16.9.3 Construction vibration

16.9.3.1 Vibration generated by construction activities will be assessed according to BS5228-2 [297], which presents guidance on the assessment of vibration impacts upon human receptors and risk of building damage. Once the levels of vibration due to the proposed construction works have been established, an assessment of significance will be made according to Annex B of BS5228-2 [297]. The predicted vibration levels will be used to screen the requirement for further investigation using BS6472-1 and BS7385-2 [299].

16.9.3.2 The identification of likely significant effects will be based upon:

- Likelihood of exceedance over the established thresholds of significant effect;
- The sensitivity of receptors;
- The duration of the construction vibration impact; and
- Professional judgement.

16.9.4 Construction traffic noise

16.9.4.1 Construction traffic noise predictions will be undertaken in accordance with the methodology defined in CRTN [302] and in DMRB LA 111 [301]. The results of the predictions will be used as a screening exercise to determine whether changes in traffic flow and composition during construction works are likely to give rise to a noise level change of more than 1dB(A); this being the lowest perceptible change in road traffic noise.

16.9.4.2 The identification of likely significant effects will be based upon:

- The change in traffic noise levels resulting at assessed receptors;
- The levels of noise exposure and character of existing sound environment;
- The sensitivity of receptors;
- The duration of the construction traffic impact; and
- Professional judgement.

16.9.5 Operational noise

16.9.5.1 Noise emissions from operational sources will be assessed in accordance with the methodology presented in BS 4142 [296]. To estimate the rating level of new sources, a three-dimensional noise model will be developed in the proprietary noise modelling software SoundPlan 9.

16.9.5.2 The operational noise sources which are likely to be included in the model are presented in section 16.6.2.

16.9.5.3 Consultation with relevant stakeholders will be undertaken to agree on the noise limits for operational noise sources. Where appropriate, consideration will be given to guidance in NANR45 [308] for risks of low frequency noise disturbance. The identification of a likely significant effects will be based upon:

- Likelihood of exceedance over the established thresholds of significant effect;
- Level and character of the existing sound environment;
- The sensitivity of receptors; and
- Professional judgement.

16.10 Assumptions, limitations and uncertainties

16.10.1.1 This chapter has been collated based on a range of publicly available information and commercially available datasets. It is assumed that the data collated are accurate. In the absence of data, a precautionary approach has been taken and professional judgement, based on experience of similar projects, has been used where required to inform the scope of the assessment.

16.10.1.2 The data referred to in this EIA scoping report chapter will be supplemented with additional data collected as part of the EIA process, including a baseline noise survey. Any limitations associated with the baseline noise survey will be reported in the PEIR and ES.

16.10.1.3 Any uncertainties associated with the assessment will be reported in the PEIR and ES.

16.11 Summary

Table 16.5 Noise and vibration scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Environmental sound survey	N/A	Scoped in	N/A
Traffic noise	Construction and Decommissioning	Scoped in	N/A
	Operation (except during replacement of solar PV modules and batteries)	Scoped out	Operational traffic noise assumptions are outlined in section 18.6 of Chapter 18 Traffic and Movement. Operational traffic noise and vibration, including during routine servicing and maintenance is unlikely to result in a significant effect, as the anticipated increase in flows associated with the Proposed Development is expected to be minimal. Consequently, operational traffic noise and vibration is proposed to be scoped out.
Traffic noise	Operation (during replacement of solar PV modules and batteries)	Scoped in	During the replacement of solar PV modules and batteries there would be more traffic than during routine inspection and maintenance activities but no more than would be required during construction. Construction traffic noise assessment is scoped in so operational traffic noise and vibration is also proposed to be scoped in. However, no new or different assessment will be undertaken. The relevant section of the PEIR and ES will cross refer to the results of the relevant construction assessment.
Traffic vibration	Construction and Decommissioning Operation (including replacement)	Scoped out	Based on guidance provided in British Standards BS5228-2 and BS7385-2, as well as DMRB LA 111, construction and operation traffic vibration, including during replacement of BESS and solar PV modules, would be minimal in terms of impacts on people and risk of damage to any buildings or other structures and is proposed to be scoped out.
Noise from stationary sources and routine maintenance	Operation	Scoped in	N/A
Vibration from stationary sources and routine maintenance	Operation	Scoped out	Vibration impacts from operational stationary sources are unlikely to generate significant levels of vibration at the Proposed Development. Propagation of any vibration through the ground between the

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			sources and sensitive receivers will further reduce any vibration. Therefore, operational vibration from stationary sources and maintenance activities is proposed to be scoped out from further assessment.

17. Socioeconomics

17.1 Introduction

17.1.1.1 This chapter outlines the proposed scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2, in respect of socio-economics. It sets out a proportionate example of the relevant socioeconomic receptors within the proposed study area(s) and the proposed approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

17.1.1.2 The following receptor types have been considered as part of the proposed scope and methodology for this socioeconomics:

- Effects on employment, skills and training opportunities;
- Effects on the local economy;
- Effects on local businesses;
- Community and recreational facilities (including but not limited to village halls, places of worship, public houses and recreational facilities);
- Effects on users of Public Rights of Way (PRoW) and other promoted recreational routes;
- Effects on tourism (accommodation and facilities); and
- Effects on Development Land, including Mineral Safeguarding Areas.

17.1.1.3 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development; and
- Chapter 13: Human health.

17.1.1.4 This chapter is supported by Figure 17.1: Public Rights of Way.

17.1.1.5 Owing to the interrelationship between socioeconomics and other environmental topics, it is recommended that the following chapters are also referred to:

- Agricultural Land and Soil Resources – in regard to impact on agricultural land and soils;
- Landscape and Visual – in regard to amenity effects on users of promoted recreational routes and Public Rights of Way (PRoWs);
- Traffic and Transport – in regard to impacts on the physical nature of changes to access, promoted recreational routes and PRoW;
- Air Quality – in regard to amenity effects on community receptors, tourism receptors, local businesses and users of PRoW; and

- Noise and Vibration - in regard to amenity effects on noise and vibration sensitive receptors. This includes residential and community receptors, local businesses, and users of promoted recreational routes and PRoWs.

17.2 Relevant legislation, policy, standards and guidance

17.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for socioeconomics and have informed the proposed scope of the assessment.

17.2.2 Legislation

Table 17-1 Socioeconomics - Legislation

Legislation	Relevance to assessment
There is no legislation specific to the methodology of the assessment of socioeconomic effects arising as part of the Proposed Development. Where relevant, legislation specific to elements of the assessment such as the Countryside and Rights of Way Act (2000) **[309]** will be referenced.	
Countryside and Rights of Way Act (2000) **[309]**	The Act provides a new right of public access on foot to areas of open land. The Act also provides safeguards which consider the needs of landowners and occupiers, and of other interests, including wildlife. The Act encourages the creation of new routes and clarifying uncertainties about existing rights.

17.2.3 Policy

Table 17-2 Socioeconomics - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[239]**	With reference to paragraphs 4.1.5 – 4.1.7 which discusses the approach for weighing of adverse impacts and benefits. Section 5.11 considers potential impacts on land use. The Proposed Development will alter the land use of the Site from agricultural to energy production and therefore there will be a direct effect on the existing use of the Site. Effects on open space are also required to be assessed. Section 5.13 is specific to socioeconomic impacts. This identifies the potential relevant socioeconomic impacts which a project should consider, as well as potential mitigation measures and how these should be considered in the decision-making process. Section 5.13 outlines that the applicant's assessment should consider all relevant socioeconomic impacts, which for the Proposed Development include: • creation of jobs and training opportunities; • the contribution to the development of low-carbon industries; • any indirect beneficial impacts for the region hosting the infrastructure; • effects (positive and negative) on tourism and other users of the area impacted; • the impact of a changing influx of workers; • cumulative effects.
National Policy Statement for Renewable Energy	The policies set out in NPS EN-3 are additional to the impacts discussed in NPS EN-1. Section 2.10 discusses the benefits, impacts,

Policy	Relevance to assessment
Infrastructure (EN-3), 2024 **[310]**	and technical considerations that a solar photovoltaic generation project should consider and potential mitigation measures.
Environment Improvement Plan (EIP) 2023 **[311]**	The EIP provides an update on the 25 Year Environment Plan which set out the UK Government's *"vision for a quarter-of-a-century of action to help the natural world regain and retain good health"*.
The National Planning Policy Framework (NPPF), 2023 **[312]**	The National Planning Policy Framework (NPPF) sets out the UK government's planning policies for England and how these should be applied. These policies are relevance to the assessment but do not form part of the decision-making process for a Nationally Significant Infrastructure Project. The assessment would therefore look at key parts of the framework such as: • paragraph 8 which outlines the three objectives (economic, social and environmental) that support achieving sustainable development; • Building a strong, competitive economy (section 6), paragraphs 80, 82 and 83; and • Achieving well designed places and promoting healthy and safe communities (section 8), paragraph 97.
National Planning Practice Guidance – Renewable and low carbon energy **[313]**	Sets out relevant planning considerations for renewable and low carbon energy projects with particular planning considerations included for solar farms.
Selby District Core Strategy Local Plan, adopted 2013 **[314]**	Selby District Council's Local Plan sets out the priorities and spatial strategies for Selby. The Local Plan includes the following strategic policies relevant to the socioeconomics assessment: • Policy SP2 – Spatial Development Strategy • Policy SP5 – Green Belt • Policy SP13 – Scale and Distribution of Economic Growth • Policy SP15 – Sustainable Development and Climate Change • Policy SP17 – Low-Carbon and Renewable Energy • Policy SP18 – Protecting and Enhancing the Environment • Policy SP19 – Design Quality The assessment will take into account the policies of the Local Plan when assessing the socioeconomic impacts of the Proposed Development. This will be considered during the construction, operation, and decommissioning phases. Any future application for development consent will be supported by a Planning Statement, which will detail how the Proposed Development complies with all relevant national and local policy requirements.
Selby District Local Plan, adopted 2005 **[315]**	The Selby District Local Plan 2005 is a key planning document that outlines the strategic vision for development and land use within the former Selby District. Key saved polices include: • SG1 Strategic Countryside Gaps • RT1 Protection of Existing recreation Open Space and Allotments • RT5 Informal Recreation and Access in the Countryside • CS6 Development Contributions to Infrastructure and Community Facilities

17.2.4 Standards and guidance

Table 17-3 Socioeconomics - Standards and guidance

Standards and guidance	Relevance to assessment
Homes and Communities Agency Additionality Guide **[316]**	The assessment of employment effects will follow the approach set out in the Homes and Communities Agency (HCA) Additionality Guide (4th Edition), that provides guidance on assessing the additional impact of local economic interventions, taking into account the potential for leakage, displacement, and supply chain effects.
North Yorkshire and City of York Local Area Energy Plans **[317]**	The Plan was issued by the North Yorkshire County Council in 2022 with the purpose of supporting the region in meeting its net zero and carbon negative goals, enabling transition to an affordable and decarbonised energy system as well as supporting wider socioeconomic goals. The assessment will take the strategic economic context into account in the assessment of potential socioeconomic impacts during the during the construction, operation, and decommissioning phases.
Green Book: Central Government Guidance on Appraisal and Evaluation, HM Treasury, 2022 **[318]**	Chapter 5 sets out an approach for Social Cost Benefit and Cost effectiveness Analysis for assessing the impact of different options on social welfare.
Planning Inspectorate Technical Advice Page for Scoping Solar Development **[319]**	The Planning Inspectorate provides non-statutory guidance and advice on the scope of NSIP solar developments.

17.3 Consultation

17.3.1.1 The Applicant will consult with the following stakeholders with regards to socioeconomic effects as part of the assessment process and non-statutory and statutory consultation:

- North Yorkshire Council;
- West Yorkshire Combined Authority;
- Local communities, including access, recreation groups; and
- Local business groups, where relevant to the likely impacts of the Proposed Development and/or mitigation measures.

17.3.1.2 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the scoping opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to socioeconomics.

17.3.1.3 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

17.4 Study area

17.4.1.1 The study area for the socioeconomics assessment depends on the likely spatial extent of the effect under consideration. The study area for the socio-economics assessment changes dependent on the nature and type of receptor owing to the fact that the geographical area associated with each receptor type, as well as the nature and type of receptor, and the nature of the potential effect(s) on the receptor type. This will be expanded upon in the PEIR and ES.

17.4.1.2 Table 17-4 summarises the study areas considered for each receptor type that are taken into account.

Table 17-4 Study areas

Receptor type	Study area for direct effects	Study area for indirect effects
Employment, skills and training opportunities	Immediate authority area of North Yorkshire Council and the adjacent authority area of West Yorkshire within 30km of the draft Order Limits	
Local economy	Immediate authority area of North Yorkshire Council and the adjacent authority area of West Yorkshire within 30km of the draft Order Limits	
Local businesses	Receptors located within the draft Order Limits	Receptors located within 500m of the draft Order Limits
Community and recreational facilities	Receptors located within the draft Order Limits	Receptors located within 500m of the draft Order Limits
PRoW and other promoted recreational routes	Receptors located within the draft Order Limits	Receptors located within 500m of the draft Order Limits
Tourism accommodation and facilities	Receptors located within the draft Order Limits	Receptors located within 500m of the draft Order Limits
Development Land	Receptors located within the draft Order Limits	Receptors located within 500m of the draft Order Limits

17.4.1.3 Should key receptors beyond these initial geographical areas be identified through assessment work or through consultation with key stakeholders, these study areas would be reviewed.

17.4.1.4 For the purposes of this chapter, Direct effects can be defined as those which arise from activities associated with the Project. These tend to be either spatially or temporally concurrent. Indirect effects can be defined as impacts on the environment that are not a direct result of the Project, are often produced away from the Project or as a result of a complex pathway.

17.5 Baseline conditions

17.5.1 Desktop sources used

17.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Review of aerial imagery and mapping of the draft Order Limits and surrounding areas;
- Selby District Core Strategy Local Plan (adopted 2013) [314]
- Census data sourced from Nomis [320] and Office for National Statistics (ONS) [249]
- Ordnance Survey (OS) Open Greenspace [321]; and
- PRoW data [322] [323] [324].

17.5.1.2 Data gathering for the baseline is ongoing and any additional datasets made available by the relevant Local Planning Authorities (LPAs) or other third-party stakeholders such as the tourism boards will be incorporated at PEIR and ES stage.

17.5.1.3 The baseline data at PEIR and ES stage will also benefit from a defined underground cable route corridor and the socioeconomic baseline will therefore be updated to take receptors in the revised draft Order Limits and associated study area into account.

17.5.1.4 The potential impacts arising from the Proposed Development are assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. The key indicators and measures of the areas will be established for:

- Population and deprivation;
- An overview of the local economies; and
- The local labour markets

17.5.2 Surveys undertaken and proposed

17.5.2.1 No surveys are considered to be required in respect of potential socioeconomic effects.

17.5.3 Population

17.5.3.1 The population of the Selby District in which the Proposed Development is located, North Yorkshire, West Yorkshire, Yorkshire and the Humber Region and England were recorded at the 2021 Census and are shown in Table 17-5 below. The percentage change of the Population relative to the 2011 Census are also presented for these administrative areas.

Table 17-5 Population changes

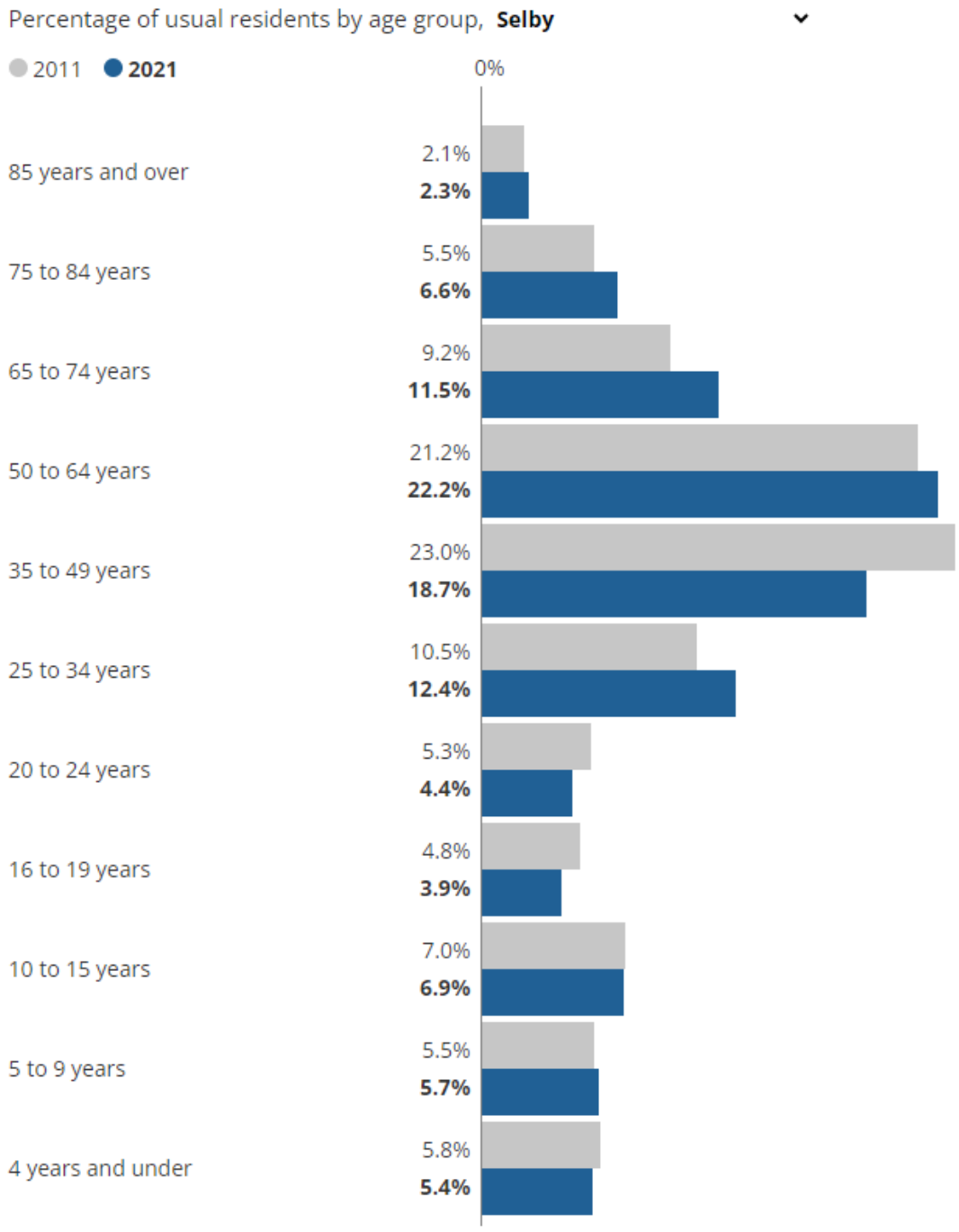
Administrative Area	Population (2021 Census)	Population change (2011-2021, %)
Selby District	92,000	10.2%
North Yorkshire	618,847	2.8%
West Yorkshire	2,350,000	6.0%
Yorkshire and the Humber	1,969,797	1.8%
England	59,597,000	6.3%

17.5.4 Age profiles

17.5.4.1 Between the 2011 Census and the 2021 Census the average age of Selby residents increased by two years, from 42 to 44 years of age. The area has a higher average age than Yorkshire and The Humber (40 years) and England (40 years).

17.5.4.2 Plate 17.1 below shows the age split of residents within Selby with the table showing the share of residents aged between 65 and 74 increased by 2.3% between 2011 and 2021 [325].

Plate 17.1 Age profile for Selby District



Source: Office for National Statistics – 2011 Census and Census 2021

17.5.5 Employment

17.5.5.1 From an employment perspective, the baseline will be focussed on the local economy including employment and supply chain, because it is expected that these aspects would be potentially affected, particularly during construction of the Proposed Development.

17.5.5.2 This section provides the baseline conditions for the following geographical areas:

- the former local authority of Selby District (data used for former districts as the district of Selby was used within the 2021 Census data before Selby District Council was abolished and replaced by North Yorkshire Council);
- the county of North Yorkshire;
- the county of West Yorkshire
- Yorkshire and the Humber region; and
- England.

17.5.6 Employment sector data

17.5.6.1 7.9% of the population in Selby were classed as income deprived in 2019. Of the 316 local authorities in England, Selby is ranked 235th most income-deprived.

17.5.6.2 The 2021 Census outlines that 59.9% of Selby residents are in employment (excluding full time students). This is lower than recorded in the 2011 Census (61.9%). As of the 2021 Census 1.9% of Selby residents are unemployed (excluding full time students). This has decreased since the 2011 Census (3.2%). The percentage of the Selby population classified as retired has increased from 22.9% in the 2011 Census to 25.3% in the 2021 Census.

17.5.6.3 Gross Value Added (GVA) per head within Selby is £21,868 which is slightly higher than the average within Yorkshire and Humber region (£20,494).

17.5.6.4 Table 17-6 below sets out the breakdown of employment sectors in which the 46,124 residents of Selby who are in employment work within [320].

Table 17-6 Selby Population Employment Sectors

Industry	Count	%
All usual residents aged 16 years and over in employment the week before the census	46,124	100
Agriculture, forestry and fishing	1,028	2.2
Mining and quarrying	65	0.2
Manufacturing	4,586	9.9
Electricity, gas, steam and air conditioning supply	653	1.4
Water supply; sewerage, waste management and remediation activities	433	0.9
Construction	4,309	9.3
Wholesale and retail trade; repair of motor vehicles and motorcycles	7,413	16.1

Industry	Count	%
Transport and storage	2,459	5.3
Accommodation and food service activities	1,827	4.0
Information and communication	1,519	3.3
Financial and insurance activities	1,510	3.3
Real estate activities	502	1.1
Professional, scientific and technical activities	2,990	6.5
Administrative and support service activities	2,249	4.9
Public administration and defence; compulsory social security	2,731	5.9
Education	4,320	9.4
Human health and social work activities	5,658	12.3
Other	1,875	4.1

17.5.7 Local businesses

17.5.7.1 Businesses tend to be clustered in town and village centres, with farms and other businesses such as farm shops located in more rural areas. Clusters of commercial properties have been identified using a desk-top study of the study area.

17.5.7.2 Recognising that the proposed underground cable route corridors are yet to be defined, Table 17-7 below seeks to identify a proportionate example of the local business receptors within the study area for Solar Development Sites 1 – 5 [326]:

Table 17-7 Commercial Receptors

Solar Development Site 1	Solar Development Site 2	Solar Development Site 3	Solar Development Site 4	Solar Development Site 5
Mount Pleasant Farm	Yorkshire Automotive Projects Ltd	Green Lane Farm	Bower's House Farm	Croft Farm
Manor Farm	West Riding Paper Services/ Brecks Farm	Meadow Farm	Woodyfuel Pellet & Chip Biomass	Lodge Farm
Bridge Farm	Lowfield Meadow	Bower's House Farm	Northfield Farm	Burn Lodge Farm
Thornhill Farm	Catnaps Cattery	Sandkim Farm	Maspin Grange Farm	Stocking Green Farm
Wrapped Brand Agency	Oak Tree Farm	Play Safe at the Pavilion	Woodhouse Farm	Brick Addict Toy Shop
G Headley Farm	Fryston Common Farm	Hillam House & Nurseries	Austops	Spraytrucks
JE Hartley Ltd	Monk Fryston Organics	Priory Roses Plan Centre at Hillam Nurseries	Autos and Sportos	Temple Manor Care Ltd

Solar Development Site 1	Solar Development Site 2	Solar Development Site 3	Solar Development Site 4	Solar Development Site 5
Wowgrass	Hagg Bush Farm		Hartley J E	CookiesPark4Dogs
Thorganby Farm Cottages	Green Lane Farm		Birkin Fisheries Tea Room	The Sloop Inn
Common Farm	Brecks Farm		Harewood Cattery	Adapt Automotive
Dryland Developments			Birkinj Butcher's Shop	Lupton Colin & Sons
				Crossroads Garage Selby

17.5.7.3 Receptors which interact with the Cable Corridor Options Area will be considered at PEIR and ES stage, once further refinement of this area has been undertaken.

17.5.8 Community and recreational facilities

17.5.8.1 Recognising that the proposed underground cable route corridors are yet to be defined, the following recreational and community facilities have been identified within 500m of Solar Development Sites 1-5:

- Yorkshire Gentleman's Cricket Club (Solar Development Site 1);
- Monk Fryston United Football Club (Solar Development Site 3);
- Hillam & Monk Fryston Community Sports Association (Solar Development Site 3);
- St Mary's Church and Cemetery, Birkin (Solar Development Site 4);
- Birkin Fisheries Tea Room, Birkin (Solar Development Site 4);
- Cemetery in Chapel Haddlesey (Solar Development Site 5);
- St John's Chapel, Temple Hirst (Solar Development Site 5); and
- St John the Baptist Church, Chapel Haddlesey (Solar Development Site 5).

17.5.8.2 Receptors which interact with the Cable Corridor Options Area will be considered at PEIR and ES stage, once further refinement of this area has been undertaken.

17.5.9 PRoW and other recreational routes

17.5.9.1 Recognising that the proposed underground cable route corridors are yet to be defined, Table 17.8 identifies the PRoW that trave travel through Solar Development Sites 1-5 [324]. The PRoWs within close proximity to Solar Development Sites 1-5 are shown on Figure 17.1: Public Rights of Way. National Cycle Network routes run within 5km of the Sites and are shown on Figure 17.1 [322] [323].

Table 17.8 PRoWs interacting with Sites 1-5

PRoW Reference	Description
Bridleway 35.67/6/1	Bridleway running through Solar Development Site 1 from Pallion Dike to Common Farm
Bridleway 35.28/1/1	Bridleway running through Solar Development Site 1 from Wheldrake Lake to Pallion dike
Footpath 35.28/3/1	Footpath running through Solar Development Site 1 from Skipwith Road to Low Cover Wood
Footpath 35.10/7/1	Footpath running through Solar Development Site 4 from Roe Lane to Hillam Common Lane
Footpath 35.10/2/1	Footpath running through Solar Development Site 4 from Woodhouse Farm to Gateforth Wood
Footpath 35.10/3/1	Footpath running through Solar Development Site 4 from Birkin Road to River Aire
Footpath 35.66/1/1	Footpath running through Solar Development Site 5 along Temple Drain

17.5.9.2 A number of PRoW intersect the Cable Corridor Options Area. These will be considered at PEIR and ES stage, once further refinement of this area has been undertaken.

17.5.10 Tourism accommodation and facilities

17.5.10.1 In 2019 Selby attracted 1.23 million day visitors bringing in a revenue of £29 million and 97,000 overnight visitors who generated £11 million in revenue. North Yorkshire attracted 30 million day visits bringing in a revenue of £914 million and 3 million overnight visitors who generated £623 million in revenue [327].

17.5.10.2 The Selby District has approximately 1,850 bed spaces (data taken from 2017) for visitors to the area [328].

17.5.11 Development Land

17.5.11.1 The Selby District Council Local Plan [314] includes a number of development land allocations within the proposed study area. These will be shown on a figure at PEIR and ES stage once sufficient GIS data has been sourced.

17.5.11.2 Within the study area includes land allocated for residential development, employment development and education development, as well as Open Space [329].

17.5.11.3 It is also acknowledged that the study area has the potential to interact with Inset No. 13 of the North Yorkshire Minerals and Waste Plan [330]. Further information on this will be provided at PEIR and ES stage following engagement with North Yorkshire Council.

17.6 Future baseline

17.6.1.1 Due to the short time period between assessment and probable construction if development consent is granted there is unlikely to be a notable change in the baseline conditions. Other developments will be identified through the cumulative assessment, as set out in Chapter 20: Cumulative effects of this EIA scoping report, and these will be

reviewed and any relevant changes taken into account. Where new development is expected to be delivered in line with allocated and planned development sites as set out above.

17.6.1.2 The population of the Selby District is projected to increase from its current level of 92,000 to 98,696 in 2030 [253].

17.7 Potential impacts

17.7.1 Construction

17.7.1.1 It is anticipated that the following receptor types may be impacted during the construction of the Proposed Development:

- Effects on employment, skills and training opportunities – in relation to training and supply chain opportunities;
- Potential temporary impacts on business, community and recreational receptors in relation to temporary access restrictions
- Potential temporary closure or diversions of PRoW or other promoted recreational routes; and
- Potential temporary impacts on development land allocations and mineral safeguarding zone(s).

17.7.1.2 Many of the impacts generated by the Proposed Development would be experienced during the construction phase and where possible, mitigation measures developed for construction effects (e.g., impacts on PRoW) would be designed in such a way that they provide the permanent design solution.

17.7.1.3 Mitigation measures would seek to bring about enhancements to receptors and some of these enhancements (e.g., provision of permissive paths) may be implemented post construction and therefore available into the operational phase of the Proposed Development.

17.7.2 Operation and maintenance

17.7.2.1 Many of the impacts generated by the Proposed Development are assumed to be felt in the construction phase only, or, where relevant, may be felt across construction and operation. Where this is the case, such as impacts on PRoW and mineral safeguarding zones where this would be felt during construction, this is not accounted for again here.

17.7.2.2 Operation of the Proposed Development may provide some employment opportunities to the local and wider regional market which would be a beneficial impact. Anticipated FTEs from the operation of the Proposed Development would be low.

17.7.2.3 Staff working on site and maintenance visits to the Proposed Development during operation would be minimal and would involve staff accessing the Proposed Development in a four-wheel drive vehicle or medium/large van. It is not known at present how many permanent FTE staff during the operational phase would be working at the sites. During the Proposed Development's operational phase, operational staff would travel to site by

four-wheel drive vehicle or medium/large van (LDV) to undertake routine inspection and maintenance. There are anticipated to be around five visits to the each of the Solar Development Sites per month in LDV vehicles. Impacts stemming from this to the local population are therefore likely to be limited with no negative impacts on local business operations.

17.7.2.4 Chapter 5: Air Quality outlines that there will be no significant air quality effects and therefore an air quality assessment is **scoped out** of the ES. Chapter 18: Traffic and Transport scopes out all operational assessment due to there being no expected significant effects. As outlined in Chapter 16: Noise and Vibration operational noise effects will be assessed in the ES to determine whether the effects are significant. Any significant noise effects would have a detrimental effect on the local population and may impact local businesses and facilities and would therefore be considered also as an interrelated impact in the socioeconomics assessment.

17.7.3 Decommissioning

17.7.3.1 It is anticipated that the potential impacts of the decommissioning of the Proposed Development would be similar to those identified for construction in relation to job creation and supply chain opportunities. Therefore, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality. This phase of the Proposed Development could alter/revert any changes made to PRoW where this brings beneficial impacts, specifically in relation to the provision of permissive paths.

17.7.4 Cumulative

17.7.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20: Cumulative and in-combination effects.

17.7.4.2 It is recommended that the following chapters are also referred to:

- Chapter 5: Agricultural Land and Soil Resources – in regard to impact on agricultural land and soils;
- Chapter 6: Air Quality – in regard to amenity effects on community receptors, tourism receptors, local businesses and users of PRoW;
- Chapter 14: Landscape and Visual – in regard to amenity effects on users of promoted recreational routes and Public Rights of Way (PRoWs);
- Chapter 16: Noise and Vibration - in regard to amenity effects on noise and vibration sensitive receptors. This includes residential and community receptors, local businesses, and users of promoted recreational routes and PRoWs; and
- Chapter 18: Traffic and Transport – in regard to impacts on the physical nature of changes to access, promoted recreational routes and PRoW.

17.7.4.3 At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment.

17.8 Design, mitigation and enhancement measures

17.8.1 Embedded measures

17.8.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2: Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a Design Vision and a series of corresponding Design Principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

17.8.1.2 Embedded measures can comprise modifications to the design of a scheme made during the pre-application phase that seek to avoid or minimise impacts, that are an inherent part of the design and do not require additional action to be taken. Therefore, embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

17.8.1.3 Embedded measures are also taken into account in the assessment of the likely significant effects.

17.8.1.4 Embedded measures for the Proposed Development relevant to socioeconomics are likely to include:

- Routing construction and operational vehicles away from local villages wherever possible.
- Introducing a reasonable buffer between residential dwellings and the nearest panels.
- Minimising impacts on definitive PRoW through the use of buffer zones and planting.
- Maintaining access to any community facilities and assets subject to any limitations from third parties.

17.8.2 Management plans

17.8.2.1 A suite a management plans will additionally be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to socioeconomics include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Decommissioning Environmental Management Plan (oDEMP);
- Outline Construction Traffic Management Plan (oCTMP); and
- Outline Landscape and Ecological Management Plan (oLEMP).

17.8.3 Further mitigation

17.8.3.1 Further mitigation are actions that require further site and project specific activity in order to achieve a reduction of a likely significant effect, and/or anticipated outcome. Further

mitigation for socioeconomic receptors will be defined through the PEIR and ES once the level of significance of effects is known.

17.9 Likely significant effects

17.9.1.1 The assessment will consider the construction, operation, and decommissioning of the Proposed Development. The likely significant effects identified below take into account the design, mitigation and enhancement measures described above. A summary of likely significant effects of the Proposed Development over the project phases is provided below.

17.9.1.2 Given the baseline environment, design principles and embedded measures, it is considered that the following receptors may be impacted during the construction, operation and/or decommissioning of the Proposed Development.

- Effects on employment, skills and training opportunities – in relation to training and supply chain opportunities;
- Potential temporary impacts on business, community and recreational receptors in relation to temporary access restrictions
- Potential temporary closure or diversions of PRoW or other promoted recreational routes; and
- Potential temporary impacts on development land allocations and mineral safeguarding zone(s).

17.9.2 Construction

17.9.2.1 In relation to employment and skills and supply chain receptors, construction of the Proposed Development has the potential to generate significant beneficial effects. It is therefore proposed that potential direct and indirect effects in relation to employment and supply chain are **scoped in** as part of the assessment.

17.9.2.2 In considering the embedded mitigation of ensuring that access is maintained at all times, the Proposed Development will have minimal impact on access to local businesses and community and recreational facilities and there is no potential for significant effects to occur. It is therefore proposed that direct and indirect construction effects on local businesses and community and recreational facilities is **scoped out** of the assessment.

17.9.2.3 The Proposed Development has the potential to significantly affect PRoWs and promoted recreational routes both negatively (e.g. disruption during construction and changing the character of the PRoWs) and positively (e.g. proposed new or extended routes). It is therefore proposed that direct and indirect effects on the PRoW network and other promoted recreational routes are **scoped in** as part of the assessment and opportunities will be explored to consider increased access and / or reinstatement of historical routes where appropriate.

17.9.2.4 As set out in Section 17.5, Selby attracts a very small proportion of the total number of day visitors (and wider tourist revenue) of the total for North Yorkshire. The Proposed Development is also not in close proximity to tourist sites which could be adversely affected by it. It is therefore proposed that direct and indirect effects on tourism facilities is **scoped out** of the assessment.

17.9.2.5 However, owing to the ambition of the Applicant to encourage the construction workforce to stay locally during the construction phase, it is proposed that direct and indirect effects on tourist accommodation is **scoped in** to the assessment.

17.9.2.6 The initial baseline identifies a number of development land allocations, including Open Space and Mineral Safeguarding Zone(s) within the study area. Impacts on farm businesses as a result of the Proposed Development are considered within Chapter 5: Agricultural land and soils. Given the indirect nature of any potential effects it is considered that this can be managed and mitigated through the committed management plans (e.g. oCEMP, oCTMP and oDEMP). It is therefore proposed that the assessment of direct impacts on development land allocations is **scoped in** to the assessment, but indirect effects on development land allocations is **scoped out** of the assessment.

17.9.2.7 Any wider effects on the amenity effects of local residents would be sufficiently dealt with by other assessment chapters (e.g. noise, visual and traffic and transport effects) and mitigated through the proposed management plans. It is therefore not considered necessary to undertake a specific amenity assessment as part of the socioeconomics chapter and it is therefore proposed these are **scoped out** of the assessment, considering both direct and indirect effects.

17.9.3 Operation

17.9.3.1 Many of the potential impacts on socioeconomic receptors would be first experienced during the construction phase and are therefore proposed to be **scoped out** of further assessment during the operation phase.

17.9.3.2 The operation phase has the potential to generate a limited amount of additional employment opportunities, as well as some local supply chain requirements; however, both the direct and indirect effects are not expected to be significant and therefore are proposed to be **scoped out** of further assessment.

17.9.3.3 The operation of the Proposed Development will have no impact on access to local businesses and community and recreational facilities and there is no potential for significant effects to occur. It is therefore proposed that direct and indirect effects on access to community facilities is **scoped out** of the assessment.

17.9.3.4 It is considered that potential effects on access to PRoW and recreational resources such as PRoW diversions would be felt during construction and as such, are not reported again or proposed to be assessed again during the operation phase. It is therefore that the direct and indirect access impacts of users of PRoW are **scoped out** of the assessment during operation.

17.9.3.5 However, the operational Proposed Development may alter the character of the PRoWs which would impact the user of the PRoW, and it is proposed that this will be assessed. The Proposed Development offers opportunities for enhancement of the PRoW network and the potential effects of such measures would be considered. It is therefore proposed that potential indirect effects on the amenity changes to the PRoW network are **scoped in** as part of the assessment during operation.

17.9.3.6 The potential impacts on development allocations will be reported on and assessed as part of the construction phase, and therefore it is proposed that these are not assessed again as

part of the operation phase. It is therefore proposed that direct and indirect impacts on these receptors are **scoped out** of the operational stage assessment.

17.9.3.7 It is not considered that there would be any impact to tourism accommodation and/or facilities during the operational stage of the Proposed Development, linked to the minimal workforce required during that time as outlined in paragraph 17.7.2.2 – 17.7.2.3. As such, it is proposed that direct and indirect impacts on these receptors are **scoped out** of the operational stage assessment.

17.9.3.8 In a similar way to the construction stage, any wider effects on the local population (amenity effects) during operation would be indirect and it is considered that such effects would be sufficiently dealt with in other assessment chapters, as well as being managed through commitments to be set out within the committed management plans. It is therefore proposed that wider indirect amenity effects are **scoped out** of the operational stage assessment.

17.9.4 Decommissioning

17.9.4.1 It is anticipated that the potential effects of the decommissioning phase of the Proposed Development would be similar to, or less than those identified for construction in relation to employment and supply chain opportunities, as well as access to commercial and community receptors. The phase could also alter any changes made to PRoW. As with the construction phase, it is proposed that the scope of the decommissioning stage assessment would include:

- potential direct and indirect effects in relation to employment and supply chain;
- direct and indirect effects on the PRoW network and other promoted recreational routes;
- direct and indirect effects on tourist accommodation; and
- direct impacts on development land allocations.

17.9.5 Cumulative

17.9.5.1 As stated at section 17.7.4.3 the assessment will consider the potential for cumulative effects, and where any likely significant cumulative effects are identified, further mitigation will be recommended to manage those effects to an appropriate level; the nature of the effect will determine any further mitigation required.

17.10 Proposed assessment methodology

17.10.1.1 An assessment of potential effects would be undertaken to consider the potential impact of the Proposed Development against the established baseline environment.

17.10.1.2 The significance of an effect is a function of the value or ‘sensitivity’ of the receptor and the ‘magnitude’ or ‘scale’ of the change or impact.

17.10.1.3 Given the lack of published guidance or significance criteria for the assessment of socioeconomic effects, the assessment would use bespoke methodology and significance criteria which has been used and tested on a number of other similar projects and subject

to examination. Our proposed approach would include an assessment of the likely scale, permanence and significance of effects associated with socioeconomic receptors.

17.10.1.4 Appropriate quantitative and qualitative significance criteria are defined below, based on professional judgement and accepted industry best practice and these criteria would be used to undertake the assessment of socioeconomic effects.

17.10.2 Employment, skills, training and local economy impacts

17.10.2.1 It is proposed that the assessment of employment effects during construction, operation and decommissioning is informed by data provided by the Applicant and based on staffing requirements of similar UK based projects. Assumptions would be made in relation to the proportion of the workforce who may be sourced from the immediate region and the Homes and Communities Agency (HCA) Additionality Guide [316] would be used to calculate leakage and displacement effects, providing a net direct employment estimate for the Proposed Development.

17.10.2.2 Indirect and induced effects would also be considered using ready reckoner figures from the HCA Additionality Guide.

17.10.3 Development land allocations

17.10.3.1 It is proposed that the assessment of potential effects on wider land use receptors, including development land and open space considers the potential direct and indirect effects during construction and decommissioning.

17.10.3.2 Receptors would be identified using both published datasets (see Section 17.5 above), as well as through consultation activities. The sensitivity of each receptor would be defined based on the criteria presented below and consideration given to any direct or indirect effects.

17.10.3.3 Professional judgement would be used to consider the potential effects and mitigation requirements considered where necessary.

17.10.4 Assessment Criteria

17.10.4.1 It is proposed that the following criteria are used in the assessment of socioeconomic effects to determine sensitivity, magnitude of impact and overall significance of effect. Moderate and major effects are to be considered as significant in EIA terms.

Table 17-9 Sensitivity or value of receptors

Sensitivity	Definition of sensitivity
High	• Businesses, individuals, groups of individuals, or other receptors possessing very significant economic, social and/or community value. • These receptors are considered very likely to incur a significant loss or gain as a result of potential changes in the environment, with little to no potential for substitution. For example: residential properties, a regional or national trail, directly affected business premises or community facilities.
Medium	• Businesses, individuals, groups of individuals, or other receptors possessing some significant economic, social and/or community value.

Sensitivity	Definition of sensitivity
	• These receptors are considered likely to incur some loss or gain as a result of potential changes in the environment, with limited potential for substitution. For example: a footpath or bridleway or land associated with a residential or business receptor.
Low	• Businesses, individuals, groups of individuals, or other receptors possessing some economic, social and/or community value. • These receptors are not considered likely to incur a loss or gain as a result of potential changes in the environment, with potential for substitution. For example: a permissive trail.
Negligible	• No change to business, individuals, groups of individuals or other receptors.

Table 17-10 Magnitude of impact

Sensitivity	Definition of sensitivity
High	• An adverse or beneficial effect that would be likely to result in total loss of an individual receptor or permanent changes to baseline situation for a large number of businesses, individuals or groups of individuals.
Medium	• An adverse or beneficial effect that would be very likely to result in partial changes to baseline situation for a moderate number of businesses, individuals or groups of individuals.
Low	• An adverse or beneficial effect that would be likely to result in minor changes to baseline situation for a small number of businesses, individuals or groups of individuals.
Negligible	• An adverse or beneficial effect that would be likely to result in little or no change to baseline situation for businesses, individuals or groups of individuals.

Table 17-11 Level of effects

Sensitivity					
Magnitude of impact		Sensitivity of receptor			
		High	Medium	Low	Negligible
	High	**Major**	**Major**	Moderate	Minor
	Medium	**Major**	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

17.10.4.2 The evaluation of significance is a product of the likelihood and consequence of each impact as set out in Table 17-11. Significant effects are generally defined as those that are of Moderate or Major significance. Significance conclusions for each effect will incorporate confirmed design and mitigation measures.

17.11 Assumptions, limitations and uncertainties

17.11.1.1 The socioeconomic assessment would rely largely on secondary data which is published by various third-party providers. The assessment is therefore based on data and a baseline situation at a point in time.

17.11.1.2 Decommissioning of the Proposed Development is likely to generate future effects on socioeconomic receptors, however, the scale of these impacts is not possible to quantitatively assess at this stage given uncertainties in relation to the exact nature of the activity given the timescales and potential evolution of decommissioning processes over the lifetime of the Proposed Development. Effects during the decommissioning phase are therefore assumed to be similar to those likely to be experienced during construction of the Proposed Development as a worst-case.

17.12 Summary

Table 17-12 Socioeconomic scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Employment and supply chain effects	Construction	Scoped in	N/A
	Operation	Scoped out	As discussed within section 17.7 and 17.9, while some employment opportunities are expected for the operational period, these are expected to be limited in number.
	Decommissioning	Scoped in	N/A
All other socio-economic effects related to the local population (amenity effects)	All	Scoped out	As discussed in section 17.7 and 17.9, effects on amenity would be assessed in other technical chapters.
PRoW and recreational routes	Construction	Scoped in	N/A
	Operation	Scoped out	It is considered that potential effects on access to PRoW and recreational routes such as PRoW diversions would be felt during construction
	Decommissioning	Scoped in	N/A
Land Use – potential indirect effects on commercial receptors, community facilities and development land.	All	Scoped out	As discussed in section 17.7 and 17.9 effects on commercial and community facilities are expected to be minimal.
Land Use – Development land and allocations	Construction	Assessment of direct impacts on development	Indirect effects can be managed and mitigated through the committed management plans (e.g. oCEMP, oCTMP and oDEMP).

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
(including mineral resource)		land allocations is scoped into the assessment, but indirect effects on development land allocations is scoped out of the assessment.	
	Operation	Scoped out	Reported and assessed as part of the construction stage.
	Decommissioning	Scoped out	Reported and assessed as part of the construction stage.
Effects on tourism facilities	All	Scoped out	As discussed in section 17.7 and 17.9, given the lack of tourist sites in the vicinity, the Proposed Development is not expected to result in significant effects on tourism.
Effects on tourist accommodation	Construction	Scoped in	N/A
	Operation	Scoped out	It is not considered that there would be any impact to tourism accommodation and/or facilities during the operational stage of the Proposed Development, linked to the minimal workforce required during that time
	Decommissioning	Scoped in	N/A

18. Traffic and movement

18.1 Introduction

18.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2 The Proposed Development, in respect of traffic and movement.

18.1.1.2 It sets out traffic and movement receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation including maintenance and decommissioning.

18.1.1.3 The following aspects have been considered as part of the scope and methodology for traffic and movement:

- Severance;
- Driver and pedestrian delay;
- Non-motorised user amenity;
- Fear and intimidation; and
- Hazardous loads/ large loads.

18.1.1.4 Public Rights of Way (PRoW) are assessed in Chapter 17: Socioeconomics of this EIA scoping report.

18.1.1.5 This chapter is supported by the following figures:

- Figure 18.1 Traffic Count Routes
- Figure 18.2 Bus and Rail Stations

18.1.1.6 This chapter should be read in conjunction with:

- Chapter 1: Introduction;
- Chapter 2: The Proposed Development; and
- Chapter 17: Socioeconomics.

18.2 Relevant legislation, policy, standards and guidance

18.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for traffic and movement and have informed the scope of the assessment.

18.2.2 Legislation

Table 18.1 Traffic and movement - Legislation

Legislation	Relevance to assessment
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[331]**	5(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under [any law that implemented] Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape; (e) the interaction between the factors referred to in sub-paragraphs (a) to (d). Changes to traffic and movement flows as a result of the Proposed Development may result in effects on air and climate, population and human health, biodiversity, air and climate and materials assets and cultural heritage aspects. Therefore, the potential changes to traffic and movements as result of the Proposed Development are considered relevant to the assessment.

18.2.3 Policy

Table 18.2 Traffic and movement - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 **[332]**	Section 5.14 (traffic and transport) is relevant to this chapter of the scoping report and provides detail of what should be included in this part of this assessment.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 **[333]**	Section 2.10 details solar photovoltaic guidance. EN-3 should be read in conjunction with EN-1. Paragraph 2.7.8 to 2.7.12 and details the transport infrastructure required to support renewable energy infrastructure which may influence site selection and designs. It is stated that government policy encourages multi-modal transport and it is expected that applications will transport materials by water or rail routes wherever possible, with road transport expected where this is not feasible or for shorter journeys. Paragraphs 2.10.120 to 2.10.127 are relevant to this chapter as details of the construction traffic and transportation noise and vibration are discussed.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2024 **[334]**	Addresses policy for energy transmission. EN-5 does not include further requirements for traffic and movement, beyond those general requirements for good design for the design and siting of substations in accordance with the Horlock Rules.
National Planning Policy Framework (NPFF), 2023 **[335]** (Currently under review/	Section 9 is relevant to this chapter of the scoping report as details on promoting sustainable transport are outlined. Section 9 outlines that transport issues should be considered

Policy	Relevance to assessment
consultation, including aspects of the traffic and movement section)	from the earliest stages of plan-making and development proposals to ensure that potential impacts of development on the transport network, opportunities from existing or proposed transport infrastructure can be realised, opportunities to promote sustainable modes of travel can be encouraged and that the environmental impacts of traffic and transport can be identified. This section also identifies that applications for development should: follow the transport hierarchy, address the needs of people with disabilities, create safe secure and attractive places, allow for the efficient delivery of goods and access by service and emergency vehicles and be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
National Planning Practice Guidance (NPPG) **[336]**	Paragraph 111 of the National Planning Policy Framework sets out that all developments that generate significant amounts of transport movement should be supported by a Transport Statement or Transport Assessment.
Selby District Core Strategy Local Plan, adopted 2013 **[337]**	The Core Strategy Plan outlines the vision and aims for the Selby District. Section 3.5 outlines the key objectives with object 3 relating to transport: 'Concentrating new development in the most sustainable locations, where reasonable public transport exists, and taking full account of local needs and environmental, social and economic constraints'.
Selby District Local Plan. adopted 2005 **[338]**	The Development Plan for the Selby District comprises the Core Strategy adopted in 2013, and the Selby District Local Plan adopted in 2005. A new Local Plan is in development. The Core Strategy policies aim to reduce greenhouse gas emissions and protect resources, whilst providing opportunities to exploit realistic alternatives to 'fossil fuels' by promoting renewable energy.
The Environmental Improvement Plan (EIP) **[339]**	The Environmental Improvement Plan is a 25-year plan that looks to improve all parts of the environment including traffic related air quality.

18.2.4 Standards and guidance

Table 18.3 Traffic and movement - Standards and guidance

Standards and guidance	Relevance to assessment
IEMA Guidelines for the Environmental Assessment of Road Traffic (2023)	The IEMA guidelines provide thresholds and standards for measuring the traffic and transport impacts of a development.
The Design Manual for Roads and Bridges, National Highways	Provides requirements and advice documents relating to works on motorway and all-purpose trunk roads in the UK.
DLUHC Guidance: Transport Evidence Bases in Plan Making and Decision Taking (2015) **[340]**	Guidance to help local planning authorities assess and reflect strategic transport needs in Local Plan making. It advises that the existing transport situation and likely generation of trips should be assessed, alongside the impact on the locality in social, economic and environmental terms. Facilities that support sustainable modes of travel in proximity to the site and opportunities to reduce the need for travel should be

Standards and guidance	Relevance to assessment
	promoted where appropriate. Considerations should also be made regarding the cumulative impacts of existing and proposed developments on the transport network and the quality and capacity of transport infrastructure.
DLUHC Guidance: Travel Plans, Transport Assessments and Statements (2014) **[341]**	Provides advice on when Transport Assessments and Transport Statements are required, and what they should contain. Information regarding the proposed transport access and information on the existing functional classification of the nearby road network for the proposed development should be included in assessments and statements. Data about existing public transport provision, current traffic flows, proposed trip calculations for the proposed development and injury accident records on the nearby public highways should also be included in these documents. Measures and ways to improve the accessibility of the location and encourage environmental sustainability by reducing the need to travel are also important features in assessments and statements. Travel Plans should identify the specific required targets, measures and outcomes as well as set out clear future monitoring and management arrangements. Benchmark travel data, relevant information on existing travel habits in the area and proposals to reduce the need for travel are three key aspects of Travel Plans. Travel Plans should set out explicit outcomes rather than solely identifying processes to be followed. All journeys results from a proposed development should be included in these plans.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[342]**	The Planning Inspectorate provides non-statutory guidance on the scoping of NSIP solar projects. For traffic and transport it proposes information should be supplied on the following: • *Anticipated vehicle movements, type and duration.* This information is provided in the 'Potential impacts' section below. • *Anticipated vehicle routing and access.* This information is discussed further in the 'Potential impacts' section below. • *Whether alternative transport will be used, for example canal, railway.* Alternative transport methods may be considered, if appropriate. • *Characterisation of the local road network and existing traffic movements, for example quiet rural roads or busy strategic network, existing congestion issues, any weight or height restrictions.* Further information on this is provided in the 'Baseline conditions' section below. • *Likelihood of exceedance of relevant thresholds set out in the appropriate guidance on the need to undertake an assessment of effects (for example IEMA guidance).* IEMA guidance has been followed and a conclusion on effects is identified in the 'Likely significant effects' section below. **Evidence and assumptions provided in this chapter:** Evidence relied upon in scoping out aspects of the assessment are provided within Section 18.7 and 18.8. Scoped out aspects

Standards and guidance	Relevance to assessment
	and associated assumptions are listed in one location within section 18.10. **Mitigation and commitments register:** Section 18.7 provides further details of the proposed mitigation measures taking into account the above examples, as may be relevant. The Commitments Register at Appendix 2.1 provides the mitigation proposed and relied upon based on the scope of the assessment presented in this chapter.

18.3 Consultation

18.3.1.1 National Highways has been consulted as a key stakeholder relevant to traffic and movement. This includes:

- A meeting was held with NH on the 22 August 2024, introducing NH to the project and outlining the proposed study area.
- At the time of the meeting, no traffic surveys had been carried out and the proposed trip generation resulting from the Proposed Development had not been calculated. Discussions however concluded that operational impacts were likely to be negligible based on previous solar farm experience, with minimal trip generation resulting from this phase.
- The main area of interest to NH was the cumulative impacts during construction and decommissioning, particularly at Junction 34 of the M62.
- Based on the information available at the time of the meeting, it was noted that there was unlikely to be any direct impact on the Strategic Road Network (SRN) as all access locations were located on the Local Road Network. It was however noted that as the cable routes were unknown, it was possible that cable works may be required on the SRN. It was therefore agreed that further consultation with NH on the cable corridors may be required.

18.3.1.2 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the Scoping Opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to transport.

18.3.1.3 A period of non-statutory consultation commenced on 24 October and will run over a six week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

18.4 Study area

18.4.1.1 The Proposed Development is located south of York. The Solar Development Sites and the Grid Connection Corridor Options are shown in Figure 1.1: Site Location and Draft Order Limits.

18.4.1.2 The Proposed Development is split into five sites, with Solar Development Site 1 being the northernmost parcel, situated in Escrick. Solar Development Site 1 is located on Skipwith Road approximately 900m southeast of the A19.

18.4.1.3 The west parcels (Solar Development Sites 2 and 3) are situated east of Monk Fryston, around 15.5km southeast of Escrick. Solar Development Site 2 borders the east-bound carriageway of the A63, approximately 1.4km east of the junction of Water Lane and the A63 in Monk Fryston.

18.4.1.4 Solar Development Site 2 is located approximately 3.5km northeast of Monk Fryston Substation.

18.4.1.5 Solar Development Site 3 is located approximately 850m to the south-east of the junction of Hillam Lane, Lumby Hill and Chapel Street in Hillam.

18.4.1.6 Solar Development Site 4 is located approximately 280m northeast of the junction of Main Street, Roe Lane and Haddlesey Road in Birkin. Solar Development Site 4 is located approximately 4km east of Monk Fryston substation.

18.4.1.7 Solar Development Site 5 is situated in close vicinity to Chapel Haddlesey. Solar Development Site 5 is the southernmost site, located approximately 500m east of the Chapel Haddlesey at the junction with the A63 and approximately 388m north-west of the junction of Common Lane and Hirst Road in Temple Hirst. The Grid Connection Corridor Options pass in broad areas between Solar Development Sites 1-5.

18.4.1.8 Due to the nature of the Proposed Development, the traffic and movement assessment will consider routes on the surrounding highway network which could potentially be impacted by trips from the Proposed Development.

18.4.1.9 It should be noted that at the time of writing, no access routes have been confirmed however for the purpose of scoping, the initial study area has been defined based on professional judgement as to those routes that may be used by construction traffic.

18.4.1.10 Vehicles may access the Proposed Development using the following strategic roads:

- A1;
- A19;
- A62;
- A63;
- A64;
- A162;
- A645; and
- M62.

18.4.1.11 Local roads that may be used for access within the vicinity of the draft Order Limits include:

- Austfield Lane;
- Birkin Road;
- Carr Lane;
- Eastfield Lane;
- Fox Lane;
- Fryston Common Lane;
- Haddlesey Road;
- Hillam Common Lane;
- Main Street;
- Roe Lane;
- Skipworth Road; and
- Wheldrake Lane.

18.5 Baseline conditions

18.5.1 Desktop sources

18.5.1.1 The following online sources have been used to inform the existing baseline conditions of the study area:

- Google Maps;
- NH WebTRIS data; and
- CrashMap UK road safety data.

18.5.2 Surveys undertaken and proposed

18.5.2.1 No surveys have been completed at the time of writing.

18.5.2.2 The following surveys are planned to be undertaken, and will inform the PEIR and ES:

- Traffic count surveys on the roads where no desktop data is available.

18.5.3 Existing baseline

18.5.3.1 The Proposed Development is located in a rural area, with the five panel areas located between Monk Fyrston, Hambleton and Escrick, covering an area of approximately 1066ha.

18.5.3.2 The surrounding Strategic Road Network (SRN) is comprised of the A19 to the west of Solar Development Sites 1 and 5, the A64 to the north and the M62 to the south of the

Proposed Development. Whilst the SRN is busy, the local highway network consists of mostly quiet rural roads. The local highway network serving the Proposed Development can be described as follows:

- Solar Development Site 1: Escrick
  - The local transport network consists of Wheldrake Lane which is located along the north of the site and Skipworth Road located along the west side of the site. There is an existing, unnamed track that runs through the centre of the site and provides access to Mount Pleasant farm and joins onto Wheldrake Lane and Skipworth Road. It should be noted that there are several weight restrictions including along parts of Skipworth Road and Weldrake Road which will be considered in the site access plans.
- Solar Development Sites 2 and 3: Siddle and Fryston
  - The local transport network consists of Fryston Common Lane which cuts through the north of Solar Development Site 2. The A63 runs parallel to the southern boundary of Solar Development Site 2 with an unnamed road running vertically through the centre of the site connecting to the A63 and Fryston Common Lane. The A63 provides connection between the A1(M) and Selby.
  - Hillam Common Lane runs along the northern perimeter of Solar Development Site 3 with Woodlands Lane running along the south.
- Solar Development Sites 4 and 5: Birkin and Chapel Haddlesey
  - The local transport network for Solar Development Site 4 consists of Roe Lane and Haddlesey Road which are located in the western and southern areas of the Site respectively.
  - The local transport network for Solar Development Site 5 consists of Fox Lane to the east, which provides a connection to the A19 and Eastfield Lane which splits the site in two and also provides a direct connection to the A19.
- Grid Connection Corridor Options:
  - The Cable Corridor Options are indicative and will be refined in response to environmental and technical factors as identified as part of the EIA process, as well as discussions with landowners and as a result of consultation feedback.
  - Access to all the Cable Corridor Options would be via the same local and strategic road network routes identified for access to the Solar Development Sites.

18.5.4 Accidents and safety

18.5.4.1 Accident data, taken from Crashmap has been reviewed for the years 2019-2023. No serious clusters of accidents are present. One serious collision occurred in 2018 at the junction on Weldrake Road where Solar Development Site 1 may be accessed from.

18.5.4.2 There have been no fatal accidents present within the draft Order of Limits on the local roads. In the last five years, there have been two serious accidents on Weldrake Road; a potential access road to Solar Development Site 1. There has also been one serious accident on Hillam Common and several along the A63 in the last five years. There have been multiple fatal accidents along the surrounding SRN.

18.5.5 Existing active travel facilities

18.5.5.1 Public Rights of Way (PRoW) run through the draft Order Limits at Solar Development Site 1 and Site 5 (PRoW herein are defined as National Trails, National Cycle Network Routes and definitive PRoW as per the definitive PRoW map).

18.5.5.2 National Cycle Network Route 65 is located approximately 2km to the west of Solar Development Site 1. National Cycle Network Route 62 is located adjacent to Solar Development Site 5.

18.5.5.3 These features are illustrated on Figure 18.1: Traffic Count Routes.

18.5.6 Existing public transport facilities

Solar Development Site 1

The closest bus stops are the Church Cottage bus stops which are located on the A19, around 100m north of the junction connecting the A19 to Escrick via Skipworth Road. The 415 bus stops at Church Cottage, taking passengers between York and Selby, running every 15 minutes.

Solar Development Site 2

18.5.6.1 The closest bus stops to the site are the Brecks Farm Lane End bus stops, located on the A63. Both the number 64 and 164 can be accessed at this stop. The Number 64 bus operates every two hours, taking passengers between Selby and Sherburn. The 164 runs from Selby to Leeds, with two buses operating each hour.

18.5.6.2 The site lies in close proximity to two railway stations: Church Fenton and Sherburn-in-Elmet, 2.7km and 3.5km northwest of the Site respectively. Cross Country trains operate hourly services between Leeds and York, stopping at both stations.

Site 3

18.5.6.3 The closest bus stop to the site is the Cross Keys bus stop. Both the number 193 and the 496 buses stop here. The number 493 bus runs between Pontefract and Sherburn providing a service every two hours. The 496 provides two services an hour, connecting Wakefield to Upton.

Site 4

18.5.6.4 The closest bus stop to the site is Brecks Farm, located 2km to the northwest. Both the number 64 and 164 can be accessed at this stop. The Number 64 bus operates every two hours, taking passengers between Selby and Sherburn. The 164 runs from Selby to Leeds, with two buses operating each hour.

18.5.6.5 Located 5km southwest of the site, lies Knottingley Railway Station. Rail services to Leeds run every half hour from this station.

Site 5

18.5.6.6 The closest bus stop to the site is the Haddlesey Crossroads bus stop which is used by the 476 service, travelling between Selby and Pontefract on a limited (three times a day) service. Selby railway station is located approximately 6km from the site, providing multiple services to Hull and Leeds every hour, and an hourly service to York. A section of the East Coast Mainline railway runs through the middle of the site.

18.5.6.7 These features are illustrated on Figure 18.2 Bus and Rail Stations.

18.5.7 Future baseline

18.5.7.1 The future baseline of the draft Order Limits is expected to remain largely as outlined without the Proposed Development, with no significant changes to the transport network expected.

18.5.7.2 Traffic may grow in the future baseline scenario by applying TEMPro. This will be balanced in consideration with any committed developments which could alter baseline traffic flows. Data from committed developments, identified through discussions with NYCC, will be reviewed and may be incorporated into the future baseline scenario. Professional judgement will be made to avoid double counting (balancing TEMPro growth against the known committed developments) when developing the future baseline.

18.6 Potential impacts

18.6.1 Construction

18.6.1.1 The construction works are of a temporary nature (24-36 months), however, during this temporary period the traffic generated by the Proposed Development could have the following effects:

- severance (change in traffic flows);
- driver delay;
- pedestrian delay (incorporating delay to all non-motorised users);
- pedestrian and cyclist amenity (change in traffic flows on routes used by pedestrians and cyclists);
- fear and intimidation;
- accidents and safety; and
- hazardous loads/ large loads.

18.6.1.2 Access routes to the draft Order Limits have not been agreed at the time of writing this document. Roads that may be used by construction vehicles to access the Proposed Development have been included within the study area.

18.6.1.3 Access into each of the Solar Development Sites and the Cable Corridors would be required to facilitate construction. It is anticipated that access would be from existing

accesses wherever possible. The proposals will be discussed with the Local Highway Authority and relevant landowners as part of ongoing design and assessment work.

18.6.1.4 Trip generation during the construction phase will be calculated based on data from other similar sized solar developments. Construction trips would be distributed onto the network around the five Solar Panel Areas and Cable Corridors and are likely to therefore use different parts of the network and different access points. Given this context, it is considered highly unlikely that the Proposed Development would result in significant adverse effects as a result of vehicular traffic.

18.6.1.5 The highway context for all developments is different. However, it is noteworthy that none of the ESs for recently consented solar DCO projects have concluded that there would be any significant adverse transport effects, including Cottam Solar Project (600MW), Gate Burton Energy Park (500MW), Mallard Pass (350MW) and Sunnica (500MW). Three of these projects have the same or greater MW capacity as is proposed at Light Valley and therefore would likely have a similar number of components to be delivered to site.

18.6.1.6 Should further work identify the potential for significant effects, is it considered likely that these effects could be reduced to a non-significant level by securing measures through the Construction Traffic Management Plan (CTMP).

18.6.1.7 There is likely to be a small number of Abnormal Indivisible Load vehicles required to deliver components at the substations, but these movements would be managed to minimise impacts and significant effects are similarly highly unlikely to occur. It will be the responsibility of the operator of the abnormal load to notify the highway authority of any abnormal load delivery, and to follow the Department for Transport requirements.

18.6.2 Operation and maintenance

18.6.2.1 Based on evidence from solar farm developments elsewhere, it is forecast that when the Proposed Development is operational, a small number of maintenance trips are expected. During the Proposed Development's operational phase, there are anticipated to be around five visits to each site per month for maintenance purposes (less than one trip per day on average). These would typically be made by Light Goods Vehicle (LGV) or 4x4 type vehicles.

18.6.2.2 Components of the Proposed Development will need replacing during its operational lifetime. The solar PV modules are assumed to be replaced once and the batteries twice during the operational period. The effects of maintenance and replacement activities are anticipated to be no greater than the construction phase, and would be controlled and managed through appropriate management plans and by the requirements of the DCO.

18.6.2.3 Operational traffic is expected to be minimal, with occasional visits taking place by a handful of operatives. The majority of these trips will be by cars or vans rather than HGVs. Thus, it is expected that any operational impacts on traffic and movements will be minimal and similar to the baseline environment.

18.6.3 Decommissioning

18.6.3.1 It is assumed that the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, and BESS and all associated infrastructure

to 1.2m bgl; to be recycled or disposed of in accordance with good practice and processes at that time. Therefore, any cable connections within Cable Corridors would remain in place following decommissioning. It is expected that relatively minor decommissioning activities would require the removal of the likely small in scale above ground infrastructure in the form of manholes to allow access to the joint bay and link boxes.

18.6.3.2 Decommissioning of the Proposed Development could give rise to a similar or lower level of impact when compared to the construction phase.

18.6.3.3 A robust interpretation of the construction phase represents a worst-case scenario for decommissioning, and therefore can be used as a proxy for the decommissioning stage. Similar activities are expected to be undertaken and vehicle movements are not expected to exceed those required during construction. Therefore, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

18.6.4 Cumulative impacts

18.6.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20: Cumulative and in-combination effects.

18.6.4.2 Consideration will be given to nearby proposed developments which may add trips to the network and should therefore be considered in the cumulative scenario. The Applicant will agree which proposed developments will be included in this assessment in consultation with NYCC and NH. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment.

18.7 Design, mitigation and enhancement measures

18.7.1 Embedded measures

18.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2 Proposed Development, section 2.5). At the outset of this design process the Applicant has set out a design vision and a series of corresponding design principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

18.7.1.2 Embedded measures are modifications to the design of a scheme made during the pre-application phase, that are an inherent part of the design. Embedded measures seek to avoid or minimise impacts of the Proposed Development so that additional action is not required. Embedded measures may comprise or be informed by the Design Principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

18.7.1.3 Embedded measures for the Proposed Development relevant to transport and movement are likely to include:

- Implementing an outline Construction Traffic Management Plan (oCTMP) to detail and formalise the measures that will mitigate construction-related effects.
- Providing suitable points of access for construction vehicles;
- Providing sufficient protection/ separation between existing PRoW and construction routes where necessary;
- Restricting HGV movements and abnormal loads to certain routes; and
- Implementing Temporary Traffic Management (TTM) where required.

18.7.2 Management plans

18.7.2.1 A suite a management plans will additionally be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to traffic and movement include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Decommissioning Environmental Management Plan (oDEMP); and
- oCTMP.

18.7.2.2 These documents will specifically aim to reduce the impact of construction and decommissioning traffic on communities and the environment. Core objectives of these documents will include the routing of HGV vehicles and construction staff movements associated with the Proposed Development.

18.7.3 Further mitigation

18.7.3.1 Further mitigation is actions that require further activity in order to achieve a reduction in significance of effect, and/or anticipated outcome. Further mitigation for traffic and movement will be defined through the PEIR and ES once the level of significance of effects is known.

18.7.3.2 It is not considered that a Transport Assessment is likely to be required. The assessment within the PEIR and ES chapter will comprehensively consider the transport and movement effects as a result of the Proposed Development.

18.8 Likely significant effects

18.8.1 Construction

Severance

18.8.1.1 Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure. The term is used to describe a complex series of factors that separate people from place and other people.

18.8.1.2 To consider whether the potential change in traffic flows would have a severance effect, judgement has to be made on the magnitude of change in accordance with IEMA guidance and the sensitivity of receptors.

18.8.1.3 The IEMA guidance states that pedestrians are less sensitive to changes in traffic if there are adequate footways and crossing facilities. However, links where there will be high concentrations of sensitive locations (such as hospitals, schools and tourist attractions) are likely to be highly sensitive to changes in traffic flow unless there is separation from traffic.

18.8.1.4 Data from several other UK based solar farm planning applications has been obtained, which show that for the duration of the construction period, they generated an average of 18 HGVs per MW. Applying the construction period and proposed installation capacity (MW) results in an estimate that each solar PV module area could require approximately 6 construction (HGV) trips (12 two-way movements) per day, during the construction phase.

18.8.1.5 The Proposed Development is spread over five sites. The estimated numbers of HGV trips per day per Solar Development Site are shown below in Table 18.4.

Table 18.4 HGV trips per day per Site

Site	Construction Period (months)	Estimated HGV Trips per day
Solar Development Site 1	33	6
Solar Development Site 2	8	5
Solar Development Site 3	3	3
Solar Development Site 4	24	6
Solar Development Site 5	20	6

18.8.1.6 For the Proposed Development, the receptors are users of the roads (pedestrians, cyclists, bus passengers, car drivers and freight drivers) within the study area. The receptor sensitivity within the study area will be determined based on IEMA guidance.

18.8.1.7 The assessment thresholds, set out in Table 18.5, are based on changes in traffic flows set out on the links within the study area as stated in IEMA guidance.

18.8.1.8 Whilst baseline traffic flows are still unknown, severance is **scoped in** to the assessment. However, should the percentage change in flow fall in the negligible or no change threshold, severance will be **scoped out** of the assessment.

Table 18.5 Severance assessment thresholds

Magnitude of impact	Definition
High	More than 90% change in traffic flow
Medium	60% to 90%
Low	30% to 60%
Negligible	0% to 30%
No change	No change in traffic flows

Driver delay

18.8.1.9 The IEMA guidance note that driver delays are only likely to be 'significant' when the traffic in the network surrounding the development is already at, or close to, the capacity of the system.

18.8.1.10 The IEMA guidance does not define the magnitude of impact for driver delay. Therefore, for the purposes of this report, professional judgement will be used to determine the impact of driver delay, alongside consultation with the Council and NH and flow data.

18.8.1.11 During the construction phase, it is expected that there will be an average of 6 HGV deliveries per day (12 two-way movements) per Solar Development Site. Due to the size of the Proposed Development, further investigation into the impact of the increased traffic on the network will be needed to understand the impact on driver delay. Therefore, it is proposed that impacts of driver delay are **scoped in** to the construction assessment.

Pedestrian delay

18.8.1.12 The IEMA guidance does not define the magnitude of impact for pedestrian delay. Therefore, professional judgement has to be used to determine the impact of pedestrian delay. It is related to the changes in the traffic that may affect the ability of people to cross roads within the study area and is closely related to the effects of severance.

18.8.1.13 As severance will be **scoped in** to the assessment, it is not proposed that Pedestrian Delay be assessed separately. Consideration of impacts upon the PRoW network will be included within the Socioeconomic assessment (see Chapter 17: Socioeconomics).

Non-motorised user amenity

18.8.1.14 IEMA guidelines recommend pedestrian and cyclist amenity should be assessed where there is a significant increase in HGV flows on roads used by pedestrians and cyclists. Limited footway provision is available alongside the carriageways in the vicinity of the Proposed Development which are likely to be used for construction vehicles. This, combined with the fact that the change in traffic flows is expected to be low, means it is not anticipated that pedestrian and cyclist amenity on local roads would be significantly affected by the Proposed Development.

18.8.1.15 Additionally, routing would be established in the oCTMP to avoid the rural routes and villages with associated trips to the Proposed Development being assigned to the SRN, where possible.

18.8.1.16 It is acknowledged that pedestrian amenity on the PRoW network in the area may be affected, however this would be considered further in the population assessment of the EIA. Mitigation proposals will be developed through appropriate diversions and/or new routes.

18.8.1.17 Therefore, it is recommended that the assessment of pedestrian and cyclist amenity will be **scoped out** of further assessment as part of traffic and movement, however consideration of impacts upon PRoW will be included within the Socioeconomics assessment (see Chapter 17: Socioeconomics).

Fear and Intimidation

18.8.1.18 The receptors are users of the roads (pedestrians, cyclists, bus passengers, car drivers and freight drivers) within the study area. It is expected that the receptor sensitivity within the study area will be generally deemed to be low as there are residential areas and public land uses, but the roads have few direct frontage accesses and are expected to have capacity to accommodate change.

18.8.1.19 The IEMA guidance references the use of professional judgement to assess the accident and safety impacts. The review of baseline conditions did not identify any clusters of collisions within the study area and although access points have not yet been confirmed, it is expected that vehicular access into the Proposed Development will use established points of access off the public road network.

18.8.1.20 Given the low receptor sensitivity, baseline collision history and that there are no changes to the highway network layout, it is expected that any transport impacts on fear and intimidation will be minimal, and the topic should be **scoped out** of the assessment.

Hazardous loads/large loads

18.8.1.21 It is expected that the majority of construction traffic accessing the sites will fall into the 'normal' sized category (i.e. transit vans and HGVs). However, it is likely that there could be some abnormal load deliveries. If abnormal loads are required to access the site, the necessary permit will be sought from the Highway Authority.

18.8.1.22 Given that it would just be the occasional trip to deliver one off larger components of the substation, and that a licence would be required at that time, it is proposed that no further assessment of hazardous or abnormal loads is required, and the topic be **scoped out** in the transport and movement assessment.

18.8.2 Operation and maintenance

18.8.2.1 Operational traffic is expected to be minimal, with occasional visits taking place by a handful of operatives. There are anticipated to be around five visits to each panel site per month for maintenance purposes (less that one trip a day on average). These would typically be made by LGVs.

18.8.2.2 Components of the Proposed Development will need replacing during its operational lifetime. The solar PV modules are assumed to be replaced once and the batteries twice during the operational period. The effects of maintenance and replacement activities are anticipated to be no greater than the construction phase, and would be controlled and managed through appropriate management plans and by the requirements of the DCO.

18.8.2.3 The majority of trips during this period will be by cars or vans, rather than HGVs. Thus, it is expected that any operational impacts on traffic and movement will be minimal, and the topic is **scoped out** of the operational assessment.

18.8.3 Decommissioning

18.8.3.1 Decommissioning of the Proposed Development could give rise to the same level of forecast trip generation as the construction phase of the Proposed Development and as such the construction assessment provides a worst-case scenario for potential effects.

18.8.3.2 However, given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned in a manner that cannot be predicted at this early stage, it is not proposed that any further assessment of transport and movement be undertaken for the decommissioning phase.

18.8.3.3 Management and mitigation measures will be incorporated into an oDEMP, which will set out the general principles to be followed in the decommissioning of the Proposed Development, including principles of traffic management.

18.8.3.4 The oDEMP will set out how vehicle access to and from the Proposed Development will be managed, and it is expected that the principles agreed to minimise disruption during construction will be reviewed and applied during decommissioning.

18.8.3.5 Therefore, traffic and movement effects during decommissioning are **scoped out** of the assessment.

18.8.4 Cumulative effects

18.8.4.1 As stated at section 18.6.4.1 the assessment in PEIR and ES will consider the potential for cumulative effects. Consideration will be given to nearby proposed developments which may add trips to the network and should therefore be considered in the cumulative scenario, alongside traffic growth in the future baseline scenario which will be considered by applying TEMPro. The Applicant will agree which proposed developments will be included in this assessment in consultation with NYCC and NH.

18.9 Proposed assessment methodology

18.9.1.1 Based on a review of baseline conditions, and the initial consideration of likely effects, it is proposed that further assessment with regards to traffic and movement on severance and driver delay during the construction phase of the Proposed Development will be **scoped in.**

18.9.1.2 The traffic and movement assessment will consider severance and driver delay during construction in accordance with the IEMA guidelines.

18.9.1.3 The traffic and movement chapter will include information on baseline transport conditions, a qualitative and quantitative description of the travel characteristics of the Proposed Development, including movements across all modes of transport that would result from the Proposed Development, and measures to manage trips to the Proposed Development.

18.9.1.4 Severance will be assessed using the thresholds set out in Table 18.5, based on the percentage change of traffic flows on the study area resulting from construction traffic for the Proposed Development.

18.9.1.5 Driver Delay will be assessed using professional judgement, and consultation with the Council and NH's as well as a review of flow data to determine whether or not the construction traffic from the Proposed Development will have a significant effect on baseline driver delay.

18.9.1.6 Further discussions with NH and North Yorkshire Council are required to confirm whether both stakeholders agree with the proposed scope for traffic and movement for the ES.

18.9.1.7 An oCTMP will also be developed, which will provide further information on construction worker movements.

18.10 Assumptions, limitations and uncertainties

18.10.1.1 This EIA scoping report chapter has been collated based on a range of publicly available data and information only. It is assumed that the data collated is accurate. The data will be supplemented with additional data as part of the EIA process. It is assumed that the data, information, and sources obtained from all organisations, institutions, bodies, or individuals is accurate at the time of its acquisition and/or consultation. Furthermore, the assumption is made that all citations are correct and have been applied by the original author as applicable. The assumption is made that where any information has been obtained from respected open-source repositories, these sources were accurate at the time of consultation and all citations, copyright, and distribution requirements are correct and clearly communicated.

18.10.1.2 The traffic forecast will be informed by construction trip rates from the Applicant.

18.10.1.3 It is expected that the majority of construction traffic accessing the sites will fall into the 'normal' sized category (i.e. transit vans and HGVs). However, it is likely that there could be some abnormal load deliveries. If abnormal loads are required to access the site, the necessary permit will be sought from the Highway Authority.

18.10.1.4 The impact of the Proposed Development on the PRoW network will be addressed in the Socioeconomics assessment (see Chapter 17 Socioeconomics).

18.11 Summary

Table 18.6 Traffic and movement scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Severance	Construction	Scoped in	N/A
	Operation	Scoped out	There are anticipated to be around five visits to each Solar Development Site per month for maintenance purposes (less that one trip a day on average). These would typically be made by LGVs. Thus, it is expected that any operational impacts on traffic and movement will be minimal, and the topic is **scoped out** of the operational assessment.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
			The full justification for scoping out this aspect is provided in Section 18.8.
	Decommissioning	Scoped out	Given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned in a manner that cannot be predicted at this early stage, it is not proposed that any further assessment of transport and movement is undertaken for the decommissioning stage. The full justification for scoping out this aspect is provided in Section 18.8.
Driver and pedestrian delay	Construction	Scoped in	N/A
	Operation	Scoped out	There are anticipated to be around five visits to each Solar Development Site per month for maintenance purposes (less that one trip a day on average). These would typically be made by LGVs. Thus, it is expected that any operational impacts on traffic and movement will be minimal, and the topic is **scoped out** of the operational assessment. The full justification for scoping out this aspect is provided in Section 18.8.
	Decommissioning	Scoped out	Given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned in a manner that cannot be predicted at this early stage it is not proposed that any further assessment of transport and movement is undertaken for the decommissioning stage. The full justification for scoping out this aspect is provided in Section 18.8.
Pedestrian and cyclist amenity	All	Scoped out	Mitigation proposals will be developed where necessary, addressing pedestrian and cyclist amenity and through appropriate diversions and/or new routes will be established. Due to limited footway provision along carriageways in the vicinity of the Proposed Development, alongside expected low traffic flows it is recommended that the assessment of pedestrian and cyclist amenity will be **scoped out** of further assessment as part of traffic and movement, however consideration of impacts upon PRoW will be included within the Socioeconomics assessment. The full justification for scoping out this aspect is provided in Section 18.8.

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects)
Fear and intimidation	All	Scoped out	Given the low receptor sensitivity, baseline collision history and that there are no changes to the highway network layout, it is expected that any transport impacts on fear and intimidation will be minimal and the topic should be **scoped out** of the assessment. The full justification for scoping out this aspect is provided in Section 18.8.
Accidents and safety	All	Scoped out	Given the low receptor sensitivity, baseline collision history and that there are no changes to the highway network layout, it is expected that any transport impacts on fear and intimidation will be minimal, and the topic should be **scoped out** of the assessment. The full justification for scoping out this aspect is provided in Section 18.8.
Hazardous loads/ large loads	All	Scoped out	Given that it would just be the occasional trip to deliver one off larger components of the substation, and that a licence would be required at that time, it is proposed that no further assessment of hazardous or abnormal loads is required, and the topic be **scoped out** in the transport and movement assessment. The full justification for scoping out this aspect is provided in Section 18.8.

19. Water Resources and Flood Risk

19.1 Introduction

19.1.1.1 This chapter outlines the scope and methodology for the assessment of the likely significant effects arising from the Proposed Development, as described in Chapter 2, in respect of water resources and flood risk.

19.1.1.2 It sets out water resources and flood risk receptors of relevance, and the approach to the assessment of the Proposed Development's impacts during construction, operation and decommissioning.

19.1.1.3 The following aspects have been considered as part of the scope and methodology for water resources and flood risk:

- Topography, soils, land use and climate;
- Surface water;
- Groundwater;
- Compliance with Water Environment Regulations (WER) (formerly referred to as the Water Framework Directive (WFD));
- Water resources; and
- Flood risk.

19.1.1.4 This chapter is supported by:

- Figure 19.1: Surface water features;
- Figure 19.2: Bedrock geology;
- Figure 19.3: Superficial geology;
- Figure 19.4: Groundwater designations;
- Figure 19.5: Surface water bodies;
- Figure 19.6: Groundwater bodies;
- Figure 19.7: Abstractions and discharges;
- Figure 19.8: Risk of flooding from surface water;
- Figure 19.9: Risk of flooding from rivers and seas;
- Figure 19.10: Risk of flooding from reservoirs; and
- Figure 19.11: Susceptibility to groundwater flooding.

19.1.1.5 This chapter should be read in conjunction with:

- Chapter 1: Introduction;

- Chapter 2: The Proposed Development;
- Chapter 7: Biodiversity: Designated protected sites that may be dependent on surface water or groundwater, or could be impacted by changes to the water environment from the Proposed Development;
- Chapter 8: Climate change resilience: inter-relationship with climate change effects on the water environment; and
- Chapter 13: Ground conditions: Land contamination that may be mobilised by the Proposed Development and subsequently impact the water environment.

19.2 Relevant legislation, policy, standards and guidance

19.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for water resources and flood risk and have informed the scope of the assessment.

19.2.2 Legislation

Table 19-1 Water resources and flood risk - Legislation

Legislation	Relevance to assessment
Environment Act, 2021 **[343]**	The Environment Act 2021 includes binding targets on water quality.
The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017 **[344]**	The Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017, transpose into English and Welsh law the Water Framework Directive 2000/60/EC and contain provisions to protect rivers, lakes, estuaries, coastal waters and groundwater. The regulations remain in force following the UK's withdrawal from the European Union. These regulations provide for protection of all types of water bodies and include environmental objectives, compliance parameters to be assessed and bring in the protection of areas with specific requirements such as shellfish waters for example. These requirements underpin the impact assessment for the water environment.
Conservation of Habitats and Species Regulations, 2017, as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019 **[345]**	The regulations provide for the designation and protection of important habitats and species as part of the National Site Network (NSN). The protection of water dependent NSN sites also forms part of the requirements established under the Water Environment (Water Framework Directive) (England and Wales) Regulations, 2017. The regulations remain in force following the UK's withdrawal from the European Union. The 'Dutch Nitrogen Case' ruled that where an internationally important site (i.e. Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar Sites) is failing to achieve the required condition due to nutrient pollution, the potential for a new development to add to the nutrient load is 'necessarily limited'. This has informed the way in which the regulations apply to pollution related pressures and incidents, and informs the assessment regarding sensitivity of water environment receptors.

Legislation	Relevance to assessment
Environmental Permitting (England and Wales) Regulations, 2016 **[346]**	These regulations are intended to manage and reduce pollution from certain industrial activities through permitting. These regulations are relevant as they set out the requirements in relation to environmental permits, including for discharges into the water environment.
Flood and Water Management Act, 2010 **[347]**	The Flood and Water Management Act relates to the management of risks related to flooding and coastal erosion. The aim is to reduce the risk of flooding due to extreme weather events, which are likely to increase as a result of cli-mate change. These regulations are relevant because they require design to con-sider changes to flood risk.
The Flood Risk Regulations, 2009 **[348]**	Outlines requirements for the assessment of existing flood risk and the need to design new developments to ensure that they are safe from flooding and do not increase flood risk for surrounding receptors and transposes the Floods Directive 2007/EC/60 into law in England and Wales.
Water Resources Act, 1991 **[349]**	The Water Resources Act makes it an offence to cause or knowingly permit polluting, noxious, poisonous or any solid waste matter to enter controlled waters. It also establishes regulatory controls for water abstraction, water impoundment and protection of water resources
Land Drainage Act, 1991 **[350]**	The Land Drainage Act, 1991, identifies the responsible parties for the management and maintenance of land drainage including maintaining flows in watercourses. It provides relevant authorities with the powers to ensure landowners carry out works to maintain flows within watercourses and obtain the relevant consent(s) as required. This is relevant to design that could affect flows in Ordinary Watercourses.
Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[351]**	5(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Proposed Development on the following factors: (c)land, soil, water, air and climate.

19.2.3 Policy

Table 19-2 Water resources and flood risk - Policy

Policy	Relevance to assessment
Overarching National Policy Statement for Energy (EN-1), 2023 **[352]**	Section 4.10 of EN-1 sets out generic considerations that applicants and the Secretary of State should take into account to help ensure that renewable energy infrastructure is safe and resilient to climate change, and that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime. Section 4.10 of EN-1 advises that the resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an application. For example, the impact of increased risk of drought as a result of higher temperatures should be covered in the water quality and resources section of the ES.

Policy	Relevance to assessment
	Section 5.6 Coastal Change and Section 5.8 Flood Risk of EN-1 set out generic considerations that applicants and the Secretary of State should take into account in order to manage coastal change and flood risks. Generic environmental, biodiversity, ecology, geological and water management impacts are covered, including generic impacts and their mitigation. Section 5.8 refers to Flood Risk and Section 5.16 to Water Quality and Resources.
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2023 **[34]**	NPS EN-3 flags the need for applicants for Solar photovoltaic sites to consider how plant will be resilient to increased risk of flooding. Applicants will consider several factors when considering the design and layout of sites, including ability to mitigate environmental impacts and flood risk. Sets out requirements for solar farms: • Where a Flood Risk Assessment (FRA) has been carried out this must be submitted alongside the applicant's ES. This will need to consider the impact of drainage. • Where access tracks need to be provided, permeable tracks should be used, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended. • Sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses. • Culverting existing watercourses/drainage ditches should be avoided. Where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period.
National Policy Statement for Electricity Networks Infrastructure (EN-5), 2023 **[353]**	NPS EN-5 addresses policy for energy transmission, including the Horlock Rules (paragraph 2.9.18), which provide guidelines for the design and siting of sub-stations.
National Planning Policy Framework (NPPF), 2023 **[354]**	The NPPF sets out the UK Government planning policies for England and seeks to ensure that flood risk is considered at all stages of the planning and development process. The NPPF states that new and existing development should not pose an unacceptable risk of water pollution, and that it should help to improve local environmental conditions, including water quality and actions set out in the River Basin Management Plans (RBMP). Additionally, development should be planned to avoid increased vulnerability to flooding, ensuring that it does not increase flood risk elsewhere. Where possible, development should also contribute to reducing the overall flood risk and manage residual risk through the appropriate application of SuDS. Annex 3 of the NPPF provides information on flood risk vulnerability classification of developments. Infrastructure for electricity supply including generation is classified as essential infrastructure.
Humber River Basin Management Plan (RBMP) **[355]**	The Humber RBMP was updated in 2022. It provides a baseline classification of the water environment in the Humber Basin District and highlights statutory objectives for protected areas such as waters used for drinking water, bathing, and designated sites. It lays out the actions needed to improve the water environment and achieve the objectives of the WER

Policy	Relevance to assessment
City of York Local Flood Risk Management Strategy **[356]**	The Local Flood Risk Management Strategy aims to understand flood risk from all sources in the city, reduce its likelihood and impact on residents and visitors and take the opportunity to improve the city environment.
North Yorkshire Local Flood Risk Strategy 2022-2027 **[357]**	The Strategy is a legal document which provides a framework for addressing flood risk across the county. The development, maintenance and implementation of a strategy for the management of Local Flood Risk are statutory duties for the Lead Local Flood Authorities (LLFA) under the Flood and Water Management Act, 2010.
Selby District Core Strategy Local Plan (adopted 2013) **[358]**	The Selby District Core Strategy Local Plan aims to protect against pollution; improve the quality of air, land and water resources; avoid over-exploitation of water resources; prevent noise/light/soil pollution; and protect development from noise/light/soil pollution
Selby District Local Plan (adopted February 2005) **[243]**	The Selby District Local Plan includes policies on preventing groundwater pollution (Policy ENV2), development in areas with a high risk of flooding (Policy ENV5), and development within or which may affect a wildlife site including wetlands and geomorphological sites (Policy ENV7, Policy ENV8 & Policy ENV9).
The Environmental Improvement Plan (EIP) **[359]**	The Environmental Improvement Plan is a 25-year plan that looks to improve all parts of the environment including the water environment. The key areas of focus sustainable water usage, improving water quality, and enhancing flood defences to protect communities and ecosystems. The plan also includes measures to increase resilience against climate change impacts.

19.2.4 Standards and guidance

Table 19-3 Water resources and flood risk - Standards and guidance

Standards and guidance	Relevance to assessment
Construction Industry Research and Information Association (CIRIA) (2023) Environmental good practice on site (5th edition) (C811) **[360]**	Provides practical advice about managing construction on site to minimise environmental impacts.
CIRIA (2015) The SuDS (sustainable drainage systems) Manual (C753) **[361]**	Outlines the planning, design, construction and maintenance of SuDS to assist with their effective implementation within both new and existing developments. It looks at how to maximise amenity and biodiversity benefits and deliver the key objectives of managing flood risk and water quality.
Environment Agency (EA) (2022) Flood risk assessments: climate change allowances **[362]**	When and how local planning authorities, developers and their agents should use climate change allowances in FRAs.
EA Pollution Prevention Guidance (PPG) notes (PPG1, PPG5, PPG8 and PPG21) **[363]**	Although EA PPG notes were withdrawn in England on 17 December 2015, they still provide a good information source for pollution prevention measures, and to inform the Construction Environmental Management Plan (CEMP) and embedded mitigation.

Standards and guidance	Relevance to assessment
EA (2017) Protect groundwater and prevent groundwater pollution **[364]**	Understand when activities affect groundwater, what permissions may be needed and how to prevent pollution
EA (2017) Groundwater protection technical guidance **[365]**	If carrying out an activity that could lead to the input of substances to ground which could affect the quality or quantity of groundwater, need to understand: • what type of input you can make; and • how to assess the discernibility of hazardous substances. when geological formations can be determined as permanently unsuitable for other purposes
Flood Risk and Coastal Change: National Planning Practice Guidance (NPPG) **[366]**	Advises how to take account of and address the risks associated with flooding and coastal change in the planning process.
Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment **[367]**	Sets out the requirements for the assessment and management potential impacts on the water environment for highway projects. This methodology is the standard for assessing risks from increases in traffic movements (routine runoff and spillage) associated with all construction projects, not just highways projects.
Planning Inspectorate Technical Advice Page for Scoping Solar Development – Solar Scoping Table **[368]**	The Planning Inspectorate provides guidance on the scope of solar projects. It proposes the following: • **For ground and surface water quality**: that information is included to identify water receptors and the anticipated impact pathways. This is discussed further within 'Baseline Conditions' and 'Potential Impacts' sections below. Receptors are illustrated on Figure 19.1: Surface water features. • **For flood risk**: a commitment to provide a comprehensive FRA. A detailed FRA will accompany the DCO application.
North Yorkshire County Council SuDS Design Guidance **[369]**	Sets out standards for SuDS to manage surface water, reduce flood risk, and prevent pollution in new developments. It ensures compliance with local environmental protection and water quality requirements and is aligned with national policies.

19.3 Consultation

19.3.1.1 It is proposed to consult with the following stakeholders with regards to water resources and flood risk as part of the design development and assessment process prior to the submission of the DCO application:

- City of York Council and North Yorkshire Council (LLFAs);
- EA;
- Natural England;
- Selby Area Internal Drainage Board (IDB) (part of the Shire group of IDBs), and Ouse and Derwent IDB (part of York Consortium of Drainage Boards); and
- Yorkshire Water.

19.3.1.2 The following stakeholders have been consulted as part of preparing this EIA scoping report chapter:

- EA, regarding impact on the water environment receptors, WER and flood risk.
- City of York Council and North Yorkshire Council (LLFAs), regarding location of private water supplies within 5km of the draft Order Limits and regarding comments on flood risk.
- Selby Area IDB (part of the Shire group of IDBs), and Ouse and Derwent IDB (part of York Consortium of Drainage Boards), regarding details of IDB assets.

19.3.1.3 Statutory stakeholders will be formally requested to comment on this EIA scoping report, via the scoping opinion. Comments received will be considered and addressed through the PEIR and ES, where relevant to water resources and flood risk.

19.3.1.4 A period of non-statutory consultation commenced on 24 October and will run over a six-week period until 5 December 2024, to publicly introduce the Proposed Development and invite feedback from both statutory and non-statutory stakeholders on the proposals. Statutory consultation is planned following preparation of the PEIR in 2025. Feedback will be considered through the ongoing development of the design, and via the EIA process.

19.4 Study area

19.4.1.1 The water resources and flood risk scoping study area is defined by the draft Order Limits plus a 1km buffer, as shown on Figure 19.1: Surface water features. The study area will be reviewed and, as appropriate, refined for the assessment and reported in the ES. The 1km study area was selected based on professional judgement of the potential impacts and pathways related to the project. The study area will be reviewed as the design develops to take into account any activities which have the potential to impact water resources at greater distance (such as dewatering or discharges). The final study area will ensure that all receptors that are potentially in hydraulic continuity with the Proposed Development are included (such as downstream receptors and wider flood risk areas).

19.5 Baseline conditions

19.5.1 Desktop sources used

19.5.1.1 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- British Geological Survey (BGS) geological mapping available via the online GeoIndex viewer; [370]
- BGS Lexicon of Named Rock Units; [371]
- Local Flood Risk Management Strategy; [356] [357]
- Department for Environment, Food and Rural Affairs (Defra) Magic Map available online; [372]
- Defra Hydrology Data Explorer; [373]

- Flood Risk Maps; and [374]
- WER Status classification data for surface water and groundwater water bodies. [375]

19.5.1.2 The following additional information has been requested, and will inform the ES:

- Abstraction licences from groundwater and surface water within 5km of the draft Order Limits (EA).
- Discharge consents to ground or surface water within 5km of the draft Order Limits (EA).
- A list of any hydraulic models in this area, along with supporting data including model reports (EA).
- Detailed flood data including data on past flood events, modelled flood levels and extents and flood defence breach hazard information where available (EA).
- Hydrometric monitoring data including groundwater level, groundwater quality, surface water stage and flow, surface water quality and climate records (EA).
- Additional information held locally by the EA Area team, regarding the WER classification of water bodies, including, but not limited to:
  - Extended Waterbody Summary Reports
  - Programme of Measures
  - Waterbody Level Measure Actions
  - Any further information available regarding RBMP Cycle 2 and/or Cycle 3
- The BGS susceptibility to groundwater flooding data (BGS).
- List of private water supplies within 5km of the draft Order Limits (York Council, North Yorkshire Council, East Riding of Yorkshire Council, Wakefield Council, and Leeds Council).
- IDB assets within 1km of draft Order Limits (Shire Group of IDBs, Yorkshire Humber Drainage Boards and York Consortium of Drainage Boards).

19.5.2 Surveys undertaken and proposed

19.5.2.1 No surveys are required at scoping stage in respect of water resources and flood risk.

19.5.2.2 The following surveys are planned to be undertaken, and will inform the PEIR and ES:

- A site visit will be carried out to ground-truth and expand on the data received during the desk study and to gain a complete understanding of the existing topography, hydrological and hydrogeological conditions of the study area, and, where possible, address data deficiencies.
- This will involve completing a proforma to record receptor type (stream, field drain, pond, spring, well, wetland etc), in situ measurements/ observations of water levels, flow, dimensions and water quality etc., proximity to proposed works and photographs.

19.5.3 Existing baseline

19.5.3.1 The area of the Solar Development Sites is 1,066ha in area. The Solar Development Sites are split out across a total of five separate land parcels (Site 1 to 5). The project is in the early stages of investigating cable route options and currently wide Cable Corridor Option Areas are shown in Figure 19.1: Surface water features. The area of the Solar Development Sites and the cable corridor comprises the draft Order limits.

19.5.4 Site topography, land use and climate

19.5.4.1 Land within the draft Order Limits currently predominantly consists of arable farmland. Within the study area, land use is also predominantly arable farmland with some dwellings and small villages. Two major highways also pass through the study area, the A63 runs along the southern boundary of Solar Development Site 2 and the A19 runs along the western boundary of Solar Development Site 5 and into the north western edge of the study area surrounding Solar Development Site 1.

19.5.4.2 The topography of the draft Order Limits is relatively flat, varying by approximately 5m across Solar Development Site 2 to 5 (between 5mAOD to 10mAOD). Solar Development Site 1 is more undulating, with topographic highs of 16mAOD in the north and lows of around 5mAOD in the south. Topography across the wider study area is also relatively flat, between 18mAOD and 3mAOD.

19.5.4.3 Data from Bramham rain gauge (located approximately 12km north of Solar Development Site 2 and 16km west of Solar Development Site 1), for the period 1991 to 2023 indicates that the Solar Development Site is likely to receive 690mm of rainfall a year.

19.5.5 Surface Water

19.5.5.1 Watercourses within the study area are shown in Figure 19.1: Surface water features and watercourses that interface with the Site boundaries are listed in Table 19-4.

19.5.5.2 There is one designated Main River within the 1km study area, the River Aire, which flows west to east. The River Aire runs just outside the study area, along the southern boundary of Solar Development Site 4 and just south of Solar Development Site 5.

19.5.5.3 Many ordinary watercourses (OWCs) and land drains are present within the 1km study area and within the Site boundaries, including several Internal Drainage Board watercourses.

Table 19-4 Watercourses that interface with the Site

Solar Development Site	Watercourse type	Watercourse description
1	Ouse and Derwent IDB watercourse	The Whinchat Dyke enters the Solar Development Site 1 boundary in the west and flows through the site in a south-east direction. The Chatterton Dyke is also present within the site boundary. Both dykes flow toward the south-east where they meet the Pallion Dike. The Pallion Dike follows the southern and eastern boundaries of the site.

Solar Development Site	Watercourse type	Watercourse description
1	Ordinary watercourse	Several OWCs appear to be present along the site boundary to the east and south. One watercourse in the south-eastern land parcel crosses the site appearing to sever this parcel in two. In the southern land parcel a few small drains appear to be present in the north-east and south-west corners.
2	Selby Area IDB watercourse	The Fleet Dike crosses through the middle of the site, appearing to sever this parcel in two. This Dyke meets an unnamed IDB watercourse, which flows along the eastern boundary of the site.
2	Ordinary watercourse	The Causeway Dyke is shown to be present along the southern boundary of the site, likely serving as a drainage ditch for the A63.
3	Selby Area IDB watercourse	The Maspin Moor Drain appears to be culverted under Roe Lane before continuing westwards, where it enters the site boundary and crosses the site parallel to Woodlands Lane. A second Selby Area IDB watercourse is present south of Hillam Common Lane along the northern boundary of the site.
3	Ordinary watercourse	An ordinary watercourse appears to be present along the southern boundary of the site, north of Woodlands Lane.
4	Selby Area IDB watercourse	Several Selby Area IDB watercourses are present in and around the site: <u>North</u> The Maspin Moor Drain follows the northern boundary of the site and crosses into the site boundary at two locations where the boundary extends beyond Maspin Moor Road. <u>West</u> The Maspin Moor Drain appears to be culverted under Roe Lane before continuing westwards towards Solar Development Site 3. At the same point, a piped watercourse is also indicated to be present along Roe Lane. It is shown inside the eastern boundary of the west-most land parcel of site. An unnamed watercourse is shown along the southern boundary of this land parcel. <u>East</u> At the north-east corner of the site, the Maspin Moor Drain continues southwards and follows the eastern boundary, where it becomes the Mearley Drain. The Mearley Drain continues along the eastern boundary of the site until it reaches Haddlesey Road. <u>South</u> From this point, The Fleet drain follows the northern boundary of the southernmost land parcel of the site. An unnamed watercourse is also present along the southern and eastern edges of the same land parcel.

Solar Development Site	Watercourse type	Watercourse description
		Elsewhere within the site boundary, another Selby Area IDB watercourse is present, and partially follows Barkhouse Wood Lane.
4	Ordinary watercourse	Several OWCs are present in the central land parcel within the site boundary.
5	Selby Area IDB watercourse	In the north-east land parcel, north of the railway, midway along the site boundary the Temple Drain enters the site and flows southwards, effectively severing this parcel in two. The Temple Drain crosses the railway and continues southwards. To the west, an unnamed watercourse adjacent to Fox Lane flows along the western boundary and around the north-west corner of the site. To the south-west, a second unnamed watercourse enters the boundary of the site and crosses the land parcel to join the Temple Drain south of the railway. The Temple Drain continues south, along the western boundary of the south-eastern land parcel, towards a pumping station located further south. An unnamed drain follows the boundary of the south-westernmost land parcel. Midway along the western boundary, this watercourse becomes piped and crosses the land parcel toward a second pumping station.
5	Ordinary watercourse	Several OWCs appear to be present within the site boundary.
Cable Corridor Options Area	Main river	Several main rivers and watercourses are located within the 1 km study area: The River Ouse flows southeast through the draft Order Limits at two points: southeast of Kelfield and south of Riccall. Selby Dam flows eastward into the River Ouse, crossing the draft Order Limits just north of Thorpe Willoughby and southwest of Bishop Wood. Bishop Dike flows northeast through the draft Order Limits, passing just south of Biggin and again near the B1222, before joining the River Ouse at Cawood. Cockret Dike and Holmes Dike are also within the 1 km study area, located to the east of the cable corridor draft Order Limits. The River Aire lies to the south of the 1 km study area, flowing eastward.
Cable Corridor Options Area	Canal	The Selby Canal is present within the draft Order Limits just northwest of Chapel Haddlesey.
Cable Corridor Options Area	Selby Area IDB watercourse	Several Selby IDB drains appear to be present within the draft Order Limits and study area.

Solar Development Site	Watercourse type	Watercourse description
Cable Corridor Options Area	Ouse and Derwent IDB watercourse	Several Ouse and Derwent IDB drains appear to be present within the northeast of the draft Order Limits and study area.
Cable Corridor Options Area	Ordinary watercourse	Several OWCs appear to be present within the draft Order Limits and study area.

19.5.5.4 There are no river flow or level gauging stations within the draft Order Limits. Three river level gauging stations are within the 1km study area, noted below:

- River Aire at Birkin Holme Washlands, located approximately 600m to the east of the draft Order Limits of Solar Development Site 4.
- River Aire at Chapel Haddlesey, located approximately 800m to the west of the draft Order Limits of Solar Development Site 5.
- River Ouse at Selby Wistow Sluices Ouse Side, located 500m to the east of the cable corridor draft Order Limits at Barlby.

19.5.5.5 OS Mapping shows several small waterbodies within the 1km study area, including a number of small ponds within the draft Order Limits of Solar Development Site 1.

19.5.6 Groundwater

19.5.6.1 The bedrock geology in the area comprises four Groups, across four Periods spanning the Palaeozoic and early Mesozoic Eras, shown in Table 19-5.

Table 19-5 Generalised geology of the region, with typical thicknesses and descriptions of each major Group

Period	Group	Formation description	Typical thickness (m)
Triassic	Mercia Mudstone	Mudstone with siltstone and sandstone skerries, as well as evaporite layers.	180-240
Permo-Triassic	Sherwood Sandstone	Generally, the Sherwood Sandstone Group (SSG) is a fine to medium-grained, cross-bedded red sandstone, with a repeating fining upwards deposition cycle that extends from breccias at the base to red siltstones and mudstones at the top.	350-450
Permian	Zechstein	A group of generally limestones, mudstones and evaporites.	65-175
Carboniferous	Pennine Coal Measures	Comprises mudstones and siltstones with regular coal seams and occasional, localised sandstone units.	800+

19.5.6.2 Solar Development Site 1 and Solar Development Site 5 draft Order Limits and study area sits entirely on the Sherwood Sandstone Group (SSG). Regionally, the SSG (350 to 450m

thick) dips shallowly eastwards (1-4°) and thickens and fines north-eastward. More locally, the SSG is approximately 180m thick near Selby [376].

19.5.6.3 The Zechstein Group (ZG), which underlies the SSG, outcrops in the west of the study area and is comprised of four formations (youngest to oldest) as per 3-D conceptualisation of the Selby Area [377] (all five date to the Permo-Triassic periods):

- *Roxby Formation* – a calcareous mudstone with gypsum and anhydrite (20-40m thick);
- *Brotherton Formation* – a dolomitic limestone but variable (20-30m thick);
- *Edlington Formation* – similar to Roxby (5-30m thick);
- *Cadeby Formation* – dolomite/dolomitic limestone (20-100m thick); and,
- There may also be a thin layer of basal sands (0-5m thick).

19.5.6.4 Thus, the ZG is likely between 65 and 175m thick, regionally.

19.5.6.5 Solar Development Sites 2 and 4 are located to the east, where the ZG underlies the SSG at a shallow depth. Solar Development Site 4 is primarily on the SSG, with the Roxby Formation (calcareous mudstone), part of the ZG, outcropping in the north. The western half of Solar Development Site 2 and entirety of Solar Development Site 3 also sit on the Roxby Formation. Areas to the west of the study area sit on the Brotherton Formation (dolomitic limestone), part of the ZG.

19.5.6.6 Bedrock linear features are shown in Figure 19.2: Bedrock geology. 1:50,000 scale BGS mapping shows faulting occurring across the study area and Cable Corridor Options Area, generally faults run southwest-northeast. Solar Development Sites 2 and 4, associated with the SSG and ZG boundary. There is an inferred southwest-northeast fault in the northwest corner of Solar Development Site 2. Faulting is shown to occur across much of Solar Development Site 4, generally in a southwest-northeast direction, with one large northwest-southeast fault occurring through the Site. 1:50,000 scale BGS mapping also shows faulting occurring across Solar Development Site 1, in both a southwest-northeast and northwest-southeast direction.

19.5.6.7 Superficial geology mapping for the study area is presented in Figure 19.3. The mapping shows that superficial deposits cover the vast majority of the study area, with areas of no recorded superficial deposits generally corresponding with local topographic highs [370]. One notable gap in the superficial deposits is at Brayton Barff, approximately 0.8km to the east of Solar Development Site 2 and 1.2km to the north east of Solar Development Site 4. Superficial deposits are also absent in the area of Thorpe Willoughby and to the southwest of Monk Fryston. The superficial deposits across the Selby area can be very thick, natural superficial deposits can reach nearly 40m in thickness of a single unit and made ground nearly 60m [377].

19.5.6.8 In the lower topographies (c.0-10mAOD), there is extensive coverage of superficial clays (lacustrine deposits) and alluvium. More isolated are the pockets of glacial sands and gravels, and till. There also exist small, isolated patches of peat. The BGS have mapped this area at 1:625,000 scale and 1:50,000 scale [370]. Table 19-6 outlines the stratigraphy of superficial deposits within the study area.

Table 19-6 Superficial deposits within the study area

Superficial Deposit type at 1:625k scale (and age range)	Superficial Deposit type at 1:50k scale (and age range)	Lithological description [371]
Alluvium and head	Alluvium Holocene Epoch (max. 0.0118Ma)	Made up of unconsolidated clays, silts and sands
	Elvington Glaciolacustrine Formation Late Pleistocene (0.116-0.0118Ma)	Firm to stiff, rarely soft, mottled reddish brown and grey thinly laminated clay. Sporadically interlaminated with silt and fine reddish brown sand. Commonly fissured. Gypsum, in the form of opaque, tabular selenite is found locally within the laminated clay below a depth of 2.5m. Crystal size is typically 15 to 35mm along the longest axis.
Glacial sands and gravels (Holocene Epoch (max. 0.0118Ma))	Lacustrine beach deposits Holocene Epoch (max. 0.0118Ma)	Generally lithologically varied; sands to clays, bedded or chaotic, possibly showing larger structures like dunes or sheets
	Glaciofluvial deposits Late Pleistocene (0.116-0.0118Ma)	Comprised of sands and gravels
	Esrick Moraine Member Late Pleistocene (0.116-0.0118Ma)	Mainly greyish brown to yellowish brown, poorly sorted, gravelly sandy clay to slightly gravelly clay matrix with a little, ranging to much, gravel and cobbles (Morainic Till).
Lacustrine deposits (Quaternary Period (up to 1.588Ma))	Breighton Sand Formation Late Pleistocene (0.116-0.0118Ma)	Varies in both lithology and thickness; primarily composed of sand with minor components of gravel, clay and peat [7], and is generally around 1-2m thick. Formerly classified as the sand of the 25 Foot Superficial Deposits.
	Hemingborough Glaciolacustrine Formation (Late Pleistocene (0.116-0.0118Ma)	Laminated grey-ish brown clays, silts and (occasional) sands which are up to 30m thick (25m). These deposits were split into 3 distinct units by the BGS; upper and lower units of laminated clay and silt with minor sand, and a middle unit of running sand often containing coal. Formerly, these deposits, together with the Breighton Sand, were referred to as "*The 25 Foot Superficial Deposits*", a now-obsolete term.
	Skipwith Sand Member Late Pleistocene (0.116-0.0118Ma)	Dominantly yellow to pale brown slightly clayey sand. Typically composed of moderately well sorted medium quartz grains with minor bands of finer, coarser or poorly sorted material, including finely comminuted flint and lithic clasts. Thin laminae of clayey sandy peat and poorly developed fine to medium slightly gravelly clayey sand are noted towards base of the member.
	Vale Of York Formation Late Pleistocene (0.116-0.0118Ma)	Dominantly glacial till (sandy clay, clayey sand and clay with gravel and boulders) with interbedded sand, gravel and laminated clay, plus more substantial areas of those individual lithologies incorporated in the till sheet and moraines.

Superficial Deposit type at 1:625k scale (and age range)	Superficial Deposit type at 1:50k scale (and age range)	Lithological description [371]
	Sutton Sand Formation Holocene Epoch (max. 0.0118Ma)	Unconformable on older superficial deposits, mainly Devensian glacial lake deposits (e.g. Alne Formation at type locality) and glacial till or underlying bedrock.
	Naburn Sand Member Late Pleistocene (0.116-0.0118Ma)	Mottled brownish yellow, yellowish brown, brown and grey silty, sporadically clayey fine to coarse sand. Characteristically poorly sorted and locally laminated. Grains dominated by quartz with sporadic plagioclase feldspar. Commonly shows a fining upwards sequence from lower boundary with underlying laminated clay.
Till	Thorganby Clay Member Late Pleistocene (0.116-0.0118Ma)	Greyish brown soft, locally fissured, laminated silt and clay. The top metre of this member commonly contains a higher percentage of silt and sand, is reddish yellow to grey colour-mottled and the laminated structure has been destroyed by periglacial and soil processes. This unit can contain gravel dropstones and glaciotectonic structures, particularly near the Escrick Moraine.
Diamicton	Harrogate Till Formation Mid Pleistocene (0.48 – 0.423Ma)	Slightly sandy clay with large local sandstone blocks.

19.5.6.9 Hydrometric monitoring data available on Hydrology Data Explorer was consulted [373], this showed that within the study area, there are eight EA groundwater level monitoring stations (of which three are logged data) and one groundwater quality monitoring stations. Groundwater monitoring stations within 1km of the draft Order Limits are shown in Figure 19.4: Groundwater designations. Data from the groundwater monitoring stations within the study area show groundwater levels in the study area are generally between 7 and -4mAOD (approximately 5 to 15mbgl) and tend to fluctuate seasonally.

19.5.6.10 The EA aquifer designations [372] [378] within the study area are listed within Table 19-7.

Table 19-7 Aquifer designations

Geology	Formation/ Member	Aquifer classification [372]
Bedrock	Sherwood Sandstone Group	Principal
	Roxby Formation	Secondary B
	Edlington Formation	Secondary B
	Brotherton Formation	Principal
Superficial	Alluvium	Secondary A
	Elvington Glaciolacustrine Formation	Unproductive
	Lacustrine beach deposits	Secondary A
	Glaciofluvial deposits	Secondary A

Geology	Formation/ Member	Aquifer classification [372]
	Esrick Moraine Member	Secondary (undifferentiated)
	Breighton Sand Formation	Secondary A
	Hemingborough Glaciolacustrine Formation	Unproductive
	Skipwith Sand Member	Secondary (undifferentiated)
	Vale Of York Formation	Secondary (undifferentiated)
	Sutton Sand Formation	Secondary (undifferentiated)
	Naburn Sand Member	Secondary (undifferentiated)
	Thorganby Clay Member	Unproductive
	Harrogate Till Formation	Secondary (undifferentiated)
	Peat	Unproductive

Aquifer classification definitions:

Principal aquifers: provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.

Secondary A aquifers: comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

Secondary B aquifers: mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers.

Secondary (undifferentiated): aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.

Unproductive strata: largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

19.5.6.11 Ordnance Survey (OS) mapping shows six wells in the study area, of which three are located within the draft Order Limits of the Cable Corridor Options Area. OS mapping also shows one spring inside the draft Order Limits of the Cable Corridor Options Area.

19.5.7 Water Environment Regulations (WER)

19.5.7.1 The European Union Water Framework Directive (2000/60/EC) was introduced in 2000 and was transposed into UK law by The Water Environment (Water Framework Directive) (England and Wales) Regulations (amended 2017) (herein referred to as the WER). The EA is the competent authority responsible for delivering the Directive in England. The WER aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems. Under the WER, 'water bodies' are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of a larger River Basin District (RBD), for which River Basin Management Plans (RBMPs) are developed and environmental objectives are set. These RBMPs are produced every six years, in accordance with the river basin management planning cycle. The WER requires the status classification of the condition of all surface water and groundwater bodies and the setting of objectives for maintaining or improving conditions so that water bodies reach and/or maintain 'good' status or higher (unless exceptions are identified).

19.5.7.2 The draft Order Limits and study area fall within the Humber RBD as defined under the WER. The status classifications, objectives and programme of measures derived by the EA for water bodies located within the study area are outlined within the Cycle 3 Humber RBMP [355].

19.5.7.3 Seven surface water body catchments fall within the study area (all of which are river water bodies), six fall within the draft Order Limits. There are no transitional water bodies or artificial water bodies within the study area. The surface water bodies within the study area and their status are shown in Table 19-8 and their extents shown in Figure 19.5: Surface water bodies.

19.5.7.4 Four groundwater body catchments fall within the draft Order Limits and study area. The groundwater bodies within the study area and their status are shown in Table 19-9 and their extents shown in Figure 19.6: Groundwater bodies.

19.5.7.5 Additional information including the data behind these classifications has been requested from the EA and will be included in the ES. The status classifications and objectives, Reasons for Not Achieving Good (RNAG), and programme of measures for these water bodies will be reviewed during the EIA and reported in the ES.

Table 19-8 WER surface water bodies

Water Body	Management catchment	Water body type	Hydromorphological designation	Overall Status (2022)	Ecological Status (2022)	Chemical Status (2019)
Ouse from R Wharfe to Upper Humber (GB104027064270)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Riccall Dam Catchment (trib of Ouse) (GB104027063690)	Wharfe and Ouse Lower	River	Not designated artificial or heavily modified	Moderate	Moderate	Fail
Stillingfleet Beck Source to Ouse (GB104027063710)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Ouse Still/fleet bk - Kelfield and Wharfe d/s Ryther (GB104027064280)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Bishop Dike (Trib of Ouse) (GB104027063660)	Wharfe and Ouse Lower	River	Not designated artificial or heavily modified	Poor	Poor	Fail
Holmes Dike catchment (trib of Ouse) (GB104027063650)	Wharfe and Ouse Lower	River	Not designated artificial or heavily modified	Moderate	Moderate	Fail
Fox Dike/Carr Dike from Source to Selby Dam (GB104027063680)	Wharfe and Ouse Lower	River	Not designated artificial or heavily modified	Moderate	Moderate	Fail
Upper Fox Drain Catchment ds of Sherburn STW (GB104027063610)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Wharfe from Tadcaster Weir to River Ouse Water (GB104027064256)	Wharfe and Ouse Lower	River	Heavily modified	Moderate	Moderate	Fail
Lowmoor Drain Catch (trib of Derwent) (GB104027063420)	Derwent Humber	River	Not designated artificial or heavily modified	Poor	Poor	Fail
Derwent from Elvington Beck to River Ouse (GB104027068311)	Derwent Humber	River	Heavily modified	Moderate	Moderate	Fail
The Fleet from Source to River Aire (GB104027062740)	Aire and Calder	River	Artificial	Moderate	Moderate	Fail
Aire from Fryston Beck to River Ouse	Aire and Calder	River	Heavily modified	Moderate	Moderate	Fail

Table 19-9 WER groundwater bodies

Water Body	Overall status (2019)	Quantitative status (2019)	Chemical Status (2019)
Aire & Don Sherwood Sandstone	Poor	Poor	Poor
Aire & Don Magnesian Limestone	Poor	Good	Poor
Wharfe & Lower Ouse Sherwood Sandstone	Poor	Good	Poor
Wharfe Magnesian Limestone	Poor	Good	Poor

19.5.8 Environmental Designations

19.5.8.1 There are two environmentally designated sites within the study area. Environmental designations are provided in 7.2.

19.5.8.2 Table 19-10 outlines environmentally designated sites with some dependence on water, within the 1km study area.

Table 19-10 Environmental designations (with water dependent features) within the study area

Name	Designation	Distance from the draft Order Limits
Burr Closes, Selby	GWDTE, SSSI	0m (adjacent to cable corridor draft Order Limits)
Skipwith Common	GWDTE, SSSI, NNR, SAC	200m east of the cable corridor draft Order Limits

GWDTE: Groundwater Dependent Terrestrial Ecosystems
NNR: National Nature Reserves
SAC: Special Areas of Conservation
SSSI: Sites of Special Scientific Interest

19.5.9 Water resources

19.5.9.1 Drinking Water Safeguard Zones (DWSgZs) are established around public water supplies where additional pollution control measures are needed, these are designated by the EA. Figure 19.1 and 19.4 shows the DWSgZs within the study area. There are no DWSgZs within the draft Order Limits. A surface water DWSgZ, associated with the River Derwent falls within the 1km study area surrounding Solar Development Site 1 and the northern cable corridor reaches, approximately 150m east of the draft Order Limits. A groundwater DWSgZ falls within the 1km study area surrounding Solar Development Site 5, approximately 600m south of the draft Order Limits.

19.5.9.2 Source Protection Zones (SPZs) are defined by the EA around large and public potable groundwater abstraction sites. The purpose of SPZs is to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction. The following subdivisions are defined within SPZs:

- Zone 1: This zone is defined by a travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has as a minimum a 50m radius.

- Zone 2: This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500m, depending on the size of the abstraction.
- Zone 3: This zone is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.

19.5.9.3 Figure 19.4 shows the SPZs within the study area. Much of the south of Solar Development Site 5 and the south east of Solar Development Site 4 study area lies within a SPZ3 (total catchment) for Yorkshire Water's public water supply boreholes. Similarly, the cable corridor draft Order Limits to the east of Hambleton lie within a SPZ3 for Yorkshire Water's public water supply boreholes. There are six SPZ1s within the study area, associated with smaller abstractions. There are two SPZ1s within the Solar Development Site 2 study area and two SPZ1s within the study area for Solar Development Site 1, the remainder are within the cable corridor study area.

19.5.9.4 Nitrate Vulnerable Zones (NVZs) are areas designated by Defra as being at risk from agricultural nitrate pollution. Figure 19.4 shows the NVZs within the study area. The entirety of the draft Order Limits and study area associated with Solar Development Site 2, 3, 4 and 5 lie within a NVZ. The draft Order Limits of Solar Development Site 1 also fall within a NVZ, which is present across the entirety of the draft Order Limits with the exception of a small area to the east. The Cable Corridor Options Area also largely lie within a NVZ, with the exception of the northern mid reaches, around Wistow.

19.5.9.5 Data on licensed water abstractions from surface water and groundwater within 5km of the Order Limits has been obtained from the EA. These abstraction points are presented in Figure 19.7: Abstractions and discharges, and indicate that there are 13 licensed abstractions within the draft Order Limits of the Cable Corridor Options Area, of these 6 are groundwater abstractions and 7 are surface water abstractions. There are a further 100 abstractions within the 1km study area, some of which are just outside the boundary of the Order Limit. Of these 32 are groundwater abstractions, 65 are surface water abstractions and 4 are tidal water abstractions.

19.5.9.6 Data on licensed water discharges to surface water and groundwater within 5km of the Order Limits has been obtained from the EA. These abstraction points are presented in Figure 19.7: Abstractions and discharges. There are 210 licenced discharges within the 1km study area, of these three are located within the draft Order Limits of Solar Development Site 1, five are located within the draft Order Limits of Solar Development Site 5, and 15 are located within the cable corridor draft Order Limits.

19.5.9.7 Additional data on private water supplies has been requested from City of York Council, North Yorkshire Council, Leeds City Council, East Riding of Yorkshire Council and Wakefield Council. The private water supply data received is presented in Figure 19.7: Abstractions and discharges and indicates that there are no private water supplies within the draft Order Limits. There are two private water supplies within the 1km study area, located between Hambleton and Monk Fryston. Details of the type of abstraction and use are unknown.

19.5.10 Flood Risk

19.5.10.1 Flood risk from all sources (fluvial, surface water, groundwater, reservoirs and surrounding properties/infrastructure) in the study area is considered during the scoping stage. This includes sources where there may be potential to impact flood risk to the Proposed Development (as a receptor itself), as well as the potential for the Proposed Development to impact flood risk to surrounding receptors such as property, infrastructure and land.

19.5.10.2 The risk of flooding from surface water is shown in Figure 19.8. Aside from the surface water flooding associated with the positions of smaller watercourses not included in the fluvial flood maps, surface water flooding is also associated with overland flow pathways and ponding in depressions within the study area.

19.5.10.3 The risk of flooding from rivers and seas is shown in Figure 19.9, which illustrates the Flood Zone mapping from the EA. Flood Zone 1 represents land with the lowest risk of flooding (0.1% annual probability). Flood Zone 2 presents a medium risk of flooding (0.5% annual probability). Flood Zone 3 presents the highest risk of flooding and is further defined into two flood risk categories – Flood Zone 3a (land that has a 1% or greater annual probability of river flooding or a 0.5% or greater annual probability of sea flooding) and Flood Zone 3b which is also defined as 'functional floodplain'. Flood Zone 3b is typically compromised of land that is designed to flood (e.g. water storage areas including managed washlands) and land that has a 3.3% or greater annual probability of flooding. Within the study area, sources of fluvial flood risk within the draft Order Limits are primarily from the River Aire to the south of Solar Development Site 4 and 5, the Fleet through Solar Development Site 3 and 4, Stillingfleet to the north of Solar Development Site 1 and Riccall Dam to the south of Solar Development Site 1. Most of the tributary watercourses are not explicitly represented in the fluvial flood mapping but are implicitly represented in the surface water flood risk mapping. For the ES, information on available hydraulic models for these river systems will be requested from the EA to inform the FRA.

19.5.10.4 Risk of flooding from reservoirs is shown in Figure 19.10. EA data on flood extents for all large, raised reservoirs, indicate that the entirety of Solar Development Sites 3, 4 and 5 and areas of Solar Development Sites 1 and 2 are at risk of flooding in the event that a reservoir failure occurred and released the water held on a "*wet day*" when local rivers had already overflowed their banks.

19.5.10.5 The BGS susceptibility to groundwater flooding data is shown in Figure 19.11. This data will be used at PEIR and ES stage to feed into the FRA. The BGS susceptibility to groundwater flooding data indicates that the flood risk varies across the draft Order Limits. Susceptibility to groundwater flooding varies across Solar Development Site 1 from no potential for groundwater flooding to occur in the centre of the site, underlain by the Thorganby Clay Member, to 'Potential for groundwater flooding to occur at surface' in the southern area of the site boundary, which is underlain by the Skipworth Sand Member. Susceptibility to groundwater flooding across Solar Development Sites 2 to 5 varies from no potential for groundwater flooding where the sites are underlain by the Hemingbrough Glaciolacustrine Formation, to 'Potential for groundwater flooding to occur at surface' where the sites are underlain by more permeable deposits such as Alluvium or the Breighton Sand Formation.

19.5.11 Future baseline

19.5.11.1 The UK Climate Impact Programme 2018 (UKCP18) [379] predicts the following changes over the next several decades (up to 2099):

- Temperatures will continue to increase, with larger temperature increases estimated in summers.
- The average summer rainfall rate is estimated to decrease, whereas the average winter rainfall rate is estimated to increase.
- An overall increase in extreme weather events.

19.5.11.2 To this end, the UK Groundwater Forum concluded the following, as the potential impacts of climate change on groundwater [380]:

- A long-term decline in groundwater storage.
- Increased frequency and severity of groundwater droughts.
- Increased frequency and severity of groundwater-related floods.

19.5.11.3 This will lead to greater variability in groundwater levels, with prolonged periods of high and low groundwater levels relating to the variability of rainfall and recharge.

19.5.11.4 The UK Centre for Ecology and Hydrology (UKCEH) have run predictive models to simulate the impacts of climate change, across England, Scotland and Wales, using predictions from UKCP09 [381]. This report has 25 individual surface water stations across the north-east of England, no stations are within the study area. The closest stations are:

- Skelton on the River Ouse, approximately 25km north of Selby; and,
- Kildwick Bridge on the River Aire, approximately 60km west of Selby.

19.5.11.5 The nearest of these monitoring points is at Skelton. At this location, mean flow is predicted to increase by between up to 40% in the winter, and decrease – much more variably – by 20% in the summer (however projections vary between -50% and +40% change) [381].

19.5.11.6 This report also predicts the impact on groundwater stations, for which there are 2 stations in the northeast of England:

- Swan House, near Northallerton, approximately 75km north of Selby, on magnesium limestone; and,
- Dalton Holme, north of Hull and approximately 35km east-north-east of Selby, on chalk.

19.5.11.7 Although neither are on the Sherwood Sandstone, and therefore provide limited usefulness to inform projections for change in the sandstone, Dalton Holme is the most appropriate, as the closest of the two. At this location, groundwater level is predicted to change between -1.5 and +0.5m in elevation, with little discernible seasonal variation [376].

19.5.11.8 For flood risk, future climate change will increase the likelihood of extreme storm events. Planning Policy Guidance for flood risk and climate change outlines the required climate allowances to be applied to either peak river flows or to peak rainfall intensity (depending on the nature of the analysis) [362]. The allowances that will need to be applied are determined by the location, the flood zone the development is in, and the vulnerability classification of the Proposed Development. These will be defined at PEIR and ES stage.

19.5.11.9 It is possible that other committed developments may arise in the future which could change the baseline conditions which would be considered in the assessment as may be relevant where assessment is **scoped in**.

19.6 Potential impacts

19.6.1 Construction

19.6.1.1 Specific construction activities with the potential to harm the water environment are:

- Earthworks and site clearance activities such as stripping of topsoil, trenching, storage and capping of soil;
- Underground cable installation (cable plough or trenching) and reinstatement works;
- Piling and erection of solar PV module support structures;
- Excavation and construction of foundations and piling for the substations, if required;
- Construction of laydown areas and construction compounds;
- Construction of concrete pad foundation for inverters, transformers and BESS;
- Horizontal directional drilling (HDD) (or other trenchless methods) under or in close proximity to watercourses, where utilised; and
- Construction vehicles travelling to and from the Proposed Development.

19.6.1.2 During the construction phase, the following potential risks to the water environment have been identified:

- Physical loss of land drains present within the draft Order Limits and associated impacts to hydromorphological condition and aquatic habitat quality, as a result of construction activities.
- Changes to surface runoff patterns and land drainage as a result of construction activities, resulting in altered surface water flows and water levels within the draft Order Limits and downstream, including flood risk.
- Reductions in water quality and aquatic habitat quality of surface water bodies present within the draft Order Limits, or downstream waterbodies, as a result of ground disturbance and associated sediment releases during construction activities.
- Reductions in water quality and aquatic habitat quality of surface water bodies as a result of sediment release and disturbance from the construction.

- Subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.
- Impacts on local hydrogeology and groundwater resources including any private water supplies and licensed abstractions. Changes to groundwater levels, flows and quality arising from construction activities.
- Reductions in water quality and increased turbidity of groundwater, resulting from the groundwork and associated sediment releases during construction activities.
- Reductions in water quality of surface water bodies or groundwater bodies present within the draft Order Limit, as a result of accidental release of contaminants (such as fuel oils and lubricants from construction plant, vehicles and traffic movements – accidental spillage during refuelling and/or leakage from storage; spillage of cement, concrete material and alkaline wash waters, wheel washing, waste storage).
- Increased risk of flooding within the draft Order Limits and to neighbouring sites due to potential changes in nature and extent of the floodplain, including displacement or changes in floodplain storage.
- Potential increased exposure to flood risk during the construction phase by introducing new receptors in areas potentially at risk of flooding, namely construction infrastructure and personnel.

19.6.1.3 At this stage it is assumed that there is no requirement for water abstraction from surface water or groundwater to provide water during construction.

19.6.2 Operation and maintenance

19.6.2.1 During the operation phase, the following potential risks to the water environment have been identified:

- Changes to surface runoff patterns and land drainage, resulting in altered surface water body flows and water levels within the draft Order Limits and downstream.
- Physical degradation or loss of surface water bodies present within the draft Order Limits and associated impacts to hydromorphological condition and aquatic habitat quality due to changes to drainage network.
- Placement of impermeable structures and surfaces and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.
- Deterioration of water quality of surface water bodies and groundwater bodies present within the draft Order Limits as a result of accidental release of contaminants during proposed operation, including replacement activities, and traffic accidents/spillages on new access roads and transmission corridors.
- Alteration of groundwater levels and flow paths and consequently to flood risk due to reduced recharge resulting from rainfall captured by solar PV modules and hardstanding drainage.
- Increased risk of flooding within the draft Order Limits and to property elsewhere due to changes in nature and extent of the floodplain.

19.6.3 Decommissioning

19.6.3.1 During the decommissioning phase, the following potential risks to the water environment have been identified:

- Changes to surface runoff patterns and land drainage as a result of decommissioning activities, resulting in altered surface water flows and water levels within the draft Order Limits and downstream, including flood risk. Assume return to similar to baseline conditions.
- Reductions in water quality and aquatic habitat quality of surface water bodies present within the draft Order Limits, or downstream waterbodies, as a result of ground disturbance and associated sediment releases during decommissioning activities.
- Subsoil compaction and reduced infiltration, resulting in increases in localised overland flooding and reduced recharge to groundwater.
- Impacts on local hydrogeology and groundwater resources including any private water supplies and abstractions. Changes to groundwater levels, flows and quality arising from decommissioning activities.
- Reductions in water quality and increased turbidity of groundwater, resulting from the groundwork and associated sediment releases during decommissioning activities.
- Reductions in water quality of surface water bodies or groundwater bodies present within the draft Order Limits, as a result of accidental release of contaminants (fuel oils and lubricants from construction plant and vehicles – accidental spillage during refuelling and/or leakage from storage; waste removal and storage, wheel washing).
- Other flooding related impacts may potentially arise from the decommissioning of any flood risk infrastructure introduced in the design or mitigation, such as culverts for access routes or compensation floodplain storage.

19.6.3.2 Consequently, decommissioning activities also have the potential to result in adverse effects on nearby sensitive receptors. Therefore, the approach in the PEIR and ES will be to cross refer to the construction assessment for reasons of brevity and proportionality.

19.6.4 Cumulative

19.6.4.1 The approach to assessing in-combination effects from the interrelationship between different environmental effects of the Proposed Development (intra-project) and cumulative effects from the interrelationship between different projects along with the Proposed Development (inter-project) is described in Chapter 20: Cumulative and in-combination effects. At present the potential for in-combination and cumulative impacts is unknown and these will be considered in the assessment.

19.7 Design, mitigation and enhancement measures

19.7.1 Embedded measures

19.7.1.1 The Proposed Development is currently evolving through an environmentally led iterative design process (Chapter 2: Proposed Development, section 2.5). At the outset of this

design process the Applicant has set out a design vision and a series of corresponding design principles which the Applicant is seeking to achieve as much as is practicable in the design that will be submitted with the DCO application.

19.7.1.2 Embedded measures are modifications to the design of a scheme, made during the pre-application phase, that are an inherent part of the design and seek to avoid or minimise impacts. Therefore, embedded measures may comprise or be informed by the design principles as well as other mitigation measures. Embedded measures are also taken into account in the assessment of the likely significant effects.

19.7.1.3 Embedded measures for the Proposed Development relevant to water resources and flood risk are likely to include:

- A minimum offset of 10m from bank top for all watercourses from all infrastructure (including fencing) and construction works, except where watercourse crossings are required (access tracks / cable routing /fencing will be located to pass across existing watercourse crossings where feasible). This design principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 (Solar Development Concept Layout Plan).
- Avoid locating critical infrastructure within Flood Zones 2 and 3 where possible, to avoid or reduce the potential for flood risk to the Proposed Development, or to other receptors as a result of the Proposed Development.
- Where elements must be placed in the flood zones, they should be designed to be flood resistant and resilient, for example, by ensuring that vulnerable components are raised above the predicted maximum flood depth plus freeboard for the appropriate design flood.
- Where development must take place in Flood Zones 2 or 3, the sequential and exception tests will be carried out as part of a FRA, to be carried out at PIER/ES stage, and the requirement to provide compensatory storage will be assessed.
- A suitable Flood Warning and Evacuation Plan (FWEP) will be in place during construction and operation of the site, and suggested requirements for the FWEP will be outlined in the FRA to be carried out at PIER and ES stage.
- Sustainable drainage solutions (SuDS) will be provided at source, and be considered in the drainage strategy, to be carried out at PIER and ES stage, ensuring that surface water run-off is managed consistently with existing site conditions.
- Internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates.
- Suitable stand offs from springs, spring catchments or boreholes.
- Use of underground cabling methodology that minimises disruption to the ground (e.g. such as a cable plough which cuts, installs and backfills in one operation).
- Use of piling methodology that minimises likelihood of creating pollution pathway to groundwater.
- Where major watercourse crossings are required for the cable corridor, trenchless techniques will be utilised where possible, this is likely to involve HDD under rivers although other trenchless techniques may be considered.

- Minimising area of hardstanding required for laydown and construction compound.
- Scheduling of temporary/ construction works excavations and storage to not increase flood risk.
- The BESS will be located outside of Flood Zone 3 to minimise loss of flood plain and associated adverse flood risk effects. This design principle has been achieved in the current Proposed Development layout for the Solar Development Sites shown in Figure 1.2 (Solar Development Concept Layout Plan).
- The BESS drainage design will allow for fire-water containment. In the unlikely event of a fire, to avoid the spread of chemicals from fire-fighting foams, apparatus that catch fire would be allowed to burn out. Water sprayed would be directed to fire water storage areas for suitable disposal.

19.7.2 Management plans

19.7.2.1 A suite a management plans will be in place for the Proposed Development. Outline versions of these management plans will be submitted with the DCO application to secure the commitments contained within. Those relevant to water resources and flood risk include:

- Outline Construction Environmental Management Plan (oCEMP);
- Outline Operation Environmental Management Plan (oOEMP)
- Outline Landscape and Ecological Management Plan (oLEMP), including general operational measures alongside those specific to landscape and ecology; and
- Outline Decommissioning Environmental Management Plan (oDEMP).

19.7.3 Further mitigation

19.7.3.1 Further mitigation is actions that require further activity to achieve a reduction in significance of effect, and/or anticipated outcome. Further mitigation for water resources and flood risk will be defined through the PEIR and ES once the level of significance of effects is known. Options for further mitigation for the Proposed Development relevant to water resources and flood risk may include:

- Locating key infrastructure away from sensitive receptors.
- Modifications to construction methods and plans to protect sensitive receptors.
- Site specific mitigation may be required to mitigate any potential impacts on WER status and comply with the WER objectives.

19.8 Likely significant effects

19.8.1 Construction

19.8.1.1 Table 19-11 summarises the likely aspects of the water environment that have the potential to be significantly affected during the construction phase, and whether they are scoped in or out of further assessment.

Table 19-11 Construction phase likely significant effects

Aspect	Scoped in/ Scoped out	Justification
Surface water quality	Scoped in	Potential for the introduction of contamination and sediment into surface water during construction, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages and/or sediment release).
Surface water quantity	Scoped in	Potential changes to surface water flow and levels within the draft Order Limits and downstream and to hydraulically connected habitats (e.g. due to new land drains and construction drainage).
Groundwater quality	Scoped in	Potential for the introduction of contamination and sediment into groundwater during construction, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages and/or sediment release).
Groundwater quantity	Scoped in	Potential changes to shallow groundwater flow and levels at the site and downstream and to hydraulically connected habitats (e.g. from trenching and pile installation).
Water Dependent Terrestrial Ecosystems (WDTEs)	Scoped in	Potential impacts to WDTEs from changes to hydraulically connected surface water and groundwater as a result of construction activities.
Flood Risk and Drainage	Scoped in	Potential increased flood risk impacts due to changing the nature of the sites including the water environment, and possible alterations to the watercourse(s) during operation. Activities in areas at risk of flooding during construction.

19.8.2 Operation and maintenance

19.8.2.1 Table 19-12 below summarises the likely aspect of the water environment have the potential to be significantly affected during the operation phase, and whether they are scoped in or out of further assessment.

Table 19-12 Operation phase likely significant effects

Aspect	Scoped in/ Scoped out	Justification
Surface water quality	Scoped in	Potential for the introduction of contamination and sediment into surface water during operational use and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages from general maintenance).
Surface water quantity	Scoped in	Potential changes to surface water flow and levels at the draft Order Limits and downstream and to hydraulically connected habitats (e.g. due to new land drains and increased hardstanding).
Groundwater quality	Scoped in	Potential for the introduction of contamination and sediment into groundwater during operational use, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Groundwater quantity	Scoped in	Potential changes to shallow groundwater flow and levels at the site and downstream and to hydraulically connected

Aspect	Scoped in/ Scoped out	Justification
		habitats as a result of permanent below ground structures (e.g. piling) and surface structures intercepting recharge (e.g. hardstanding and solar panels).
Water Dependent Terrestrial Ecosystems (WDTEs)	Scoped in	Potential impacts to WDTEs from changes to hydraulically connected surface water and groundwater during operational use.
Flood Risk and Drainage	Scoped in	Potential increased flood risk impacts due to changing the nature of the sites including the water environment, and possible alterations to the watercourse(s) during operation. Activities in areas at risk of flooding during operation and possible maintenance activities.

19.8.3 Decommissioning

19.8.3.1 Table 19-13 below summarises the likely aspect of the water environment have the potential to be significantly affected during the decommissioning phase, and whether they are scoped in or out of further assessment.

Table 19-13 Decommissioning phase likely significant effects

Aspect	Scoped in/ Scoped out	Justification
Surface water quality	Scoped in	Potential for the introduction of contamination and sediment into surface water during decommissioning, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Surface water quantity	Scoped in	Potential changes to surface water flow and levels within the draft Order Limits and downstream and to hydraulically connected habitats (e.g. due to changes in surface runoff).
Groundwater quality	Scoped in	Potential for the introduction of contamination and sediment into groundwater during construction, and potential impacts to hydraulically connected habitats (e.g. from road drainage or spillages).
Groundwater quantity	Scoped in	Potential changes to shallow groundwater flow and levels at the site and downstream and to hydraulically connected habitats.
Water Dependent Terrestrial Ecosystems (WDTEs)	Scoped in	Potential impacts to WDTEs from changes to hydraulically connected surface water and groundwater as a result of decommissioning activities.
Flood Risk and Drainage	Scoped in	Potential increased flood risk during or due to decommissioning and removal or reversal of any changes introduced for the design or mitigation of the scheme.

19.8.4 Cumulative

19.8.4.1 As stated at section 19.6.4 the assessment will consider the potential for cumulative effects.

19.9 Proposed assessment methodology

19.9.1.1 The study area is defined by the draft Order Limits plus a 1km buffer, as shown on Figure 19.1: Surface water features, and is based on the 'source-pathway-receptor' pollutant linkage principle. The 1km study area was selected based on professional judgement of the potential impacts and pathways related to the project. The study area will be reviewed as the design develops to take into account any activities which have the potential to impact water resources at greater distance (such as dewatering or discharges).

19.9.1.2 A comprehensive desk-based study will be completed using publicly available data and data received from stakeholders through consultation. Building on the analysis undertaken at scoping stage, the desk study will identify and confirm potential water receptors and sensitive areas within the study area, which may include groundwater and surface water dependent features, and private water supplies.

19.9.1.3 A site visit will be carried out in order to ground-truth and expand on the data received during the desk study and to gain a complete understanding of the existing topography, hydrological and hydrogeological conditions of the study area, and, where possible, address data deficiencies. The site visit will include a photographic survey of each of the key hydrological features / receptors identified during the desk study.

19.9.1.4 Following the site visit, the baseline condition and conceptual understanding of the geology, hydrogeology and hydrology within the draft Order Limits will be refined before completing the risk assessment.

19.9.1.5 The risk assessment methodology will involve:

- Identification of all key receptors and their sensitivity.
- Identification of the potential impacts of the Proposed Development (during both construction, operational and decommissioning phases).
- Assessment of the significance of the identified impacts (based on receptor sensitivity and magnitude of effect).
- Identification of proposed mitigation (design and construction).
- Identification of residual impacts.
- Identification of cumulative impacts.

19.9.1.6 A WER Compliance Assessment will be undertaken to assess the potential impacts of the Proposed Development on the immediate water bodies present within the draft Order Limits and any linked water bodies. This will initially comprise a screening assessment (baseline) and scoping assessment (preliminary).

19.9.1.7 Flood risk will be assessed using existing data and information wherever possible, requested from the EA and IDBs. Initially, a scoping (Level 1) FRA will be undertaken to qualitatively identify flood risks from all sources, both to the Proposed Development, and from the Proposed Development to other receptors. Where the scoping FRA identifies the potential for flood risk impacts, a more detailed FRA will be carried out, with the potential to include hydraulic modelling to be agreed with the EA, to calculate the precise impacts

on receptors in order to determine the mitigation design. A drainage strategy will also be developed.

19.9.1.8 It is considered that a separate Hydrogeological Impact Assessment document will not be required, beyond the assessment described within this report which will be reported in the PEIR and ES. This is due to the nature of the development which is primarily above ground, with any temporary below ground construction works mitigatable through best practice measures and management plans which will be outlined in the oCEMP. Equally, at this stage it is assumed that there is no requirement for water abstraction from surface water or groundwater to provide water during construction. The hydrogeological impacts related to drainage, flooding and WER will be covered by the relevant appendices.

19.9.2 Receptors

19.9.2.1 Receptors relevant to the assessment are summarised below:

- Surface water bodies including watercourses within the study area, shown in Figure 19.1.
- Bedrock aquifers within the study area, shown in Figure 19.2.
- Superficial aquifers within the study area, shown in Figure 19.3.
- WER surface water bodies within the study area, shown in Figure 19.5.
- WER groundwater bodies within the study area, shown in Figure 19.6.
- GWDTEs within the study area, shown in Figure 19.4.
- Water dependent environmentally designated sites within the study area, shown in Figure 7.2.
- Abstractions (both licensed and private water supplies) and discharges within the study area, shown in Figure 19.7.
- Other water features identified from OS mapping, including springs, wells, lakes and ponds.

19.9.3 Sensitivity of receptors

19.9.3.1 The sensitivity value of each receptor within the study area will be determined according to the Design Manual for Roads and Bridges (DMRB) [382] criteria set out in Table 19-14. While this methodology is typically used for highways projects it is considered appropriate for use in other infrastructure projects.

19.9.3.2 Flood receptors such as property, land or infrastructure, at risk or potential risk of flooding that may be impacted by the Proposed Development (including the Proposed Development itself) will be reviewed against the National Receptors Database and associated Ordnance Survey MasterMap products. A vulnerability classification will be identified for each receptor in line with the NPPF

Table 19-14 Sensitivity value of receptors

Environmental sensitivity value of a receptor	Receptors
Very High (e.g. International)	**Surface water:** Watercourse having a WER classification and Q95 ≥1.0 m3/s. Site protected/designated under European Commission (EC) (Special Area of Conservation (SAC), Special Protection Area (SPA), Site of Special Scientific Interest (SSSI), Ramsar site, salmonid water)/Species protected by EC legislation Ecology and Nature Conservation. **Groundwater:** Principal aquifer providing a regionally important resource and/or supporting a site protected under EC legislation. Ecology and Nature Conservation. Groundwater locally supports designated GWDTE. Source Protection Zone I (inner zone). **Flood risk:** Essential Civil infrastructure or highly vulnerable development.
High (e.g. National)	**Surface water:** Watercourse having a WER classification and Q95 <1.0 m3/s. Species protected under UK legislation (SSSI). Ecology and Nature Conservation. Licensed surface water abstraction. **Groundwater:** Principal aquifer providing locally important re-source or supporting a river ecosystem. Groundwater supports a GWDTE. Licensed groundwater abstraction. Source Protection Zone II (outer zone) **Flood risk:** Highly vulnerable development.
Medium (e.g. Regional/ County)	**Surface water:** Watercourses not having a WER classification and Q95 >0.001m3/s. **Groundwater:** Aquifer providing water for agricultural or industrial use with limited connection to surface water. Source Protection Zone III (total catchment). **Flood risk:** Less vulnerable development.
Low (e.g. Local)	**Surface water:** Watercourses not having a WER classification and Q95 ≤0.001m3/s. **Groundwater:** Unproductive strata. **Flood risk:** Water compatible development.

19.9.4 Magnitude of impact

19.9.4.1 Table 19-15 summarises the potential magnitude of any construction or operation impact on the receptor, based on the DMRB LA113 guidance [382].

Table 19-15 Magnitude of impacts

Magnitude of Impact	Environmental Impact	Examples
Major	**Negative:** Loss of an attribute and / or quality and integrity of an attribute **Positive:** Creation of new attribute or major improvement in quality of an attribute	**Negative:** Increase in peak flood level* (> 100mm); deterioration in surface water ecological or chemical WER element status or groundwater qualitative or quantitative WER element status. **Positive:** Creation of additional flood storage and decrease in peak flood level* (> 100mm); increase in productivity or size of fishery; improvement in surface water ecological or chemical WER element status; improvement in

Magnitude of Impact	Environmental Impact	Examples
		groundwater qualitative or quantitative WER element status.
Moderate	**Negative:** Loss of part of an attribute or decrease in integrity of an attribute **Positive:** Moderate improvement in quality of an attribute	**Negative:** Increase in peak flood level* (> 50mm); measurable decrease in surface water ecological or chemical quality or flow with potential for deterioration in WER element status. Reversible change in the yield or quality of an aquifer, such that existing users are affected, with potential for deterioration in WER element status. **Positive:** Creation of flood storage and decrease in peak flood level* (> 50mm); measurable increase in surface water ecological or chemical quality or flow with potential for WER element status to be improved. Measurable increase in the yield or quality of an aquifer, benefiting existing users, with potential for WER element status to be improved.
Minor	**Negative:** Measurable change to the integrity of an attribute **Positive:** Measurable increase, or reduced risk of negative effect to an attribute	**Negative:** Increase in peak flood level* (> 10mm); measurable decrease in surface water ecological or chemical quality or flow; decrease in yield or quality of aquifer, not affecting existing users or changing any WER element status. **Positive:** Creation of flood storage and decrease in peak flood level* (> 10mm); measurable increase in surface water ecological or chemical quality; increase in yield or quality of aquifer not affecting existing users or changing any WER element status.
Negligible	Impacts which are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.	Negligible change to peak flood level* (< +/- 10mm); discharges to watercourse or changes to an aquifer which lead to no change in the attribute's integrity.
Neutral	Neutral effects are predicted where the proposal is unlikely to alter the present or future baseline situation.	No change to peak flood level*, discharges to watercourse or changes to an aquifer which have no appreciable effect.
*Peak flood level for floods up to and including a 0.5% annual probability event, including climate change as appropriate. Where access or egress routes are affected, the magnitude of the impact will be defined by the change in the Flood Hazard Rating as defined in Defra/EA report FD2320 **[383]**		

19.9.5 Significance of effect

19.9.5.1 By combining the magnitude of impact (or change) and the sensitivity (value) of each receptor, an assessment will be made of the significance of effect, considering the possibility and nature of mitigation. The resultant effects may be either negative (adverse), positive (beneficial) or neutral, depending on the nature of the impact. The significance of effect upon the receptor is assessed using the significance matrix in Table 19-16.

Table 19-16 Environmental effects matrix

Sensitivity of resource	Magnitude of Impact: Major	Moderate	Minor	Negligible	Neutral
Very High	Major	Major	Major	Moderate	Neutral
High	Major	Major	Moderate	Minor	Neutral
Medium	Major	Moderate	Minor	Negligible	Neutral
Low	Moderate	Minor	Negligible	Negligible	Neutral
Negligible	Minor	Negligible	Negligible	Negligible	Neutral

19.9.5.2 Moderate or Major effects are generally considered significant in EIA terms, and Negligible or Minor not significant. Significance conclusions for each residual effect will seek to incorporate, as far as possible, confirmed design and mitigation measures.

19.10 Assumptions, limitations and uncertainties

19.10.1.1 The current baseline understanding of the draft Order Limits water environment has been summarised in the baseline section above. This understanding has been collated based on a range of publicly available data and information. The accuracy of the baseline condition assessment is reliant upon the accuracy of the data available from the sources.

19.10.1.2 The data will be supplemented with additional data as part of the PEIR and ES process. This will include information gathered during a site visit to identify the nature and sensitivity of water receptors (Section 19.5).

19.10.1.3 The environmental value and sensitivity of water environmental receptors, the magnitude of potential impacts and the significance level may change during later phases when more information and data becomes available.

19.10.1.4 Any third-party information, including the readily available data sources and input from external consultations is to be assumed to be accurate at the time of writing.

19.11 Summary

Table 19-17 Water Resources and Flood Risk scoping summary

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects) and any survey requirements
Surface water quality	All	Scoped in	N/A. A site walkover will be undertaken to establish receptor sensitivity
Surface water quantity	All	Scoped in	N/A. A site walkover will be undertaken to establish receptor sensitivity
Groundwater quality	All	Scoped in	N/A. A site walkover will be undertaken to establish receptor sensitivity

Aspect	Phase	Scoped in / out	Summary comments (including justification and any assumptions relied upon for scoping out aspects) and any survey requirements
Groundwater quantity	All	Scoped in	N/A. A site walkover will be undertaken to establish receptor sensitivity
WDTEs	All	Scoped in	N/A. A site walkover will be undertaken to establish receptor sensitivity
Flood Risk and Drainage	All	Scoped in	Where targeted hydraulic modelling or calculations are required, these will make best use of available information supplied by the EA, including existing models and surveys before identifying if further surveys are required.

19.11.1.1 The water resource and flood risk chapter of the PEIR and ES will be supported by the additional assessments outlined below. The scope of these assessments will be agreed with the relevant stakeholders.

19.11.1.2 It is considered that a separate Hydrogeological Impact Assessment will not be required, beyond that usually undertaken in the PEIR and ES as there is currently no large underground structures or dewatering proposed.

19.11.2 WER Compliance Assessment

19.11.2.1 The WER Compliance Assessment will be undertaken to assess the potential impacts of the Proposed Development on the immediate water bodies present at the site and any linked water bodies. This will be undertaken in line with the latest guidance on the requirements of the WER in relation to Nationally Significant Infrastructure Project (NSIP) applications.

19.11.2.2 WER Compliance Assessments typically comprise a stepped process undertaken in parallel with the design development for a proposed scheme. This includes the following key stages: screening (baseline) assessment, scoping (preliminary) assessment; detailed impact assessment (where required); and the application of Regulation 19 derogation (where/if deemed applicable).

19.11.2.3 A WER screening and scoping assessment will be undertaken to:

- collate the latest WER baseline status and status objectives information available for the relevant WER water bodies that may be affected by the Proposed Development;
- identify the relevant construction activities, permanent components and decommissioning activities associated with the Proposed Development that have the potential to affect the WER water bodies at the sites and any latest associated embedded design and construction/decommissioning phase mitigation measures;
- undertake a high-level preliminary scoping assessment to identify the likely effects of the Proposed Development on the current status and status objectives of the relevant water bodies and any associated risks of non-compliance with WER objectives;

- identify any additional construction/decommissioning and design measures deemed necessary to mitigate the risk of non-compliance, as well as any additional mitigation and potential enhancement opportunities; and
- provide recommendations for any further detailed baseline and impact assessments that are deemed required in parallel with the forward detailed design stage of the Proposed Development.

19.11.2.4 Should the assessment identify the potential for the Proposed Development (taking into consideration all mitigation) to cause a deterioration in the status of one or more quality elements of the relevant water bodies, result in deterioration in the status of the water body as a whole, and/or prevent the future attainment of status objectives, the Proposed Development would be considered non-compliant. This would require design amendments and/or the development of additional mitigation measures.

19.11.2.5 Where it is deemed not possible to mitigate the deterioration in status of (a) water body/bodies as a result of the Proposed Development, the Proposed Development would need to be assessed in the context of an exemption under Regulation 19 of the WER (formerly known as Article 4.7) to proceed.

19.11.3 Flood Risk Assessment (FRA) and Drainage Strategy

19.11.3.1 Given the extent of the Proposed Development and potential interaction with areas of flood risk, a flood risk mitigation process is proposed to identify the design and mitigation measures that should be considered to avoid, reduce or mitigate any flood risk.

19.11.3.2 The production of an FRA will be undertaken in accordance with the NPS EN-1 which stipulates its requirements, alongside guidance within NPS EN-3, the National Planning Policy Framework (NPPF) and associated Flood Risk and Coastal Change guidance [366]. This is both to ensure the Proposed Development itself is designed to be safe and resilient to flood risk, as well as ensuring that the Proposed Development does not increase flood risk to neighbouring receptors.

19.11.3.3 The FRA will also need to demonstrate the application of the Sequential Test, which steers development into areas of lowest flood risk. It is assumed at this stage that the Proposed Development would be classed as ‘Essential Infrastructure’ under the vulnerability classification, and therefore could subsequently require an Exception Test if critical infrastructure is to be located in Flood Zone 3. Currently, the study area includes areas of Flood Zone 3, which be taken into account in the design of the project.

19.11.3.4 If an Exception Test is required, the Proposed Development will need to demonstrate that the sustainability benefits to the community will outweigh the flood risk, that the development will be safe for its lifetime taking into account the vulnerability of users, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

19.11.3.5 The FRA scope will be agreed with key stakeholders (such as the EA and the LLFA) as the flood risk from surface water, fluvial and groundwater sources, together with the infrastructure design of the Proposed Development components, is further developed and better understood.

19.11.3.6 An outline drainage strategy will be prepared (at PIER/ES stage) as part of the FRA that demonstrates the appropriate management of runoff from the Proposed Development.

19.11.4 Highways England Water Risk Assessment Tool (HEWRAT)

19.11.4.1 The Highways England Water Risk Assessment Tool (HEWRAT) is designed to be used to assess the impacts of road runoff where Annual Average Daily Traffic (AADT) volumes are greater than 10,000 vehicles.

19.11.4.2 The potential ecological impacts of routine runoff on surface waters will be assessed using HEWRAT. The proposed methodology for the Detailed Assessment will be undertaken and will follow the methodology and guidance provided in DMRB [382] for assessing the impacts of Road Schemes on Road Drainage and the Water Environment.

20. Cumulative and in-combination effects

20.1 Introduction

20.1.1.1 This chapter outlines the proposed methodology for the assessment of cumulative effects and in-combination effects arising from Proposed Development, as described in Chapter 2 The Proposed Development.

20.1.1.2 Cumulative effects arise from the combined effects of other existing and approved development along with the Proposed Development (assessed through a cumulative effects assessment). An example of a cumulative effect would be where the construction traffic effects of the Proposed Development in isolation are unlikely to be significant, but where combined with the construction traffic effects of another existing or approved development (within the same geographical area/zone of influence and occurring at the same time) may result in likely significant effects on the highway network and receptors.

20.1.1.3 Interrelated effects arise from the interrelationship between more than one environmental effect of the Proposed Development (assessed through an in-combination effects assessment). An example of an in-combination effect would be the resultant effect of noise and dust on a residential receptor, arising from the construction phase activities of the Proposed Development.

20.1.1.4 This chapter should be read in conjunction with:

- Chapter 1: Introduction; and
- Chapter 2: The Proposed Development

20.2 Relevant legislation, policy, standards and guidance

20.2.1.1 The following section identifies the relevant legislation, planning policy, standards and guidelines which underpin the assessment methodology for cumulative and in-combination effects and have informed the scope of the assessment.

20.2.2 Legislation

Table 20.1 Cumulative and in-combination effects – Legislation

Legislation	Relevant to assessment
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 [384]	Sets out the information required for an ES, in relation to the assessment of cumulative effects, Schedule 4 paragraph 5 requires: *"A description of the likely significant effects of the development on the environment resulting from, inter alia: (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"* . Regulation 5 (2) sets out the EIA process and states that: *"The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors*—

Legislation	Relevant to assessment
	(a) population and human health; *(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;* *(c) land, soil, water, air and climate;* *(d) material assets, cultural heritage and the landscape;* *(e) the interaction between the factors referred to in sub-paragraphs (a) to (d). "*

20.2.3 Policy

Table 20.2 Cumulative and in-combination effects – Policy

Policy	Relevant to assessment
Overarching National Policy Statement for Energy (EN-1), 2024 [33]	Paragraph 4.1.5 *"In considering any proposed development, in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account:* *its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following the mitigation hierarchy "* Paragraph 4.2.12 *"The cumulative impacts of multiple developments with residual impacts should also be considered. "*
National Policy Statement for Renewable Energy Infrastructure (EN-3), 2024 [385]	In relation to network connection, in paragraphs 2.10.25 – 26 *"To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs, applicants may choose a site based on nearby available grid export capacity. Where this is the case, applicants should consider the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure. "*

20.2.4 Standards and guidance

Table 20.3 Cumulative and in-combination effects – Standards and guidance

Standards and guidance	Relevant to assessment
Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment, 2024 [386]	Sets out a staged approach to cumulative effects assessment for Nationally Significant Infrastructure Projects and provides template formats for documenting the cumulative effects assessment within the ES.

20.3 Proposed methodology

20.3.1 In-combination effects assessment

20.3.1.1 PINS Advice on Cumulative Effects Assessment [386] states that *"Cumulative effects with 'other existing and, or approved development' are separate from an assessment of interrelationships between aspects for the proposed NSIP (such as between ecology and*

hydrology)…". The in-combination effects assessment will be receptor led, which for example means that the potential in-combination effects of noise, air quality, traffic and night-time lighting on a biodiversity receptor, such as a woodland habitat, would be reported in the Biodiversity Chapter of the PEIR and ES. Therefore, the assessment of in-combination effects will be addressed in each topic chapter as relevant. Where mitigation is proposed, each topic chapter of the PEIR and ES will explain how it has taken other potentially affected sensitive receptors into account to determine that it is appropriate. For example, how proposed planting, to mitigate landscape and visual effects, may affect biodiversity would be taken into account.

20.3.1.2 As per PINS Advice on Cumulative Effects Assessment [386], a table will be provided in the cumulative and in-combination effects chapter of the PEIR and ES, demonstrating where multiple impacts from the proposed NSIP would combine to affect sensitive receptors.

20.3.2 Cumulative effects assessment (CEA)

20.3.2.1 This requires an assessment of the combined effects of a number of different projects within the vicinity, in combination with the environmental impact of the Proposed Development on a range of different receptors.

20.3.2.2 The PINS Advice on Cumulative Effects Assessment recommends a 4 stage process. It focuses on the combined effects with 'other existing development and, or approved development'. In this advice, *"'other existing and, or approved development' is taken to include existing developments and existing plans and projects that are 'reasonably foreseeable'"*. This assessment will be iterative and may need to be repeated a number of times during the preparation of the DCO application.

20.3.2.3 PINS Advice on Cumulative Effects Assessment [386] provides a systematic approach to the Cumulative Effects Assessment (CEA) which can be split into four distinct phases (refer to Table 20.4) which will be applied to the Proposed Development.

Table 20.4 Stages of cumulative effects assessment

CEA stage	Key activities
Stage 1: Establishing the long list of other existing and, or approved development	• define and document the ZOI (study area) for each environmental aspect considered within the ES • a desk study exercise to identify the long list of other existing and, or approved development in the form of planning applications, relevant development plans and any other available and relevant sources, such as consultation response information from a relevant planning authority • attribute and record a level of certainty, based on available information, to each development, based on tiers 1, 2 or 3 (see below)
Stage 2: Establishing a shortlist of other existing and, or approved development	• develop and apply threshold criteria to the long list to establish a short list of the existing and, or approved development to be included in the CEA, ensuring the assessment is proportionate • develop the shortlist criteria at an early stage, with regard to relevant policies, and in consultation with relevant consultation bodies, especially the local planning authority • identify which of the identified other developments from Stage 1 have the potential to give rise to significant cumulative effects by virtue of: overlaps

CEA stage	Key activities
	in temporal scope; interaction with the scale and nature; or any other relevant factors • include a summary of consultation, and any agreements reached, within the CEA, possibly using Matrix 1 in Annex 1 to summarise stages 1 and 2
Stage 3: Information gathering	• gather and compile detailed information on each of the other existing and, or approved developments shortlisted at Stage 2 • include information relating to: proposed design and location information; proposed programme of construction, operation and decommissioning; and environmental assessments that set out baseline data and effects arising from the other existing and, or approved development • summarise information gathered and present in an accessible format, for example in line with Matrix 2 in Annex 2
Stage 4: Assessment	• assess the cumulative effects of the proposed NSIP with the other existing and, or approved development identified in Stages 1 to 3 • undertake a level of detail proportionate to the information available; explain and record any limits or gaps in the information; consider all Tier 1 and Tier 2 other existing and, or approved developments where possible; consider all Tier 3 other existing and, or approved development where possible, although this may be qualitative and high level; and document this in the Environmental Statement

20.4 Stage 1: Establishing the long list of other existing and, or approved development

20.4.1.1 A review of 'other existing and, or approved development' was undertaken in July 2024 to inform an initial long list and seek feedback on this approach via this scoping exercise. At this stage, the long list has been produced based on a 10km search area, buffered around the Solar Development Sites, however future assessments will consider a buffer around Cable Corridor. A 10km study area has been chosen as it is anticipated to be the maximum range of any potential significant effects used by any topic specialist. Topic specific 'zone of influence' (ZOI) will be defined by the environmental topic specialists when preparing the short list of 'other development'.

20.4.1.2 The PINS Advice on Cumulative Effects Assessment [386] states that 'other existing development and, or approved development' types that should be established for the CEA. To establish a level of certainty to this type of development, the guidance presents three tiers which can be assigned to each 'other existing and, or approved development':

Tier 1

20.4.1.3 Other existing and, or approved development

- under construction
- permitted applications under the Planning Act or other regimes but not yet implemented
- submitted applications under the Planning Acting or other regimes but not yet determined

- all refusals subject to appeal procedures not yet determined

Tier 2

20.4.1.4 Other existing and, or approved development

- projects on the Planning Inspectorate's programme of projects

Tier 3

- Other existing and, or approved development
- 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 given as they near 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 or approvals, where such development is reasonably likely to come forward

20.4.1.5 A decreasing level of detail is likely to be available from Tier 1 to Tier 3.

20.4.1.6 The level of detail that is likely to be available to support the CEA will decrease along with the tiers, i.e. tier 1 developments likely having the most detail available and tier 3 developments having likely having the least detail available.

20.4.1.7 For the Proposed Development, relevant other existing developments and/or approved developments will be identified through a desk-based review of the following sources:

- Nationally Significant Infrastructure Projects from National Infrastructure Planning [387];
- Transport and Works Act Orders (TWAO) from Department for Transport [388]; and
- Applications for planning permission under the Town and Country Planning Act 1990 [389], allocations and Mineral and Waste EIA applications from North Yorkshire Council, Wakefield Council, City of York Council, Leeds City Council, City of Doncaster Council and East Riding of Yorkshire Council, where relevant.

20.4.1.8 Searches have been conducted online, using the criteria set out in Table 20.5, to establish the long list of 'other existing and, or approved development'.

Table 20.5 Long list search criteria

Development		Housing unit (no)	Housing land (ha)	Non-residential (ha)	Distance from Order Limits
Nationally Significant Infrastructure Projects		All	All	All	10km
Transport and Works Act Orders (TWAO)		All	All	All	10km
Mineral and Waste EIA applications		All	All	All	10km
Applications or allocations	Large scale	200+	4+	2+	10km
	Medium scale	10-199	0.5-4	1-2	2km
	Small scale	1-9	Less than 0.5-4	Less than 1	500m

20.4.1.9 Table 20.6 shows the initial long list of 'other existing and, or approved development' produced in July 2024.

Table 20.6 Long list search July 2024

Type	Application reference / name
Nationally Significant Infrastructure Projects	Drax Bioenergy with Carbon Capture and Storage Project (EN010120) Helios Renewable Energy Project (EN010140) Eggborough Combined Cycle Gas Turbine (EN010081) Fenwick Solar Farm (EN010152) Yorkshire Green (EN020024) East Yorkshire Solar Farm (EN010143) Ferrybridge Carbon Capture and Storage (EN0710002)
Transport and Works Act Orders (TWAO)	Church Fenton Level Crossing Reduction (York to Church Fenton Improvement Scheme) Leeds to Micklefield Enhancements Order Rose Lane Level Crossing Closure Order (Screening Opinion)
Mineral and Waste EIA applications	**North Yorkshire Council** [390]**:** NY/2019/0165/ENV NY/2020/0162/FUL NY/2021/0215/FUL NY/2022/0102/ENV NY/2023/0039/SCR NY/2022/0155/SCC NY/2023/0169/SCR NY/2020/0183/FUL NY/2023/0117/FUL NY/2019/0136/ENV NY/2022/0027/SCO NY/2020/0114/SCR

Type	Application reference / name	
Applications or allocations	**Large scale –** **North Yorkshire Council** [390]**:** 2019/0995/FULM 2019/1355/FULM 2020/0149/FULM 2020/1250/SCN 2021/0511/SCN 2021/1531/EIA ZG2023/0481/SCN ZG2023/0557/SCN ZG2023/1271/FULM 2022/0052/SCN STIL-D Proposed New Settlement Allocation SELB-BZ Proposed Residential Allocation OSGB-N Proposed Education Allocation SELB-CA Proposed Employment Allocation SELB-AG Proposed Residential Allocation SELB-B Proposed Residential Allocation BRAY-X Proposed Residential Allocation THRP-K Proposed Residential Allocation" HAMB-F Proposed Residential Allocation SHER-AA Proposed Employment Allocation SHER-H Proposed Residential Allocation EGGB-Y Proposed Residential Allocation EGGB-AA Proposed Employment Allocation CARL-G Proposed Residential Allocation HEMB-G Proposed Residential Allocation **Wakefield Council** [391]**:** 19/01238/FUL 21/00904/EIASO 22/00345/FUL 23/01043/FUL	24/00231/FUL ES04 Employment Allocation HS35 Residential Allocation HS32 Residential Allocation HS30 Residential Allocation HS33 Residential Allocation ES09 Employment Allocation ES05 Employment Allocation ES08 Employment Allocation HS16 Residential Allocation HS15 Residential Allocation HS12 Residential Allocation ES03 Employment Allocation **City of York Council** [392]**:** 24/00619/EIASN 24/01077/FULM ST15 Proposed Residential Allocation ST26 Proposed Employment Allocation ST27 Proposed Employment Allocation ST33 Proposed Residential Allocation ST36 Proposed Residential Allocation ST4 Proposed Residential Allocation ST31 Proposed Residential Allocation ST7 Proposed Residential Allocation **Leeds City Council** [393]**:** HG2-125 Residential Allocation

Type	Application reference / name
	Medium scale – **North Yorkshire Council** [390]**:** KELL-B Proposed Residential Allocation HENS-L Proposed Residential Allocation EGGB-S Proposed Residential Allocation HILL-A Proposed Residential Allocation HAMB-N Proposed Residential Allocation
	Small scale – **North Yorkshire Council** [390]**:** 2023/0356/FUL ZG2023/0419/FUL ZG2024/0172/OUT ZG2024/0174/HPA ZG2024/0609/FUL ZG2023/1051/FUL

20.5 Stage 2: Establishing a shortlist of other existing and, or approved development

20.5.1.1 The long list will be reviewed by environmental topic specialists undertaking environmental assessments for each aspect scoped into the EIA to develop a short list of 'other existing and, or approved development' to be included in the CEA. This will ensure that the assessment is proportionate in that it includes only 'other existing and, or approved development' likely to result in significant cumulative effects. The criteria to be used for short-listing will be:

- Temporal scope: the relative construction, operation and decommissioning programmes of the other existing and, or approved developments identified in the ZOI together with the NSIP programme, to establish whether there is overlap and any potential for interaction.
- Scale and nature of development: the scale and nature of the other existing and, or approved developments identified in the ZOI that are likely to interact with the proposed NSIP.
- Other factors: factors which could make a significant cumulative effect with the other existing and, or approved developments more or less likely.

20.5.1.2 Professional judgement will be applied where necessary to ensure that only 'other existing and, or approved development' likely to lead to significant cumulative effects are included.

20.5.1.3 North Yorkshire Council and any other relevant consultation bodies will be consulted on the shortlisted 'other existing developments and, or approved developments' proposed to be included in the CEA, to agree the final list for assessment.

20.5.1.4 Annex 1 [394] may be used to summarise CEA Stages 1 and 2.

20.6 Stage 3: Information gathering

20.6.1.1 Information will be gathered for each of the short-listed 'other existing developments and, or approved developments', relevant to their environmental effects. This information will include:

- proposed design and location information;
- proposed programme of construction, operation and decommissioning; and
- environmental assessments that set out baseline data and effects arising from the other existing and, or approved development.

20.6.1.2 The information will be obtained primarily from the websites of local councils, Department for Transport [388] and the Planning Inspectorate [387]. This may be supplemented with information from liaison with other stakeholders and developers.

20.6.1.3 Annex 2 [395] of PINS Advice on Cumulative Effects Assessment [386] may be used as a template for presenting information gathered or Stage 3 of the CEA.

20.7 Stage 4: Assessment

20.7.1.1 Environmental topic specialists will review the information gathered in Stages 1-3 and will carry out a proportionate assessment of significant cumulative effects of the proposed development with the 'other existing and, or approved developments'. They will consider how the reported effects of the 'other existing developments and, or approved developments' would be likely to interact with the reported effects of the Proposed Development, to reach conclusions on the nature and significance of cumulative effects.

20.7.1.2 Where some assessments are inherently cumulative, they will require no additional cumulative assessment, however, it is noted that separate consideration for accumulation or inter-relationship of effects on an individual receptor may be needed.

20.7.1.3 The significance of the cumulative effects will be determined using the same criteria as are used in the relevant individual topic assessments for the Proposed Development. Where there are limitations on the assessment due to the availability of information relating to the effects of the 'other existing developments and, or approved developments', those limitations will be noted and attempts to source data explained.

20.7.2 A co-ordinated approach

20.7.2.1 As per PINS Advice on Cumulative Effects Assessment [386], information will not be duplicated, for example where a Habitats Regulation Assessment is required alongside the ES. The Applicant will ensure it utilises shared datasets and clear cross-referencing between documentation.

20.7.3 Significant criteria

20.7.3.1 Guidance around significance is provided in PINS Advice on Cumulative Effects Assessment [386]. The advice states that terminology used to determine significance should be explicit and support a clear outcome of the cumulative effects assessment, and

that criteria should consider capacity of the receiving environment and receptors to accommodate changes likely to occur. Considerations for developing bespoke significance criteria are also provided.

20.7.4 Assessment cut-off date

20.7.4.1 As per PINS Advice on Cumulative Effects Assessment [386], the cut-off dates for the assessment will be noted accordingly in the cumulative and in-combination effects chapter of PEIR and ES. The list of committed developments will be updated and frozen approximately 3 months in advance of the preparation of both the PEIR and ES. Any changes to the list after these points will not be included in the assessments, however it is understood that additional assessments may need to be conducted by request of the Examining Authority at examination in relation to effects arising.

20.7.5 Mitigation and monitoring

20.7.5.1 In cases where significant cumulative effects are identified, it may be necessary to propose additional mitigation measures specifically for cumulative effects. Mitigation measures and monitoring arrangements, where appropriate will be set out in the ES. These measures may be delivered solely by the Applicant or may, in some cases, be subject to agreement with another developer, which would be sought.

20.7.5.2 Annex 2 [395] will be used to guide the development of and reporting of the assessment. Where mitigation and, or monitoring is proposed to be secured and delivered through a requirement in the draft DCO, reference will be provided in the mitigation column of Matrix 2, or as part of an overarching schedule of mitigation.

20.7.5.3 As well as including mitigation necessary to address impacts associated with the Proposed Development, PINS advice states that apportionment of effect and mitigation between projects may be acceptable subject to justification and agreement with relevant consultation bodies, where evidenced in the Environmental Statement.

20.7.5.4 It is also advised that holistic mitigation strategies in collaboration with other relevant bodies identified in the CEA, including developers, should be developed where possible.

21. Structure and content of the PEIR and ES

21.1 Introduction

21.1.1.1 An outline structure of the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) is provided within this chapter.

21.1.1.2 It is intended for the purposes of the Proposed Development that the PEIR and ES will be arranged as set out below and topic chapters included will be those scoped in for further assessment in this EIA Scoping Report.

21.1.1.3 The PEIR and ES will be structured as follows:

- Non-technical summary (NTS)
  - The NTS will summarise the findings of the PEIR and ES, written in non-technical language.
- Main report
  - This document will comprise the main body of the PEIR and ES. It will detail the findings of the environmental assessment and any identified additional mitigation measures to avoid, reduce or minimise any potentially significant adverse environmental effects. Each topic will be assigned a separate technical chapter in the ES as follows:
    - Chapter 1: Introduction
    - Chapter 2: The Proposed Development
    - Chapter 3: Alternatives and design iteration
    - Chapter 4: Approach to EIA
    - Chapter 5: Agricultural land and soils
    - Chapter 6: Biodiversity
    - Chapter 7: Climate change resilience
    - Chapter 8: Greenhouse gas emissions
    - Chapter 9: Cultural heritage
    - Chapter 10: Landscape and visual
    - Chapter 11: Noise and vibration
    - Chapter 12: Socioeconomics
    - Chapter 13: Traffic and movement
    - Chapter 14: Water resources and flood risk
    - Chapter 15: Cumulative effects and inter-relationships
    - Chapter 16: Conclusions and summary of environmental effects
- Figures
  - These will comprise a set of figures which support the assessments undertaken.
- Technical appendices
  - These will comprise the supporting technical appendices to the topic chapters including background data, technical reports and survey data.

22. Conclusion

22.1 Summary of the proposed EIA approach

22.1.1.1 In accordance with Regulation 8(1)(b) of the EIA Regulations [396], this EIA Scoping Report provides notification to the SoS that the Applicant will produce an ES which will accompany the DCO application for the Proposed Development. This EIA Scoping Report has been produced to support an application for a Scoping Opinion with regards to the scope and level of detail of information to be provided in the ES, in accordance with Regulation 10 of the EIA Regulations [396].

22.1.1.2 This EIA Scoping Report has identified the likely significant effects of the Proposed Development with respect to each environmental topic and set out the proposed approach and methodology for further assessment in the EIA. Table 22.1 provides a summary of the proposed scope of the topics to be included in the ES.

Table 22.1 Summary pf proposed scope of the EIA

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
Agricultural land and soils	Soil and ALC Survey for Solar Development Sites 1-5 Loss of use of land for agriculture, including that of Best and Most Versatile (BMV) quality for Solar Development Sites (C, D) Loss of or damage to soil resources for Solar Development Sites 1-5 (C, O, D) Damage of soils for Cable Corridors (C, D) Changes in land management during operation with potential to result in likely significant effects for soil health (O)	Agricultural holdings / farm businesses	Effects to agricultural holdings / farm businesses are not likely because all landowners with farm businesses who are involved in the solar and battery elements of the Proposed Development have agreed to be involved in the project on a voluntary basis and have, therefore, considered the potential effects on the overall viability, diversity and resilience of their farm businesses. Agreements will also be in place between the landowners and occupiers of the land should the Proposed Development proceed. Therefore, further consideration of effects to agricultural holdings / farm businesses is not needed and are scoped out of assessment. This approach is supported by the fact that there is no relevant policy and guidance to support or maintain the viability of individual farms affected by development.
		Loss of agricultural land for Cable Corridors (C, O, D)	The loss of land to agriculture to install the cables would be temporary, short-term and within a defined cable corridor, and would not be expected to lead to significant loss of agricultural production.
		Damage to soils for Cable Corridors (O)	There would be no disturbance to soils over the cable connections between the Solar Development Sites during the operation of the Proposed Development.
Air Quality	N/A	Construction dust	A dust assessment will support the DCO application for the construction phase and the decommissioning phase. This will also consider cumulative effects. Construction plant and NRMM are also to be scoped out based on the temporary and intermittent nature of their use at varying locations within the draft Order Limits.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		Vehicle emissions	Construction, operation and decommissioning traffic is scoped out on the basis that the AADT vehicle movements are below the EPUK/IAQM screening criteria
		Operational emissions of unplanned air quality emissions such as hydrogen fluoride, due to potential BESS fire event	There is potential for the unlikely event of a fire within the BESS, which could result in unplanned air emissions of chemicals such as hydrogen fluoride. However, this is highly unlikely based on the design, in-built mitigation and BFSMP. On this basis, unplanned air emissions have been scoped out of a formal assessment.
Biodiversity	Designated sites Lower Derwent Valley SPA and Ramsar (C, O, D) Humber Estuary SPA, SAC, Ramsar (C, O, D) Burr Closes, Selby SSSI (C, O, D) Fairburn and Newton Ings SSSI (C, O, D) SINCs within Cable Corridor Area (C, O, D) SINCs adjacent to Cable Corridor Area (C, O, D) Habitats Grassland (C, O, D) Waterbodies (C, O, D) Ditches (C, O, D) Watercourses (C, O, D)	Skipworth common SAC (C, O, D)	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. Construction traffic movements will be insufficient to create potential pathways through air pollution. Nevertheless for road traffic emissions the distance criteria applied for assessment at the traffic levels anticipated would be 200m which this designated site falls outside off.
		Lower Derwent Valley SAC (C, O, C)	Potential impacts to qualifying features (such as otter) arising from indirect effects of construction if run off were to result in pollution of Pallion Dike (which eventually connects to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. As such, potential impacts to these species and other qualifying features of the SAC are considered unlikely.
		River Derwent SAC (C, O, D)	Potential impacts to qualifying features (such as River lamprey, which migrate along the River Ouse) arising from indirect effects of construction if run off were to result in pollution of Pallion

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
	Hedgerow (C, O, D) Trees (C, O, D) Broad-leaved woodland (C, O, D) Ancient woodland (C, O, D) Invasive non-native flora (C, O, D) Species (C, O, D) Amphibians Aquatic fauna Badger Bats Birds Brown hare Hedgehog Invertebrates Otter Reptiles Water vole		Dike (which eventually connects to the River Derwent via Common Drain and Old Derwent) will be mitigated by following the standard pollution prevention measures outlined in the oCEMP/oLEMP. Therefore, potential impacts to these species and other qualifying features of the SAC / SSSI are considered unlikely.
		Thorne and Hatfield Moors SPA, Thorne Moor SAC, Strensall common SAC and Hatfield Moor SAC (C, O, D)	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.
		Gilbertsons Plantation – Wheldrake Site 65 SINC (C, O, D)	There is potential for direct damage to habitats in the adjacent SINC. However following the Design Principles, a 15m buffer from this SINC is proposed (as it is an ancient woodland) and this buffer, as well as the measures outlined in the oCEMP/oLEMP should suffice to prevent direct impacts. Works close to the boundary of the SINC could also lead to indirect disturbance of habitats and associated species. However following the design principles, the proposed 15m buffer discussed above should suffice to prevent indirect impacts.
		All other SINCs (20 within 2km of Solar Development Sites and 39 within 2km of Cable Corridor Options Area) (C, O, D)	Potential direct and indirect impacts to the qualifying features of these designation are considered unlikely due to distance and lack of impact pathways with the potential to affect designated features.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		Arable land (C, O, D)	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 birds), these species are scoped into the assessment and the value of this habitat is assessed within that feature.
		Degradation of retained habitats (C, O, D)	Potential for damage to retained habitats will be avoided by following the Design Principles set out above and which will be provided in the oCEMP/oLEMP
Climate change resilience	Climate change resilience (O, D)	Construction climate change resilience (C)	It is likely that design thresholds for extreme heat and weather conditions will be incorporated into the design and mitigation will be in place to protect against extreme weather events. Climate conditions are also not expected to change significantly within the construction stage; therefore significant effect on construction and not expected.
		In-combination climate change impacts (C, O, D)	Projected temperature increases, changes in wind patterns, increase in heavy rainfall and increased risk of drought in combination with the Proposed Development are not expected to have a significant impact upon environmental receptors identified by other topic disciplines and are therefore scoped out.
Cultural heritage	Designated built heritage assets and conservation areas (C, O)	Designated built heritage assets and conservation areas (D)	It is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
	Non-designated built heritage assets (C) Archaeological heritage assets (C) Unrecorded archaeology (C)	Non-designated built heritage assets (O, D)	While decommissioning of the Proposed Development in Solar Development Sites 1-5 would result in change(s) to the setting of designated heritage assets and conservation areas through removal of all above-ground equipment and infrastructure as part of the Proposed Development, the magnitude of impact resulting from this is unlikely to result in significant effect(s) to the cultural significance (value) of any affected assets. It is unlikely that operation would result in significant effects to non-designated built heritage assets. This is because any physical impact(s) will have occurred during construction and as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value), changes to setting resulting from normal operation and periods of component replacement are unlikely to result in significant effect(s) to cultural significance (value). Any physical impact(s) will have occurred during construction and, as non-designated built heritage assets have a lower sensitivity to change(s) in setting where this contributes to cultural significance (value), the removal (including all above-ground equipment and infrastructure as part of the Proposed Development) and restoration of Solar Development Sites 1-5 rather than replacement with a different scheme is unlikely to result in significant effect(s) to the cultural significance (value) of affected assets. It is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		Archaeological heritage assets (O, D)	Normal operations and periods of component replacement are unlikely to result in significant effects to archaeological heritage assets left in situ following construction of Solar Development Sites 1-5 and the Cable Corridors. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works. It is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
		Unrecorded archaeology (O, D)	Normal operations and periods of component replacement are unlikely to result in significant effects to unrecorded archaeology left in situ following construction of the Proposed Development within Solar Development Sites 1-5 and the Cable Corridors. This is because any impact(s) would be associated with construction, and it is assumed that component replacement is unlikely to require excavation or other below ground works. It is unlikely that decommissioning would result in the generation of additional significant effects to those resulting from construction and operation.
Electrical, magnetic and electromagnetic fields (EMF)	N/A	Electromagnetic fields (C, O, D)	Due to the design, avoidance and mitigation measures proposed, no significant effects on EMF receptors are anticipated.
Greenhouse gas emissions	Greenhouse gas emissions (C, O, D)	N/A	N/A
Ground conditions	N/A	Effects on geology (C, O, D)	No sensitive geodiversity sites or mineral resources have been identified within 250m of the draft Order Limits.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		Effects from contamination on surface water and groundwater resources (C, O, D)	Based on historical and current land uses, widespread contamination is not anticipated. The risks to surface water bodies and groundwater during construction will be mitigated by applying good working practices set out in the oCEMP and the implementation of embedded mitigation measures.
		Effects from contamination on human health / built environment / ecology (C, O, D)	Any contaminated land which has been identified as having potential to cause harm to controlled waters would have been removed and /or treated during the construction phase. Accidental releases of contaminants from leaks and spillages and surface runoff in the event of a major incident would be managed in accordance with standard measures set out in the Drainage Strategy, oOEMP, and oBFSMP. As a result of the mitigation measures implemented during construction and operation, there is a low risk that contamination would be present at the start of decommissioning. Furthermore, the DEMP will provide the mitigation measures required. Based on historical and current land uses, widespread contamination is not anticipated. Risks to receptors during construction are typically mitigated by applying good working practices set out in a CEMP. Any contaminated land which has been identified as having potential to cause harm to controlled waters would have been removed and /or treated during the construction phase. Appropriate site-specific risk assessments and method statements

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
			would be prepared to control any future exposure to maintenance workers. As a result of the mitigation measures implemented during construction and operation, there is a low risk that contamination would be present at the start of decommissioning. Furthermore, the DEMP will provide the mitigation measures required.
		Effects from unexploded ordnance (UXO) on human health / built environment (C, O, D)	The risk of encountering UXO is considered to be low based no online risk maps. All appropriate good practice measures commensurate with an assessment of the UXO risk will be employed during construction.
Human health		Environmental amenity	Considered in the landscape and visual, air quality and noise and vibration chapters of the ES. Mitigation measures will be detailed in the ES, oCEMP and oLEMP, with no significant health effects expected.
		Accessibility and active travel	Considered in the traffic and movement chapter of the ES. Further consideration and appropriate mitigation measures will be detailed in the oCEMP, oLEMP and oDEMP with no significant health effects expected.
		Access to health and social care and other social infrastructure	No potential direct or indirect impacts on existing social infrastructure identified.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		Community safety	Compliance with environmental regulations and design standards will ensure to risk to public health from ground and water contamination, flood risk or electromagnetic fields.
		Access to open space and nature	Effects on rural PRoW from diversions and amenity impacts not considered to give rise to potential health and wellbeing effects.
		Access to work and training	Scale of economic benefits and new employment opportunities not considered to give rise to potential health benefits at the population level.
Landscape and visual	Landscape features within the draft Order Limits (C, O, D)	Landscape character areas (LCA6, LCA10)	The ZTV indicates very little or no visibility to LCA6 and LCA10.
	Landscape character areas within the draft Order Limits (LCA2, LCA3, LCA7, LCA11 and LCA13) (C, O, D) LCA8, LCA14, LCA15, LCA16 (O)	LCA8, LCA14, LCA15, LCA16 (C, D) LCT28	These LCAs are at least 1km distance from the draft Order Limits. The ZTV indicates limited intervisibility.
		Howardian Hill National Landscape	Due to distance (approximately 20km) and limited intervisibility.
	Views and visual amenity for local communities/ residents and recreational receptors within the study area (C, O, D) Views and visual amenity for transport receptors	Assessment of private views (a residential visual amenity assessment (RVAA))	Views from houses and individual properties are a matter of private amenity and are therefore not included in the LVIA in accordance with LITGN-2024-01 and GLVIA3.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
	within the study area (C, O, D)		
Major accidents and disasters	Note a major accidents and disasters ES chapter is not proposed. The following assessments will support the DCO application: Glint and glare (C, O, D) provided in a standalone supplementary assessment Unstable ground is considered in the geoenvironmental Preliminary Risk Assessment (C, O, D) Extreme weather events and in particular flood risk will be considered in the Flood Risk Assessment which will support the water resources and flood risk ES chapter (C, O, D).	Electrical fires and explosions COMAH sites Utilities	The oCEMP will contain measures to reduce the risk of electrical fires and explosions which will be detailed in the CEMP prepared by the Contractor, which will be a requirement of the DCO. The oBFSMP will contain measures to reduce the risk of electrical fires and explosions from the BESS element of the Proposed Development which will be detailed in the BFSMP prepared at the detailed design stage post consent, which will be a requirement of the DCO. There are unlikely to be any significant effects as a result of interactions between the nearest COMAH site and the Proposed Development. As the Proposed Development design progresses, discussions will be held with utility providers to ascertain the locations of all assets, and the provider's required offset distances will be implemented in the Proposed Development's design to minimise the risk of a major accident and disaster as a result of interactions with utilities. Good practice measures will also be included to protect against any interference with below ground utilities during construction, operation and decommissioning in the various management plans (including relevant Protective Provisions within the DCO). The mitigation measures will be secured via DCO requirements.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
		UXO	The low risk for presence of unexploded ordnance (UXO) is shown in the Zetica risk map and appropriate best practice and mitigation measures will be in place via the CEMP. Operational inspections and maintenance, replacement and decommissioning phases would have an even lower risk of encountering UXO as the ground would have been disturbed during construction so if a UXO was identified it would have already been managed in accordance with the CEMP. However, the relevant management plans would include measures to manage UXO risks.
		Accidental spillages	Accidental spillages as a result of the Proposed Development are considered to be low consequence events and should they occur, they would be at a scale that do not meet the definition of a major accident or disaster, and are expected to be able to be managed and mitigated via the suite of management plans that will be in place. Therefore, there are unlikely to be any significant effects as a result of accidental spillages. Therefore, further assessment of the risk and effects from accidental spillages in terms of major accident and disasters is scoped out of the PEIR and ES.
		Influenza type pandemic	The CEMP, OEMP and DEMP will include details of the Applicant's relevant resilience plan(s) for business continuity, disaster recovery and crisis management in the event of a new pandemic, with measures provided in outline versions as part of the DCO application. Therefore, further assessment of the risk and effects from a pandemic in terms of major accident and disasters is scoped out of the PEIR and ES.
		Crime / terrorism	Regulations have come into effect in the UK which require manufacturers of connected consumer devices, including solar

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
			inverters, to comply with cyber security requirements. This would also apply to manufacturers who supply the solar inverters used on the Proposed Development. Security measures including fencing, gates and CCTV will be included in the Proposed Development as described in Chapter 2 (The Proposed Development). Therefore, the risk of crime / terrorism is likely to be very low and therefore it is unlikely that there would be significant effects from a major accident or disaster due to crime or terrorism. Therefore, further assessment of the risk and effects from crime or terrorism in terms of major accident and disasters is scoped out of the PEIR and ES.
Noise and vibration	Traffic noise (C, D)	Traffic noise and vibration (O)	Operational traffic noise and vibration, including during routine servicing and maintenance, is unlikely to result in a significant effect, as the anticipated increase in flows associated with the Proposed Development is expected to be minimal. During the replacement of solar PV modules and batteries there would be more traffic than during routine inspection and maintenance activities but no more than would be required during construction. Construction traffic noise assessment is scoped in so operational traffic noise and vibration is also proposed to be scoped in. However, no new or different assessment will be undertaken.
		Traffic vibration (C, O, D)	Construction and operational traffic vibration (including during replacement activities) would be minimal in terms of impacts on people and risk of damage to any buildings or other structures and is proposed to be scoped out.
		Vibration from stationary sources and routine maintenance (O)	Vibration impacts from operational stationary sources are unlikely to generate significant levels of vibration. Therefore, operational

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
	Noise from stationary noise sources and routine maintenance (O)		vibration from stationary sources and maintenance activities are proposed to be scoped out from further assessment.
Socioeconomics	Employment and supply chain effects (C, D) PRoW and recreational routes (C, D)	Employment and supply chain effects (O) All other socio-economic effects related to the local population (amenity effects) (C, O, D) PRoW and recreational routes (O) Land Use – potential indirect effects on commercial receptors, community facilities and development land (C, O, D) Land Use – Development land and allocations (including mineral resource) (C, O, D)	While some employment opportunities are expected for the operational period, these are expected to be limited in number. Effects on amenity would be assessed in other technical chapters. It is considered that potential effects on access to PRoW and recreational routes such as PRoW diversions would be felt during construction. Effects on commercial and community facilities are expected to be minimal. Assessment of direct impacts on development land allocations is scoped into the assessment, but indirect effects on development land allocations is scoped out of the assessment. Indirect effects can be managed and mitigated through the committed management plans (e.g. oCEMP, oCTMP and oDEMP.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
	Effect on tourism accommodation (C, D)	Effects on tourism facilities (C, O, D)	Given the lack of tourist sites in the vicinity, the Proposed Development is not expected to result in significant effects on tourism.
		Effect on tourism accommodation (O)	It is not considered that there would be any impact to tourism accommodation and/or facilities during the operational stage of the Proposed Development, linked to the minimal workforce required during that time.
Traffic and movement	Severance (C)	Severance (O, D)	There are anticipated to be around five visits to each Solar Development Site per month for maintenance purposes (less that one trip a day on average). These would typically be made by LGVs. Thus, it is expected that any operational impacts on traffic and movement will be minimal, and the topic is scoped out of the operational assessment. Given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned in a manner that cannot be predicted at this early stage, it is not proposed that any further assessment of transport and movement is undertaken for the decommissioning stage.
	Driver and pedestrian delay (C)	Driver and pedestrian delay (O, D)	There are anticipated to be around five visits to each Solar Development Site per month for maintenance purposes (less that one trip a day on average). These would typically be made by LGVs. Thus, it is expected that any operational impacts on traffic and movement will be minimal, and the topic is scoped out of the operational assessment. Given that the future baseline transport conditions are likely to have changed significantly when the Proposed Development is decommissioned in a manner that cannot be predicted at this early

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
			stage it is not proposed that any further assessment of transport and movement is undertaken for the decommissioning stage.
		Pedestrian and cyclist amenity (C, O, D)	Mitigation proposals will be developed where necessary, addressing pedestrian and cyclist amenity and through appropriate diversions and/or new routes will be established. Due to limited footway provision along carriageways in the vicinity of the Proposed Development, alongside expected low traffic flows, it is recommended that the assessment of pedestrian and cyclist amenity will be scoped out of further assessment as part of traffic and movement, however consideration of impacts upon PRoW will be included within the Socioeconomics assessment.
		Fear and intimidation (C, O, D)	Given the low receptor sensitivity, baseline collision history and that there are no changes to the highway network layout, it is expected that any transport impacts on fear and intimidation will be minimal and the topic should be scoped out of the assessment.
		Accidents and safety (C, O, D)	Given the low receptor sensitivity, baseline collision history and that there are no changes to the highway network layout, it is expected that any transport impacts on fear and intimidation will be minimal, and the topic should be scoped out of the assessment.
		Hazardous loads / large loads (C, O, D)	Given that it would just be the occasional trip to deliver one off larger components of the substation, and that a licence would be required at that time, it is proposed that no further assessment of hazardous or abnormal loads is required, and the topic be scoped out in the transport and movement assessment.

Topic	Proposed scope of assessment (C – Construction, O = Operation, D = Decommissioning)	Aspects to be scoped out	Rationale for aspects proposed to be scoped out
Water, resources and flood risk	Surface water quality Surface water quantity Groundwater quality Groundwater quantity WDTEs Flood risk and drainage	None	N/A

Appendices

Appendix 2.1 Commitments register

Introduction

This Appendix to the EIA scoping report sets out the commitments made by the Applicant for the Proposed Development in the form of a commitments register. This commitments register has been produced in accordance with the guidance note provided by the Planning Inspectorate [397] and will be updated for the PEIR and ES.

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
General – Management Plan Commitments				
G1	An Outline Construction Environmental Management Plan (oCEMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	All	Construction	To be included as a management plan which will be secured by DCO requirement.
G2	An Outline Operation Environmental Management Plan (oOEMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	All	Operation	To be included as a management plan which will be secured by DCO requirement.
G3	An Outline Decommissioning Environmental Management Plan (oDEMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	All	Decommissioning	To be included as a management plan which will be secured by DCO requirement.
G4	An Outline Landscape and Ecological Management Plan (oLEMP), including measures specific to landscape and ecology will be prepared, which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	Landscape and visual Biodiversity Climate change resilience Greenhouse gas emissions Human health Major accidents and disasters Socioeconomics Water resources and flood risk	Construction Operation	To be included as a management plan which will be secured by DCO requirement.

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
G5	An Outline Materials and Waste Management Plan (oMWMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	Air quality Greenhouse gas emissions Ground conditions	Construction Operation	To be included as a management plan which will be secured by DCO requirement.
G6	An Outline Construction Traffic Management Plan (oCTMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	Traffic and movement Air quality Biodiversity Human health Major accidents and disasters Noise and vibration Socioeconomics	Construction	To be included as a management plan which will be secured by DCO requirement.
G7	An Outline Battery Fire Safety Management Plan (oBFSMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	Air quality Ground conditions Human health Major accidents and disasters	All	To be included as a management plan which will be secured by DCO requirement.
G8	An Outline Archaeological Remains Management Plan (oARMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any further mitigation that is deemed required as a result of the EIA process.	Cultural heritage	Construction	To be included as a management plan which will be secured by DCO requirement.
G9	An Outline Soil Resource Management Plan (oSRMP) will be prepared which will incorporate standard industry best practice, considered as embedded measures, as well as any	Agricultural land and soils	Construction	To be included as a management plan which

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
	further mitigation that is deemed required as a result of the EIA process.	Air quality Ground conditions		will be secured by DCO requirement.
Construction and Design Commitments				
D1	Opportunities to retain grazing / other compatible agricultural uses under panels will be explored and considered alongside other compatible land uses such as measures to maximise biodiversity	Agriculture and soils Biodiversity	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D2	Construction compounds will be located on low diversity habitat where practicable and will be located as far as practicable from sensitive receptors.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D3	A 15m buffer will be required around any construction works and from any infrastructure (including fencing) and to ancient / veteran trees and ancient woodland. Final buffers to ancient / veteran trees and ancient woodland will be informed by an Arboricultural Impact Assessment, which will set out Root Protection Areas.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D4	Loss of woodland and hedgerow will be kept to a minimum and is likely only to be required to facilitate access points / cable routing / fencing, with reinstatement provided (access tracks and cable routing will be located to pass through existing field gates and gaps in hedgerows where feasible). Where possible, the Applicant will also incorporate a 10m	Biodiversity	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in the design of the Proposed Development secured

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
	buffer to non-ancient woodland (identified from the National Forestry Inventory and surveys) and a 5m buffer for all non-ancient / non-veteran trees.			through Schedule 2 of draft DCO submitted in the DCO Application.
D5	A minimum offset of 10m from bank top for all watercourses to all infrastructure (including fencing) and construction works related to the Proposed Development, except where watercourse crossings are required (access tracks / cable routing / fencing will be located to pass across existing watercourse crossings where feasible).	Biodiversity Water resources and flood risk	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D6	Infrastructure and construction works will be located at suitable buffer distances from protected species, (for example, 30m from known badger sett locations etc.) where practicable and mitigation required where this is not practicable.	Biodiversity	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D7	Fencing of the Solar Development Areas within the Solar Development Sites (except to allow for access and cable connections between the sites) will be designed to let small mammals pass through where possible.	Biodiversity	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D8	Sustainable urban drainage systems (SuDS) will be provided at source, ensuring that surface water run-off is managed consistently with existing site conditions.	Biodiversity Water resources and flood risk Agriculture and soils	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
				submitted in the DCO Application.
D9	Internal access tracks will be permeable to allow water to filtrate through and maintain greenfield runoff rates.	Biodiversity Water resources and flood risk	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D10	Existing hedgerows in poor condition will be reinforced with new planting where feasible to strengthen landscape pattern and habitat connectivity which may contribute to historic landscape character.	Biodiversity Landscape and visual Cultural heritage	Construction Operation	To be included in oLEMP which will be secured by DCO requirement.
D11	Opportunities for connection and extension of woodland and hedgerow will be explored to strengthen landscape pattern, and habitat connectivity which may contribute to historic landscape character	Biodiversity Landscape and visual Cultural heritage	Construction Operation	To be included in oLEMP which will be secured by DCO requirement.
D12	During operation only demand responsive motion sense lights will be used	Biodiversity Landscape and visual Cultural heritage	Operation	To be included in oOEMP which will be secured by DCO requirement.
D13	A minimum 15m offset from all infrastructure (including fencing) to PRoW.	Landscape and visual	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in the design of the Proposed Development secured through Schedule 2 of

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
				draft DCO submitted in the DCO Application.
D14	Direct physical impact(s) to designated heritage assets will be avoided. Indirect impact(s) to designated heritage assets will be minimised in the design process	Cultural heritage	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D15	Where possible, noisy construction works (a term which will be defined in the PEIR and ES) will be avoided within 300m of sensitive receptors (such as residences, schools, hospitals, places of worship, public rights of way and outdoor amenity spaces). Where noisy construction works will be undertaken within 300m of sensitive receptors, other mitigation measures will be identified.	Noise and vibration	Construction	To be included in oCEMP which will be secured by DCO requirement.
D16	Where reasonably practicable, routing of construction traffic will be away from sensitive receptors.	Traffic and transport	Construction	To be included in outline Construction Traffic Management Plan (oCTMP) which will be secured by DCO requirement.
D17	Where reasonably practicable, all sources of operational noise and vibration, will not be located in close proximity to sensitive receptors (such as residences, schools, hospitals, places of worship, public rights of way and outdoor amenity spaces). Where noise sources are necessarily located in close proximity to sensitive receptors, mitigation measures will be identified	Noise and vibration	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
D18	Avoid locating critical infrastructure within Flood Zones 2 and 3 wherever possible, to avoid or reduce the potential for flood risk to the Proposed Development or to receptors as a result of the Proposed Development	Water resources and flood risk	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D19	The BESS will be located a minimum 100m from residential properties for fire safety reasons and to minimise potential human health effects from fire-related toxic emissions to air.	Air quality Major accidents and disasters Human health	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D20	The BESS will be located outside of Flood Zone 3a and 3b to minimise loss of flood plain and associated adverse flood risk effects.	Water resources and flood risk	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D21	The BESS drainage design will allow for fire-water containment.	Water resources and flood risk Ground conditions	Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D22	The BESS and other infrastructure will avoid historic mine entries and where practicable compressible ground.	Ground conditions	Construction Operation	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
D23	Where possible, underground cables would be installed using a cable plough or trenching. These are considered the most efficient and least impactful methods of cable installation, causing minimal disruption to the ground by cutting, installing and back-filling in one operation.	Agriculture and soils Ground conditions Water resources and flood risk	Construction	To be included in oCEMP which will be secured by DCO requirement.
D24	Avoiding or minimising fragmentation of residual agricultural land.	Agriculture and soils	Pre-Application	To be included in the design of the Proposed Development secured through Schedule 2 of draft DCO submitted in the DCO Application.
D25	The construction compound(s) will be located on low diversity habitat, where practicable and will be located as far as practicable from sensitive receptors.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement.
D26	A 15m buffer will be provided around any construction works from any infrastructure (including fencing) to ancient / veteran trees and ancient woodland.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement.
D27	A 10m buffer to non-ancient woodland (identified from the National Forestry Inventory and surveys) and a 5m buffer for all non-ancient / non-veteran trees.	Biodiversity	Construction Operation	To be included in oCEMP which will be secured by DCO requirement. To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D28	Infrastructure and construction works will be located at suitable buffer distances from protected species, (for example, 30m from known badger sett locations etc.) where practicable.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement.

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
D29	Fencing of the solar panel areas and associated infrastructure areas (except cable connections between the Sites which would not be fenced) will be designed to let small mammals pass through.	Biodiversity	Construction	To be included in oCEMP which will be secured by DCO requirement.
D30	Preservation in situ of archaeological heritage assets and unrecorded archaeology, so far as proportionate and reasonably practicable, through the application of engineering and construction solutions to avoid physical impact(s) at Solar Development Sites.	Cultural heritage	Pre-Application	Measures to avoid, reduce and mitigate effects on archaeological heritage assets (and, where possible, to enhance those assets) will be identified through the EIA process and secured within management plans submitted with the DCO application.
D31	Adjustments to the routing of, and the application of engineering/construction solutions to install the Cable Corridors where possible to avoid or reduce physical impact(s) to archaeological heritage assets and/or unrecorded archaeology along this corridor.	Cultural heritage	Pre-Application	Measures to avoid or reduce physical impact(s) to archaeological heritage assets and/or unrecorded archaeology will be identified through the EIA process and secured within management plans submitted with the DCO application.
D32	Routing construction and operational vehicles away from local villages wherever possible.	Socioeconomics	Pre-Application	To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D33	Introducing a reasonable buffer between residential dwellings and the nearest panels.	Socioeconomics	Pre-Application	To be included in Schedule 2 of draft DCO

Commitment Ref No.	Commitment	Relevant environmental topic	Project Phase	Securing Mechanism
				submitted in the DCO Application.
D34	Suitable stand offs from springs, spring catchments or boreholes.	Water resources and flood risk	Pre-Application	To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D35	Where major watercourse crossings are required for the cable corridor, trenchless techniques will be utilised where possible, this is likely to involve HDD under rivers although other trenchless techniques and bridges may be considered.	Water resources and flood risk	Pre-Application	To be included in Schedule 2 of draft DCO submitted in the DCO Application.
D36	Minimising area of hardstanding required for laydown and construction compound.	Water resources and flood risk	Construction	To be included in oCEMP which will be secured by DCO requirement.
D37	Scheduling of temporary/ construction works excavations and storage to not increase flood risk.	Water resources and flood risk	Construction	To be included in oCEMP which will be secured by DCO requirement.
D38	Use of piling methodology that minimises likelihood of creating pollution pathway to groundwater.	Water resources and flood risk	Construction	To be included in oCEMP which will be secured by DCO requirement.

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