

Proposed Solar PV Development

Preliminary Environmental Information

Chapter 6 Biodiversity

Byers Gill Solar

Reference: EN010139

Revision 1 | May 2023



© JBM

JBM Solar
33 Broadwick St
London
W1F 0DQ
United Kingdom
www.jbm-solar.com

Contents

6.	Biodiversity	1
6.1.	Introduction	1
6.2.	Competent expert advice	2
6.3.	Legislative and policy framework	2
6.4.	Assessment Methodology	4
6.5.	Scoping and Consultation	8
6.6.	Assessment Assumptions and Limitations	14
6.7.	Study Area	14
6.8.	Baseline Conditions	14
6.9.	Potential effects	25
6.10.	Design, mitigation and enhancements	26
6.11.	Assessment of likely significant effects	30
6.12.	Monitoring	34
6.13.	Summary	34
	Bibliography	54

Tables

Table 6-1	Relating CIEEM Assessment Terms to those used in other PEIR Chapters	5
Table 6-2	Response to the Scoping Opinion	9
Table 6-3	Response to Consultation	12
Table 6-4	Statutory and non-statutory designated sites	16
Table 6-5	Summary of potential effects	36

Appendices

Appendix 6.1	Preliminary Ecological Assessment
Appendix 6.2	Wintering Bird Survey Report
Appendix 6.3	Breeding Bird Survey Report
Appendix 6.4	Static Detector Bat Survey Report

Figures

Figure 6.1	Site Location Plan
Figure 6.2	Designated Sites

6. Biodiversity

6.1. Introduction

- 6.1.1. This chapter presents the findings of the preliminary assessment of the likely significant effects arising from the construction, operation and decommissioning of the Proposed Development on Biodiversity.
- 6.1.2. This chapter details the methodology followed for the assessment, summarises the regulatory and policy framework, and describes the existing environment in the area surrounding the Proposed Development. Following this, the design, mitigation and residual effects of the Proposed Development are discussed, along with the limitations of the assessment.
- 6.1.3. Biodiversity aspects considered within the chapter for the Proposed Development include:
- International and national statutory designated sites of ecological importance within 10km of the Site Area (Ramsar sites, special protection areas (SPA) and special areas of conservation (SAC);
 - nationally designated sites (sites of special scientific interest (SSSIs) and nature reserves), within 2km of the Site Area;
 - non-statutory designated sites (often important in a local context) within 1km of the Site Area;
 - a search of protected and noteworthy species within 1km of the Site Area boundary;
 - breeding and winter birds;
 - habitats and invasive species;
 - invertebrates;
 - amphibians including great crested newt (GCN);
 - reptiles;
 - bats;
 - water vole and otter;
 - badger; and
 - other species such as brown hare and hedgehog
- 6.1.4. The chapter is supported by the following technical appendices:
- Appendix 6.1 Preliminary Ecological Appraisal Report;
 - Appendix 6.2 Wintering Bird Survey Report;
 - Appendix 6.3 Breeding Bird Survey Report; and
 - Appendix 6.4 Bat Static Detector Survey Report.
- 6.1.5. Some of the content discussed in this chapter will cross-refer with discussions in other chapters. It may be useful to make reference to other chapters, most notably; Chapter 10 Hydrology and Flood Risk and Chapter 11 Noise and Vibration.

- 6.1.6. The effects of changes to water quality on aquatic ecology, and changes in noise and vibration is presented in this chapter.
- 6.1.7. The approach to cumulative assessment of both in-combination effects across disciplines and with other projects is outlined in Chapter 13 Cumulative Effects. Further information is required to allow for a proportionate assessment to be made including the agreement of a list of cumulative developments to be considered.
- 6.1.8. Where in-combination effects are identified across topics, these will be considered during the assessment process and reported within the appropriate topic chapters in the Environmental Statement (ES) where the effect has been identified.

6.2. Competent expert advice

- 6.2.1. RSK Biocensus is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and holds an EIA Quality Mark. The Quality Mark allows organisations that lead the co-ordination of statutory EIA in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.
- 6.2.2. Leanne Cooke is the ecology lead and is a senior ecological consultant with over 10 years' experience and a full member of CIEEM. The project's technical lead is associate director Mark Lang who is a chartered ecologist and a full member of CIEEM with over 30 years' experience. Leanne Cooke produced the chapter and Mark Lang undertook the technical and quality review.
- 6.2.3. Fieldwork was carried out by Ben Lappage (senior ecologist) who completed both UKHab and protected species surveys. Ben is an experience botanist and a full member of CIEEM. Claire Hesketh and Sally Wilding carried out protected species surveys. Claire and Sally are consultant ecologists who have qualifying and associate membership respectively with CIEEM.

6.3. Legislative and policy framework

- 6.3.1. The relevant legislation, planning policy and guidelines which underpin the assessment methodology for ecology and informed the scope of the assessment are outlined in this section.

Legislation

- 6.3.2. The legislation of relevance to the assessment includes:
- the Birds Directive in relation to Natura 2000 sites [1] this relates to the conservation of all species of naturally occurring birds in their wild state in the territory of the EU Member States (MSs) to which the treaty applies. Under the Birds Directive, the most suitable areas of conservation of the Annex I species are to be designated as Special Protection Areas (SPAs);
 - the Habitats Directive in relation to Natura 2000 sites [2] The Habitats Directive 1992 requires EU MSs to maintain or restore, at favourable conservation status, natural habitats

and species of wild fauna and flora of community interest, which are listed under Annex I, II, IV and/or V. Species listed under Annex IV are known as ‘European Protected Species’ (EPS);

- the Conservation of Habitats and Species Regulations 2017 (as amended) [3] and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 [4];
- the Wildlife and Countryside Act 1981 (as amended) [5];
- the Countryside and Rights of Way Act 2000 [6];
- the Environment Act 2021 [7];
- the Natural Environment and Rural Communities Act (NERC) 2006 [8];
- the Hedgerows Regulations 1997 [9];
- the Protection of Badgers Act 1992 [10]; and
- the invasive Alien Species (Enforcement and Permitting) Order 2019 [11];

Policy

6.3.3. The following national and local policies of relevance have been considered:

National

6.3.4. The national policies of relevance include:

- NPS EN-1 [12], with reference to paragraph 4.1.4 which discusses adverse effects and benefits, paragraphs 5.3.3 and 5.3.4 in relation to assessing, conserving and enhancing conservation interests, paragraph 5.3.15 in relation to good design and paragraphs 5.3.18 – 5.3.20 in relation to appropriate mitigation.
- NPS EN-3 [13], Renewable Energy Infrastructure does not include specific reference to solar technologies however, alongside the NPS for Electricity Networks Infrastructure (EN-5) [14], should be read alongside NPS EN-1 where relevant to a project.
- On 30 March 2023, a draft suite of revised energy NPS were published for public consultation, which is ongoing at the time of preparation of this PEIR. The revised energy NPS are not designated and therefore the existing NPS EN-1, EN-3 and EN-5 remain the national policy documents of most relevance and importance, however the revised NPS are summarised in PEIR Appendix 1.1 Planning Policy Framework.
- The NPPF [15] sets out the 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. The assessment would therefore focus on a number of key sections, including Conserving and enhancing the natural environment (Section 15), specifically paragraphs 179 - 182;
- Governments 25 Year Environment Plan (2018) [16]; and
- Biodiversity 2020 [17]: A strategy for England’s Wildlife and Ecosystem Services.

Local

6.3.5. The Proposed Development lies within the administrative boundaries of Darlington Borough Council, Stockton-on-Tees Borough Council and Durham County Council. Planning policy of relevance to the assessment which would be considered includes:

- Darlington Borough Local Plan (2016-2036) [18];

- Stockton-on-Tees Borough Council Local Plan, 2019 [19];
- Durham County Council Plan 2020 – 2023 [20]; and
- any supplementary or supporting documentation of relevance.

Guidance

6.3.6. The approach used for the ecological assessment will be undertaken in accordance with best practice guidance, namely The Guidelines for Ecological Impact Assessment in the UK and Ireland [21].

6.4. Assessment Methodology

Impact Assessment and Significance Criteria

6.4.1. The impact assessment methodology detailed in this chapter has been undertaken in accordance with best practice guidance for Ecological Impact Assessment (EclA), issued by the Chartered Institute of Ecology and Environmental Management (CIEEM) entitled ‘Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine’ [21] as summarised below. The aims of the ecology assessment are to:

- identify relevant ecological features (e.g. designated sites, habitats, species or ecosystems) which may be impacted;
- provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Scheme. Impacts and effects may be positive or negative.
- facilitate scientifically rigorous and transparent determination of the consequences of the Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- set out what steps will be taken to adhere to legal requirements relating to the relevant ecological features concerned.

6.4.2. The frames of reference used for this assessment, which are based on CIEEM guidelines are as follows:

- International (i.e. Ramsar Sites, SACs and SPAs) (normally within the geographic area of Europe);
- UK or national (Great Britain but considering the potential for certain ecological features to be more notable (of higher value) in England, with context relative to Great Britain as a whole).
- regional;
- county;
- district; and
- local (i.e. within approximately 5km of the Site Area).

6.4.3. Species populations are valued on the basis of their size, recognised status (such as recognised through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status and legal protection.

- 6.4.4. When assigning values to species populations, the following was considered: legal protection, distribution, rarity, population trends and population size. The assessment of value relies on the professional opinion and judgment of experienced ecologists.
- 6.4.5. Plant communities were assessed in terms of their intrinsic value, habitat for protected species and for species of nature conservation concern.
- 6.4.6. For European protected species there is a requirement that a Proposed Development should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 6.4.7. For each ecological feature only those characteristics relevant to understanding the ecological effect of the Proposed Development and determining the significance are described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:
- not significant - no effect on structure and function, or conservation status; and
 - significant - structure and function, or conservation status is affected.
- 6.4.8. CIEEM best practice guidance does not recommend that significance is defined as ‘major’, ‘moderate’ or ‘minor’ due to the complexities of ecological processes but requires a clear statement as to whether or not an effect is significant and at what geographical scale, for example significant at the national level.
- 6.4.9. Whilst CIEEM guidelines recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology within this PEIR, the findings of the CIEEM assessment have been translated into the classification of effects scale, as outlined in Table 6-1. For example, a significant effect at the international level under the CIEEM guidance would equate to a ‘Major’ significant effect using the standard EIA assessment methodology. As a deviation from the standard EIA methodology, minor effects identified within this chapter have been classified as negligible to ensure that (as per the CIEEM guidelines) a clear statement is made as to whether the effect is “significant” or “not significant”. [21]
- 6.4.10. The magnitude or severity of the change was assessed as adverse or beneficial and was assigned using the categories outlined in Chapter 4 of the PEIR, as high, medium, low or negligible.

Table 6-1 Relating CIEEM Assessment Terms to those used in other PEIR Chapters

Equivalent CIEEM Assessment	
Major beneficial	Significant beneficial effect on structure/function or conservation status at regional, national or international level
Moderate beneficial	Significant beneficial effect on structure/function or conservation status at Country level
Minor beneficial	Not significant beneficial effect on structure/function or conservation status at Local level
Neutral/Negligible	Not significant no effect on structure/function or conservation status

Equivalent CIEEM Assessment

Minor adverse	Not significant adverse effect on structure/function or conservation status at Local level
Moderate adverse	Significant adverse effect on structure/function or conservation status at County level
Major adverse	Significant adverse effect on structure/function or conservation status at Regional, National or International level

Overview of the baseline assessment

- 6.4.11. A background data search (BDS) was requested from the Environmental Records Information Centre for North East England. The BDS included a search for international statutory designated sites of ecological importance within 10km of the Site Area: Ramsar sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA). A search for national statutory sites (sites of special scientific interest (SSSI) and local nature reserves (LNR)) was carried out up to 2km from the Site Area, which included consideration of SSSI impact risk zones (IRZs). The IRZs are a GIS tool developed by Natural England which define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.
- 6.4.12. A search was also made for non-statutory designated sites (often important in a local context) within 1 km of the Site Area and included a search for records within 1 km of the Site Area of legally protected or otherwise noteworthy species, which might be affected by the Proposed Development.
- 6.4.13. A Preliminary Ecological Appraisal (PEA) survey was carried out to determine the habitats within the Site Area and to identify the potential for protected and notable species to be present across the study area, and to recommend further species-specific surveys if required. Botanical survey encompassed a UKHabitat survey which followed UKHab survey methodology [22]. Specific protected species surveys were undertaken following best practice guidance. Full details of the survey methodology can be found in Appendix 6.1 Preliminary Ecological Appraisal Report.
- 6.4.14. The Site Area is defined as the application boundary (the development red line boundary) whilst the study area is the area over which the UK Habitat and protected species surveys were undertaken. The study area denotes the fill spatial context used to assess each ecological feature under investigation. The study area for the ecological surveys is defined by the Site Area which encompassed land within the application boundary outlined by the red line boundary including all infrastructure, cables and solar PV module areas as shown in Figure 6.1.
- 6.4.15. The study area for the habitat and protected species surveys was designed to cover, the entirety of the Site Area. As indicated in 6.4.11 study area was extended to 10km from the Site Area for Internationally designated sites, 2km for nationally designated sites and 1km for non-statutory designated sites and for records of notable and legally protected species. The wintering and breeding bird study areas differ slightly from the

Site Area as survey work commenced before the Site Area was finalised. Furthermore, small sections of the Site Area for the PEA survey which are mainly the grid connection cables and the substation have not yet been surveyed. These ‘to be surveyed areas’ are small in their extent and are illustrated in Appendix 6.1 Preliminary Ecological Appraisal Report. These areas will be surveyed, and the information obtained from these surveys will be reported in the ES. These areas are not thought to have any significant bearing on the assessment undertaken or the conclusions reached in this report. Site Area and study area are clearly shown on the survey figures, see reports in Appendices 6.1 to 6.4.

- 6.4.16. Breeding bird surveys were undertaken to determine the breeding bird assemblage for the study area. Surveys were carried out by Avian Ecology Ltd between April and July 2022 inclusive in accordance with the Bird Survey Guidelines for Assessing Ecological Impacts [23]. These comprised a series of six survey visits with each visit carried out over a period of five or six days due to the size of the survey area. All bird species encountered (either visually or through their vocalisations) onto field maps using standard British Trust for Ornithology (BTO) species codes and behaviour notation [24]. Full details of the survey methodology can be found in Appendix 6.3 Breeding Bird Survey Report.
- 6.4.17. Wintering bird surveys were undertaken to determine the winter bird assemblage for the study area. Surveys were carried out between December 2021 and March 2022 inclusive by Avian Ecology Ltd. Using a similar approach to that undertaken for breeding birds with four survey visits carried out between November 2021 and March 2022 [24]. In their stakeholder feedback Natural England has confirmed the level of survey effort is appropriate to assess and determine the likely effects of the proposed development. Full details of the survey methodology can be found in Appendix 6.2 Wintering Bird Survey Report.
- 6.4.18. Static detector bat surveys were undertaken to identify bat species, activity levels and relative abundance of bats across the study area. A total of 20 monitoring points across the study area were surveyed each month over a five-month period (May – September) in 2022. Full spectrum Wildlife Acoustics Song Meter 4 (SM4) detectors with omnidirectional microphones were deployed with each microphone mounted at a minimum height of 2 m to maximize the probability of recording bat calls. Detectors were deployed across the study area to cover different habitat types including improved grassland, arable crop, hedgerows, streams and woodland edges. Full details of the survey methodology can be found in Appendix 6.4 Bat Static Detector Survey Report.
- 6.4.19. The approach adopted to mitigate any potential impact on great crested newts (*Triturus cristatus*) (GCN) will be through the process of a District Level Licensing (DLL) application for GCN. This approach, therefore, removes the requirement for baseline surveys.

6.5. Scoping and Consultation

- 6.5.1. An EIA Scoping Report was submitted to PINS in October 2022 [25]. Table 6-1 includes a summary of how this chapter of the PEIR has responded to the EIA Scoping Opinion comments relating to biodiversity.

Table 6-2 Response to the Scoping Opinion

ID	Reference	Stakeholder	Comment	Response
3.2.1 & 3.2.2	Paragraph 6.6.5 and Table 6.4	PINS	<p>Scoping Report paragraph 6.6.5 states that impacts on designated sites are unlikely as no land is required directly from designated sites and indirect effects such as pollution will be mitigated through best practice measures secured through the Construction Environmental Management Plan (CEMP). Table 6.4 only scopes out potential impacts to national and non-statutory designated sites. The Inspectorate agrees these matters can be scoped out. For clarity, indirect effects to internationally designated sites should be scoped into the ES as there is potential for the Proposed Development to impact land functionally linked to the Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar site (paragraph 6.5.3). The Inspectorate agrees that impacts on national and non-statutory designated sites can be scoped out on the basis that impacts during construction take account of any continued habitat loss through the operation and decommissioning phases.</p>	<p>A Habitats Regulations Assessment (HRA) screening assessment will be undertaken and included within the ES.</p>
3.2.3	Paragraph 6.6.8 and Table 6.4	PINS	<p>The Applicant intends to offset the effects of the Proposed Development on Great Crested Newts (GCN) by obtaining a licence through the Natural England District Level Licensing (DLL) scheme. The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES will include information to demonstrate whether the Proposed Development is located within a risk zone for GCN. If the Applicant enters into the DLL scheme, NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development’s impact on GCN and the appropriate compensation required.</p>	<p>The ES will provide information to demonstrate whether the Proposed Development is located within a risk zone for GCN which will be carried out as part of the DLL scheme.</p>
3.2.4	Table 6.4	PINS	<p>Scoping Report paragraph 6.6.1 identifies potential impacts to reptiles however, impacts are then stated to be unlikely in paragraph 6.6.9 due to the majority of habitat on site being sub-optimal for reptiles; this is supported by a Preliminary Ecological Appraisal. Table 6.4 identified that reptiles identified on site will be relocated before a destructive search with the final landscape design enhancing habitat and connectivity for reptiles across the Proposed</p>	<p>Scoped out with no response required</p>

ID	Reference	Stakeholder	Comment	Response
			Development site. On this basis, the Inspectorate agrees to scope this matter out.	
3.2.5	Paragraph 6.6.11 and Table 6.4	PINS	Scoping Report paragraph 6.6.11 confirms that trees identified with potential for roosting bats will be retained. Provided this is secured through the DCO, the Inspectorate agrees to scope this matter out.	This will be secured through the construction Environmental Management plan (CEMP) and the Landscape and Ecology Management Plan (LEMP) via a requirement of the DCO.
3.2.6	Table 6.4	PINS	Bat foraging habitat is proposed to be retained aside from small sections of hedgerows that will be temporarily removed (and subsequently reinstated) to accommodate cable routes during construction. The ES should identify the locations and extent of hedgerow removal and the timeframes for reinstatement. No baseline information has been provided in relation to bats and surveys are identified to be ongoing in Table 6.2. Without understanding how bats use the site, the Inspectorate cannot agree to scope this matter out. The ES should establish the baseline and assess significant effects where they are likely to occur.	Revised layout will enable the retention of habitats suitable for foraging, commuting and roosting bats such as field margins, woodland, scrub and the majority of hedgerows and associated trees. Bat foraging baseline data is contained within this report and will be provided within the ES.
3.2.7	Paragraph 6.6.12 and Table 6.4	PINS	Scoping Report paragraph 6.6.12 states that badger setts identified from surveys (Table 6.2) would be retained and a standoff distance implemented to a likely minimum of 30m to avoid/minimise disturbance. Fences will also include mammal gates to allow for movement. The Scoping Report does not discuss how the presence of the solar farm would impact badger use of the site during operation. The ES should describe and secure mitigation measures through the DCO and use evidence to explain how badgers might use the site during operation. Any assumptions and limitations should be described.	Baseline data relating to badgers is contained within this report and will be provided within the ES. The ES will describe how the design of the Proposed Development has avoided direct impact on badgers and will seek to secure relevant mitigation measures.
3.2.8	Table 6.4	PINS	The security fencing, at all stages of the Proposed Development, will incorporate mammal gates to reduce/avoid fragmentation. Provided this is secured through the DCO, the Inspectorate agrees this matter can be scoped out.	This will be secured through the construction Environmental Management plan (CEMP) and the Landscape and Ecology

ID	Reference	Stakeholder	Comment	Response
				Management Plan (LEMP) via a requirement of the DCO..
3.2.9	Paragraph 6.6.1	PINS	The Scoping Report identifies the potential for reptiles, GCNs and hares on site in paragraph 6.6.1 however, disturbance is not listed as a potential impact on these species. The ES should assess disturbance during construction on hares, GCNs and reptiles where significant effects are likely to occur.	Reptile and hare baseline data is contained within this PEIR and will be provided within the ES.
3.2.10	Section 6.5	PINS	Whilst main and ordinary watercourses are discussed in Scoping Report section 6.5 hydrology, water dependent habitats (such as ditches) and species (such as fish) are not. The ES should include sufficient baseline ecological survey data to evaluate the potential impacts on water dependent habitats and species and assess significant effects where they are likely to occur.	Design of the Proposed Development has avoided direct impact on watercourses with a standoff distance from watercourse features. Pollution prevention control measures outlined in CEMP will reduce potential for adverse effects.
3.2.11	Paragraph 6.6.13 and Table 6.5	PINS	Scoping Report paragraph 6.6.13 identifies an increase in floral and insect species diversity as an impact during operation but this is not scoped into the assessment in Table 6.4. The ES should provide specific detail regarding the anticipated change in species richness and diversity in order to understand any potential significant effects. The ES should assess significant effects where they are likely to occur.	To be provided within the ES.
3.2.12	Paragraph 6.6.1 and Table 6.2	PINS	The Inspectorate notes that Table 6.2 identifies that some surveys are incomplete and are ongoing. Therefore, the Inspectorate does not consider that the potential impacts of the Proposed Development listed in paragraph 6.6.1 are in full as receptors are identified but possibility remains for further receptors to be identified e.g. hazel dormouse, veteran trees etc. The ES should report the full survey findings and list all receptors identified as potentially present on site and assess significant effects where they are likely to occur.	Baseline data provided within this PEIR and to be provided within the ES.

ID	Reference	Stakeholder	Comment	Response
3.2.13	n/a	PINS	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	Badger sett locations and figure are contained within a confidential appendix within the Preliminary Ecological Appraisal Report (Appendix 6.1) with its distribution to be limited to relevant project staff, relevant councils. Natural England and the Badger Trust.

Consultation

6.5.2. The results of the consultation carried out as part of the assessment is summarised in Table 6-3 below.

Table 6-3 Response to Consultation

Stakeholder	Comment	Response
Durham County Council	<ul style="list-style-type: none"> ▪ Only static surveys were completed in low quality habitats transect would be expected. ▪ It is good to hear that fields used by lapwing and curlew fall outside of the footprint. ▪ Wider mitigation around farmland birds is likely to revolve around hedgerow enhancement and the creation of tussocky grassland in margins and headland especially for grey partridge. ▪ Creating a variety of habitats would be important the inclusion of wild bird seed mixes and pollen and nectar strips should not be discounted, although my personal preference is to concentrate on creating a variety of habitats (wet grassland, scrapes, tussocky grasslands, copses etc.) rather than depending on annually sown areas. ▪ A diverse grassland beneath the panels would seem to be the way to go ▪ Maintain a buffer of 5 – 10m around boundary features to allow for clear zones especially where management of grassland differs 	<ul style="list-style-type: none"> ▪ Static detector surveyors were the preferred option to determine the bat species present, relative activity levels and abundance for the study area which is homogenous and mainly composed of arable and improved grassland habitats, with no Annex II bat species recorded. ▪ Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced foraging habitat for bats and birds and nesting habitat for birds. ▪ Provision of rough grass, wildflower and game cover and winter seed source sowing within field margins with the aim of improving foraging habitat for bats and bird species. ▪ Area underneath and between panels will be sown with either a flower rich seed mix or a legume rich mix aiming to improve soil health and also insect diversity such as pollinators improving foraging habitat for other species such as birds and bats. ▪ A buffer of 9m from hedges in PROW areas and at a minimum 5m at the end of rows and 3m where the panel row runs parallel to the boundary feature will be retained.

Stakeholder	Comment	Response
	<p>from that beneath the arrays and patchworks of scrub could be included for structural diversity</p>	<ul style="list-style-type: none"> Trees that have been identified as suitable bat roost trees will have a minimum buffer that will protect the root protection zone (RPZ) applied across the Proposed Development.
Darlington Borough Council	<ul style="list-style-type: none"> Ecologist is the same individual as for County Durham – so no additional consultation received comments above are also applicable. 	
Natural England	<ul style="list-style-type: none"> Given the distance from the SPA, it is unlikely that the site is significantly functionally linked. However, we would recommend that mitigation land be designed to accommodate the SPA Bird that could be affected It is not necessary to replicate the existing habitat but to create land with the appropriate habitats for the birds that will be impacted. For the area between/beneath the panels and if enough sunlight reaches the ground, we would like to see an invertebrate seed mix be used. It is less likely that the farmland bird assemblage will use the open field intensively. For wigeon and lapwing, flat areas of wet grassland would be best. Enhancement of hedgerows with wide grassland buffers around the panel areas, as these will benefit farmland bird assemblage. 	<ul style="list-style-type: none"> A HRA screening assessment will be undertaken and included within the ES. Provision of c. 6ha of land in Panel Area F: North of Bishopton, to be managed for curlew Provision of discrete parcels with no panels to provide nesting opportunities for ground nesting birds. Provision of C. 2-3ha of land in Panel Area C: Byers Gill Wood which is close to Newton Ketton Meadow SSSI to be sown with lowland meadow seed mix providing an extension in flower rich meadow habitat as well as habitat for ground nesting birds such as skylark and meadow pipit. Lost hedgerows will be replanted, hedgerows with gaps to be stocked up and management relaxed on others to provide enhanced foraging habitat for bats and birds and nesting habitat for birds. Provision of rough grass, wildflower and game cover and winter seed source sowing within field margins with the aim of improving foraging habitat for bats and bird species. Area underneath and between panels will be sown with one of 3 potential options, either a flower rich seed mix, a legume rich mix or a general grass mix aiming to improve soil health and also insect diversity such as pollinators improving foraging habitat for other species such as birds and bats.

6.6. Assessment Assumptions and Limitations

- 6.6.1. This PEIR provides preliminary information based on the current design of the Proposed Development and the data gathered at this point in time. Some of the information gathered will be supplemented and provided in full and final form within the ES.
- 6.6.2. The PEIR is intended to inform consultation responses and a more detailed assessment of the identified direct effects and potential indirect effects on identified sensitive receptors will be undertaken at the ES stage, drawing on the further assessment work of other disciplines.
- 6.6.3. More specific mitigation measures will also be presented at the ES stage.
- 6.6.4. Small sections of the Site Area which are mainly the grid connection cables and the substation have not yet been surveyed. These 'to be surveyed areas' are small in their extent and are illustrated in Appendix 6.1 Preliminary Ecological Appraisal Report. These areas will be surveyed, and the information obtained from these surveys will be reported in the ES. These areas are not seen to alter the conclusions reached within the PEIR.

6.7. Study Area

- 6.7.1. The study area denotes the fill spatial context used to assess each ecological feature under investigation. The study area for the ecological surveys is defined by the Site Area which encompassed land within the application boundary outlined by the red line boundary including all infrastructure, cables and solar PV module areas as shown in Figure 6.1.
- 6.7.2. Further information regarding the study area and its relation to Site Area can be found in paragraphs 6.4.11 – 6.4.19.

6.8. Baseline Conditions

- 6.8.1. The Site Area is 563 hectares (ha) in size and comprises numerous land parcels north-east of Darlington (Ordnance Survey Grid reference: NZ 35750 21286) in addition to cable routes connecting these land parcels to a substation at the edge of Stockton-on-Tees. The Site Area stretches between this substation in the east and the A1(M) motorway in the west. The Site Area is dominated by agricultural land and hedgerows with some areas of broadleaved woodland. The cable route runs along minor road networks (often lined by hedgerows) and rural residential areas.
- 6.8.2. The Site Area is within an agricultural landscape dominated by both arable and grazing land with a network of roads, lanes and small villages, including Brafferton, Great Stainton, Little Stainton, Bishopton, Redmarshall and Carlton. The surrounding area has a few areas (<4ha) of lowland meadow (all Sites of Special Scientific Interest (SSSI)) and

several larger areas of deciduous woodland, none of it ancient (land continuously wooded since 1600 in England).

- 6.8.3. The BDS data obtained as part of the baseline study has been summarised in this section within each relevant sub-heading, which is followed by the field survey results. Full details of the baseline conditions can be found in the following appendices:
- Appendix 6.1 Preliminary Ecological Appraisal Report;
 - Appendix 6.2 Wintering Bird Survey Report;
 - Appendix 6.3 Breeding Bird Survey Report; and
 - Appendix 6.4 Bat Static Detector Survey Report.

Statutory and non-Statutory Designated Sites

- 6.8.4. Statutory designated sites within the study area are summarised in Table 6-4. Figure 6.2 shows the location of these sites in relation to the Proposed Development.
- 6.8.5. Internationally important statutory designated sites include SPA, SAC and Ramsar Sites. Nationally important statutory designations include SSSI and LNR, and locally important statutory designations are local wildlife sites (LWS).
- 6.8.6. There are ten statutory designated sites within 10 km of the Site Area comprising, one Ramsar site, one proposed Ramsar site, one SAC, one SPA, four SSSI and two LNR. Two non-statutory designated sites (LWS) are also located within 1km of the Proposed Development. No areas of Ancient Woodland have been identified within 1km of the Proposed Development.

Table 6-4 Statutory and non-statutory designated sites

Site Name	Description	Value	Approximate Distance (km) from Proposed Development
Teesmouth and Cleveland Coast SPA	The SPA comprises of intertidal habitats on and around the Tees estuary providing feeding and roosting opportunities for important number of waterbirds in winter and during passage periods. Freshwater and brackish pools also support breeding avocet during summer. Qualifying species under annex I include Ruff (<i>Philomachus pugnax</i>), Pied Avocet (<i>Recurvirostra avosetta</i>), Little Tern (<i>Sterna albifrons</i>), Common Tern (<i>Sterna hirundo</i>), and Sandwich Tern (<i>Sterna sandvicensis</i>). Red Knot (<i>Calidris canutus</i>) is listed as an annex II qualifying species. Also includes an assemblage criterion of over 20,000 waterbirds.	International	5.4
Teesmouth and Cleveland Coast Ramsar	The Ramsar site is a wetland of international importance, comprising intertidal habitats The site qualifies under Ramsar criterion 5 and 6 as it is regularly used by over 20,000 waterbirds in any season and by 1% or more of the biogeographic populations of the following bird species, in any season; red knot (<i>Calidris canutus</i>), common redshank (<i>Tringa tetanus</i>) and Sandwich tern (<i>Thalasseus sandvicensis</i>).	International	5.4 (proposed Ramsar) 7.2 (Ramsar)
Thrislington special area of conservation SAC	Thrislington is a small site which contains the largest of the few surviving stands of <i>Sesleria albicans</i> – <i>Scabiosa columbaria</i> grassland.	International	9.9
Briarcroft Pasture SSSI	Briarcroft Pasture is nationally important for its areas of species rich unimproved neutral grassland.	National	1.9
Whitton Bridge Pasture SSSI	A nationally important site for its areas of species-rich unimproved neutral grassland.	National	0.7
Redcar Field SSSI	The site supports a range of fen vegetation types not found at any other site in County Durham.	National	0.6
Newton Ketton Meadow SSSI	The site is one of the few surviving unimproved hay meadows in the coastal plain between the Rivers Tyne and Tees.	National	0.1
Hardwick Dene & Elm Tree Woods LNR	The site consists of four distinct sections – two steep sided wooded valleys, separated by a roughly triangular area of grassland, and a further area of herb-rich, unimproved grassland.	National	1.4
Stillington Forest Park LNR	The site was reclaimed from a former slag heap and developed to benefit both wildlife and visitors. It is managed as a wildflower meadow. There are several ponds and wetland and woodland areas. At the north of the site is a dense	National	0.9

Site Name	Description	Value	Approximate Distance (km) from Proposed Development
	woodland consisting of mature Hawthorn (<i>Crataegus monogyna</i>) and Ash (<i>Fraxinus excelsior</i>) trees.		
Carr House Pond Darlington LWS	The site is important with regards to its pond, marshy grassland and calcareous grassland. This is the last remaining of a series of ponds from former brickworks. The pond margins have a well-developed flora.	County	Immediately adjacent to the Site Area
Wynyard Woodland Park Stockton LWS	The site is important with regards to the presence of great crested newts, harvest mouse (<i>Micromys minutus</i>), neutral grassland and neutral grassland mosaic habitat.	County	0.06

Ecological species

- 6.8.7. The BDS returned 82 records of legally protected species and an additional 1,181 records of noteworthy species recorded from places within 1km of the Site Area. Noteworthy species include species of principal importance that are listed under Section 41 NERC Act 2006 [8]: 49 records are of amphibians, 930 are birds, one is a fish, 92 are invertebrates, 185 are mammals (of these, 40 are bats) and six are plants.
- 6.8.8. The BDS data search identified records of various specially protected and notable bird species from within 2km of the Site Area during the last ten years. The data search returned 933 records of 70 species from within 2km between 1992 and 2021. A diverse assemblage of wintering waterfowl such as barnacle goose, Bewick's swan (*Cygnus columbianus*), pink-footed goose (*Anser brachyrhynchus*), pochard (*Aythya ferina*), scaup (*Aythya marila*), Tundra bean goose (*Anser fabalis*), white-fronted goose (*Anser albifrons*) and whooper swan (*Cygnus cygnus*) were returned.
- 6.8.9. The desk study also identified records of a range of declining farmland bird species including Durham BAP Priority species such as curlew (*Numenius arquata*), grey partridge (*Perdix perdix*), lapwing (*Vanellus vanellus*) and tree sparrow (*Passer montanus*). Other records of note included barn owl (*Tyto alba*) and short-eared owl (*Asio flammeus*).
- 6.8.10. A full list of species returned from the desk study can be reviewed in the Preliminary Ecological Appraisal Report (Appendix 6.1). Records pertaining to breeding and wintering birds are detailed in the Breeding Bird Report (Appendix 6.2) and Wintering Bird Report (Appendix 6.3).

Habitats

- 6.8.11. The Proposed Development is 563 ha in size, of which the majority is comprised of arable fields and modified grassland which are delineated by delineated by hedgerows, though some are also marked by fences, ditches, watercourses and lines of trees. The study area is comprised of the following habitats:
- Other neutral grassland (UK habitat code g3c);
 - Modified grassland (UK habitat code g4);
 - Woodland (UK habitat code w1);
 - Lines of trees (UK habitat code w1g6);
 - Hedgerows (UK habitat code h2);
 - Dense scrub (UK habitat code h3);
 - Fen, marsh and swamp (UK habitat code f2f);
 - Arable and horticulture (UK habitat code c1);
 - Built-up areas and gardens (UK habitat code u1);
 - Standing open water (UK habitat code r1a6); and
 - Rivers and streams (UK habitat code r2).

- 6.8.12. The vast majority of the habitats across the study area were species-poor and had little intrinsic botanical value. All of the habitats are also common and widespread in the surrounding landscape. However, most of the hedgerows, ponds, areas of woodland and watercourses (particularly Byers' Gill and Bishopton Beck) qualify as local BAP priority habitats and/or habitats of principal importance, being listed under Section 41 of the NERC Act 2006 [8].
- 6.8.13. The arable and grassland habitats within the study area are considered to be of negligible botanical importance and of Site Area value only.
- 6.8.14. While most of the grassland around the study area has been agriculturally improved there are several areas of semi-improved or less managed grassland. The largest two areas are within Panel Area F: North of Bishopton (c.1ha) by Bishopton Beck and a c.1.3ha area of grassland within Panel Area A: Brafferton, located around a tributary to the River Skerne. Other areas are rank, rough grassland with tall herbs found on the borders or corners of fields. Semi-improved grassland within the Site Area is considered to be of Local value.
- 6.8.15. Woodland within the study area was found along roads, watercourses or along field boundaries. Three significant areas of woodland are present along roads; one dominated by Field Maple (*Acer campestre*) on a bank down from Aycliffe Lane to the west of the Site Area, another with several native tree species along Kirk Hill Road in between Redmarshall and Carlton, and a large strip of Ash (*Faxinus excelsior*) and Sycamore (*Acer pseudoplatanus*) woodland along Letch Lane to the east of the study area. Areas of woodland along watercourses were often much larger and mature. The most significant of these are large areas of woodland around Byers' Gill and along Bishopton Beck. These areas of woodland within the Site Area are considered to be of Local value.
- 6.8.16. Most of the scrub across the entire study area was very similar, comprising a small range of woody species, most commonly Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus*) and Dog-rose (*Rosa canina*), with more occasional species being Elder (*Sambucus nigra*) and Gorse (*Ulex europaeus*). There are occasionally young trees within the scrub, most commonly Ash. The ground flora is usually very species-poor and likely to be sparse for most of the year. Dense scrub habitat within the study area was considered to be of Local value.
- 6.8.17. The habitats within the study area are delineated by hedgerows, and lines of trees. Almost all of the hedges qualify as priority habitats, comprising mostly native species, though they are also almost all species-poor. A small proportion of field boundaries around the study area are marked by lines of trees. Almost all of these are outgrown hedges which were usually dominated by hawthorn. As hedgerows and treeline habitats within the Site Area are species poor they are considered to be of Local value.
- 6.8.18. There are several watercourses around the study area. Given the limited size of most of these watercourses and the shading from adjacent scrub, the aquatic and marginal vegetation was limited. The most species-rich watercourse was a tributary of the river Skerne and the long, northern stretch of Bishopton Beck where Himalayan balsam

(*Impatiens glandulifera*) was also present. The watercourses within the study area are considered to be of County value.

- 6.8.19. The ponds within the study area may qualify as a priority habitat depending on the species that use it, but do not have significant botanical value and are considered to be of low ecological significance and of Local value.
- 6.8.20. There is only one area of swamp vegetation within the study area, which is a large, seasonally wet pond along the cable route south of Carlton, which is considered to be of Local value.
- 6.8.21. The only invasive species identified within the study area was Himalayan balsam, found along Bishopton Beck.
- 6.8.22. All of the plant species recorded around the study area were relatively common and widespread in the local area. No species are present on the red list for England [26] with the exception of Common Valerian (*Valeriana officinalis*) which is one of the relatively common species on the England red list listed as near-threatened, likely due to a loss of suitable habitat.
- 6.8.23. Full details and methodology of habitat surveys are presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

Birds

Wintering Bird Surveys

- 6.8.24. Wintering waterfowl such as pink footed geese and wigeon (*Anas penelope*) were associated with areas of open water within the study area. However, ongoing design iterations have subsequently removed these areas from the Proposed Development.
- 6.8.25. Other wintering bird populations were recorded within pasture and arable fields which provided a range of foraging opportunities, which was reflected in the diversity of bird species recorded. Whilst hedgerows separating fields were not of significant value for wintering birds, they were used by low numbers of a diverse range of species, including various species that have undergone significant national decline. Species recorded in hedgerows included little owl (*Athene noctua*), tree sparrow, willow tit (*Poecile montanus*) and yellowhammer (*Emberiza citrinella*).
- 6.8.26. No wintering bird species recorded are listed as individual cited interest features of the Teesmouth and Cleveland Coast SPA or Ramsar site and no effects on the individual cited interest features are envisaged. However, the SPA and Ramsar do list a waterfowl assemblage of more than 20,000 individuals as a cited interest feature, and wintering waterfowl and waders recorded such as mallard (*Anas platyrhynchos*), wigeon and lapwing recorded may form part of this waterfowl assemblage. Given the avoidance of Panel Areas close to large expanses of open water and the large expanse of additional agricultural land available close to the SPA and Ramsar site, no significant effects are

envisaged. This potential impact will also be considered through a Habitat Regulations Screening Assessment (HRA) that will be submitted as part of the DCO Application.

- 6.8.27. Regarding individual species, wintering populations of seven species were assessed as being of potential county importance: specifically great crested grebe (*Podiceps cristatus*), grey partridge, herring gull (*Larus argentatus*), linnet (*Linaria cannabina*), pink-footed goose, stock dove (*Columba oenas*) and widgeon. A further three species (common gull (*Larus canus*), starling (*Sturnus vulgaris*) and tree sparrow (*Passer montanus*)) were potentially present in numbers of district importance.
- 6.8.28. Full details and methodology of the wintering bird surveys are presented in Appendix 6.2 Wintering Bird Survey Report.

Breeding Bird Surveys

- 6.8.29. During the breeding bird surveys a total of 66 species were recorded during the 2022 field surveys, of which 31 bird species were confirmed or considered likely to be breeding within the study area.
- ~~6.8.30.~~ The open field habitat was considered important for ground nesting bird species including two curlew breeding territories, and up to five pairs of lapwing and 19 pairs of skylark (*Alauda arvensis*). Hedgerows and other field boundaries supported a diverse assemblage of other nesting bird species including up to 12 pairs of tree sparrow and up to 19 pairs of yellowhammer 2-3 pairs of reed bunting (*Emberiza schoeniclus*) and yellow wagtail (*Motacilla flava*).
- 6.8.31. No breeding species recorded are listed as interest features of the Teesmouth and Cleveland Coast SPA or Ramsar site and therefore no impacts on the SPA or Ramsar are envisaged.
- 6.8.32. Based on the numbers of these species recorded with in the study area populations of skylark, tree sparrow and yellowhammer were assessed as being of up to county level importance, whilst populations of grey partridge, lapwing, curlew, and reed bunting were assessed as being of up to district level importance.
- 6.8.33. Full details and methodology of the breeding bird surveys are presented in Appendix 6.3 Breeding Bird Survey Report.

Invertebrates

- 6.8.34. The BDS returned protected butterfly species such as the Large tortoiseshell (*Aglais polychloros*) and White-letter hairstreak (*Satyrrium w-album*) and a range of notable invertebrates within 1 km of the Site Area boundary, which were predominantly associated with statutory and non-statutory designated sites.
- 6.8.35. The field margins and woodlands are likely to support an invertebrate assemblage typical of farmland landscapes. It is not considered likely that the invertebrate

assemblage would be of particular importance. The invertebrate assemblage is valued importance at the Site level only.

- 6.8.36. Full details on invertebrates is presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

Amphibians including Great Crest Newts

- 6.8.37. As stated in the baseline information no field surveys for GCN have been undertaken as the district level licensing approach removes this requirement. However, the BDS revealed 49 records of four different amphibians within 1km of the Site Area boundary including 9 GCN, 10 common toad (*Bufo bufo*), 18 smooth newt (*Lissotriton vulgaris*) and 12 common frog (*Rana temporaria*). No records of GCN were returned by the BDS within the past 10 years with the most recent record from 2012.
- 6.8.38. A total of five ponds were recorded within or adjacent to the study area with potential suitability for GCN. The majority of terrestrial habitat within the Panel Areas and along the cable corridor were seen as unsuitable for GCN.
- 6.8.39. OS mapping shows a number of other waterbodies relatively close to the Site Area boundary with habitat connectivity, and in the absence of survey information there is potential for GCN to be present within these waterbodies.
- 6.8.40. It is therefore assumed that there is low potential for GCN to be present within the Site Area. Given the limited habitat available for GCN, it is considered that the Site Area is of Site value only for GCN.
- 6.8.41. Full details on GCN is presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

Reptiles

- 6.8.42. No records of reptiles were returned from the BDS. Twelve areas of suitable habitat to support reptiles were recorded within the study area, such as: long grass around field margins, rough and tussock grassland, areas of woodland and tall ruderal and scrub around field margins. Five potential hibernacula sites were also recorded within the study area which were large brash, log or stone piles and an area with dead wood.
- 6.8.43. However, the study area is largely unsuitable for reptiles given that the majority of the land is arable land and improved grassland, which is suboptimal for reptiles. There is some potential for reptiles to be present in the field margins, with some potential hibernacula features recorded and it is therefore assumed that they are present on a precautionary basis. Given the limited habitat present for reptiles, it is considered that the Site Area is of Site value only for reptiles.
- 6.8.44. Full details and methodology on reptiles is presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

Bats

- 6.8.45. The BDS returned records of the following bat species within 1km of the site:
- Noctule bat (*Nyctalus noctule*) (2 records);
 - Daubenton's bat (*Myotis daubentonii*) (4 records);
 - Whiskered bat (*Myotis mystacinus*) (1 record);
 - Common pipistrelle bat (*Pipistrelle pipistrelle*) (18 records);
 - Soprano pipistrelle (*Pipistrelle pygmaeus*) (1 record);
 - Nathusius's Pipistrelle (*Pipistrellus nathusii*) (1 record); and
 - In addition, there are 4 records of unidentified Pipistrelles, 4 unidentified *Myotis* species and 5 unidentified bats.
- 6.8.46. During the ground-level tree assessment, a total of 518 trees (or groups of trees) were identified throughout the Site Area with bat roost potential, ranging from low to high suitability. Of the trees identified, 59 were recorded as having low suitability, 408 were recorded as having moderate suitability and 51 trees were recorded as having high suitability to support roosting bats. Most of the trees identified were located on woodland edges, within field margins or along roadside hedgerows.
- 6.8.47. The species assemblage recorded during static detector survey which were carried out across the study area were as follows; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Daubenton's, Natterer's, Brandt's (*Myotis brandti*), Whiskered, noctule, brown long-eared bat, *Myotis* spp. and *Nyctalus* spp. A total of 222,698 bat registrations were recorded for the study area with a mean registration rate of 38.58 bat registrations per hour (B/h). The majority of bat activity was from common pipistrelle (71.8%) and soprano pipistrelle (13.7%) bats which accounted for 86% of all activity.
- 6.8.48. Habitats of high value for commuting and foraging bats were shown to be the network of hedgerows across the study area and small pockets of woodland. These areas support invertebrate activity and provide a roosting network across the study area for bats.
- 6.8.49. The importance of the bat assemblage recorded within the study area was assessed based on the species recorded, local species distribution (BDS) and regional distributions. When taking these factors into consideration the species assemblage for the Site Area was assessed as being of local value.
- 6.8.50. The value of habitats across the Site Area for commuting and foraging Nathusius' pipistrelle is assessed as being of County value based on the low number of registrations recorded across the study area and the regional populations of this species with a restricted distribution in the north of England and due to a near threatened conservation status.
- 6.8.51. The value of habitats across the Site Area for commuting and foraging common pipistrelle, soprano pipistrelle, *Myotis* spp. brown long-eared bat and Noctule bats is

assessed as being of Local value due to the favourable conservation status of these species and their widespread distribution.

- 6.8.52. Full details and methodology of static bat surveys are presented in Appendix 6.4 Bat Static Detector Survey Report.

Water Voles and Otters

- 6.8.53. Only one record of water vole (*Arvicola amphibius*) and 14 records of otter (*Lutra lutra*) were returned from the BDS. The Water Vole record was recorded in 2000 and was located near Dene Beck. The closest otter record was within the site near to Bishopton Beck with the most recent record from 2019 at the River Skerne.
- 6.8.54. Certain areas of the streams surveyed within the study area had some suitability to support water vole, however the habitat available was limited and sub optimal given the depth of water and lack of in stream channel vegetation. Due to limited habitat available and fragmentation of good quality suitable habitat, it is unlikely that water voles are present within the surveyed waterways and the design of the Proposed Development would maintain a suitable buffer from watercourses, therefore no significant effects are envisaged and water voles have been scoped out of this assessment.
- 6.8.55. The waterways throughout the study area may be used by commuting and foraging otters, likely using the smaller Becks on site for commuting between ponds and larger rivers. The terrestrial habitat within the study area was mostly unsuitable, providing little opportunity for laying up spots, couches or holts and minimal spraint or other evidence was recorded during the survey. The design of the Proposed Development would maintain a suitable buffer from watercourses.
- 6.8.56. Given the limited habitat present for otter, it is considered that the Site Area is of Local value for otter.
- 6.8.57. Full details and methodology on otters is presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

Badger

- 6.8.58. In total, 18 records of badger were returned during the BDS, with the closest being a record northeast of the site from 2009.
- 6.8.59. Numerous badger setts, latrines, snuffle holes, prints, foraging signs and paths were observed throughout the study area. A total of 12 setts were recorded within the study area including: two main setts, one annex sett, four subsidiary setts, three outlier setts and two potential setts. Setts were mainly recorded along field boundaries and within woodland. Several fresh latrines were recorded across the study area providing evidence of recent badger activity. Additionally, badger hairs were found on barbed wire along mammal paths across the study area.

- 6.8.60. Given the BDS return, setts and signs recorded, and habitats present for badger within the study area, it is considered that the Site Area is of Local value for badger.
- 6.8.61. The methodology on badgers is presented in Appendix 6.1 Preliminary Ecological Appraisal Report with survey results shown in a confidential appendix which can be provided upon request to relevant project staff, relevant councils, Natural England and Badger Trust.

Other Species

- 6.8.62. Several Brown hares (*Lepus europaeus*) were seen on site and the habitat is suitable for them. Hares favour a mosaic of arable fields, grassland and woodland edges, which are present on site. In addition, there are over 45 records of brown hares within 1 km of the site and five within the site, demonstrating that the Site Area and the wider area is highly suitable habitat for hares and supports good numbers of the species. It is considered that the Site Area is of Local value for brown hare.
- 6.8.63. The survey did not record the presence of any other animals of nature conservation importance; however, habitats within the site were considered suitable for European hedgehog (*Erinaceus europaeus*). Just under 65 records of hedgehogs within 1 km of the site were identified during the BDS. Hedgehogs occupy a range of lowland habitats with enough cover to allow nesting; they are common in parks in urban and suburban environments, farmland and gardens. Scrub, hedgerows, and grassland on the site provide suitable foraging habitat for hedgehogs. There may be opportunities for hedgehogs to hibernate in log piles, root plates or dense scrub and it is likely that they are present. It is considered that the Site Area is of Local value for hedgehog.
- 6.8.64. In addition to the above both red deer and muntjac have been observed anecdotally on site but no formal surveys have been undertaken.
- 6.8.65. Full details and methodology of protected and notable species are presented in Appendix 6.1 Preliminary Ecological Appraisal Report.

6.9. Potential effects

Construction

- 6.9.1. During construction of the Proposed Development, potential effects are likely to include:
- Habitat change to Panel Areas, and temporary loss of habitat such as hedgerows to facilitate the installation of the cable;
 - Disturbance to foraging bats during construction due to noise, as well as changes to habitat due to the placing of solar PV modules which could potentially lead to a temporary reduction in bat insect prey availability.
 - Potential loss of roosting habitat if any trees suitable to support roosting bats require removal to accommodate the infrastructure – considered unlikely;

- Loss of breeding and foraging habitat for non-ground nesting birds, with construction activities creating displacement through disturbance;
- Loss of breeding and foraging habitat for ground nesting birds such as curlew (*Numenius arquata*), lapwing (*Vanellus vanellus*) and skylark (*Alauda arvensis*) due to the placement of solar PV modules;
- Potential disturbance and displacement of wintering wildfowl forming part of the waterfowl assemblage of the Teesmouth and Cleveland SPA and Ramsar site; and
- Potential loss of great crested newt (GCN) habitat if suitable ponds for this species are removed for the placement of solar PV modules.

Operation

- 6.9.2. During operation of the Proposed Development, potential effects are likely to include:
- Security fencing may prevent large mammal species such as badger and deer from moving across the wider landscape and in the case of badger may reduce the area of foraging habitat available.
 - A potential positive effect from an increase in invertebrate diversity with an increase in foraging habitat for some bird species and bats due to habitat and enhancement measures along field boundaries, field margins and the management of the land underneath the Panel Areas;
 - A significant gain in biodiversity from the above measures; and
 - Ensuring areas of open ground remain as breeding and foraging habitat for ground nesting birds such as curlew, lapwing and skylark.

Decommissioning

- 6.9.3. The effects of decommissioning of the Proposed Development are likely to be similar to those for construction. Habitats and protected or notable species are likely to be subject to temporary loss of habitat or disturbance during decommissioning activities and appropriate measures will need to be put in place to minimise direct loss of habitat and disturbance. A suitable Environmental Management Plan will be needed to control this and suitably qualified ecologists in place to oversee compliance. A decommissioning plan will be secured through the Requirements attached to the DCO.

6.10. Design, mitigation and enhancements

Embedded design measures

- 6.10.1. Embedded design measures are needed to successfully integrate the Proposed Development within the context of the existing landscape and prevent or reduce any adverse effects on ecological features.
- 6.10.2. The Proposed Development has been designed so that impacts upon important habitats (comprising woodland, field margins, hedgerows and ponds) are avoided where reasonably practicable, and compensated for where not, through the retention of existing habitat and the creation or replacement of habitat.

- 6.10.3. Proposed embedded design measures which will be secured via the CEMP and LEMP include the following:
- Revised layout avoids some areas where nesting lapwing and curlew were recorded and areas where geese were recorded in the winter;
 - Allocation of discrete areas that will remain free of solar panels to provide continued availability of habitat for ground nesting birds;
 - Revised layout enabling the retention of woodland and the majority of hedgerows and associated trees;
 - Where cabling works need to cross hedgerow where possible and practical horizontal directional drilling (HDD) will install the cables under hedgerows;
 - Maintenance of appropriate buffers between solar panels and riparian boundaries and watercourses;
 - Maintenance of appropriate buffers between solar panels and larger hedges with trees and woodland edges to retain foraging and commuting corridors for bats; and
 - Maintenance of appropriate buffers between solar panels and trees with potential bat roost features to retain bat roosting habitat across the Site Area.

Construction mitigation

- 6.10.4. Construction of the Proposed Development will be undertaken in accordance with a Construction and Environmental Management Plan (CEMP). Prior to commencing construction, a CEMP will be produced by the appointed construction contractor for the Proposed Development, and this would be secured through an appropriate Requirement in the DCO. The CEMP will manage the environmental effects of the Proposed Development and demonstrate compliance with environmental legislation, which will then be implemented by the selected construction contractor and overseen by a project ecologist, where required.
- 6.10.5. Measures detailed in the CEMP will include best practice measures to control noise, light, vibration, and airborne and waterborne pollutants, and will include measures intended to avoid or minimise impacts on habitats on and offsite and on nearby designated sites. An Outline EMP will be submitted as part of the DCO application. A draft Outline EMP is provided for statutory consultation in Appendix 2.1. Paragraphs 6.10.6 – 6.10.20 details measures to be secured through the CEMP which will be secured as a Requirement of the DCO.
- 6.10.6. The presence of Himalayan Balsam along Bishopton Beck may be a concern where works come close to infested areas along this burn, as this species is listed on the Invasive Alien Species (Enforcement and Permitting) Order 2019 with it being an offence to aid its spread into the wild. Therefore, during the construction phase an invasive non-native plant species (INNS) method statement should be created, detailing measures to minimise the risk of spreading the species, this will form part of the CEMP.
- 6.10.7. A project ecologist is to be appointed during the construction phase of the Proposed Development. The project ecologist will advise on protecting valued biodiversity

features and provide practical, site-specific and proportionate advice on how to achieve compliance with environmental legislation.

- 6.10.8. Pre-commencement species surveys are to be carried out with a Species Protection Plan (SPP) to be implemented during the construction and decommissioning phases of the Proposed Development with full details outlined in the CEMP. The SPP will be a live document subject to review and updating and will assist site personnel in the protection of species during construction and decommissioning, under the guidance of a project ecologist.
- 6.10.9. Whenever practicable, to avoid impacts on breeding birds, clearance of vegetation of potential value to nesting birds (i.e. to facilitate access) will be completed outside of the bird-breeding season (considered to be between mid-February and August inclusive). However, should it not be possible to avoid this season, vegetation will be inspected/surveyed by the project ecologist immediately before clearance (i.e., within 24 hours of clearance works). An active nest will be given an appropriate disturbance buffer for that species with work only allowed to take place within this buffer once the project ecologist has confirmed any young have fully fledged and left the nest.
- 6.10.10. Although no trees are anticipated to require felling, any tree to be felled will be subject to a pre-construction check to determine its current bat roost potential and will be subject to suitable surveys, as described in good practice survey guidelines [27].
- 6.10.11. Where possible hedgerows, tree lines, ditches and trees including the tree root protection area (RPA) are to be protected during construction through the use of suitable buffers and fencing. For further information, see Appendix 7.6 Arboricultural impact Assessment.
- 6.10.12. All boundary features and other features such as larger hedgerows with trees and woodland edge that are of value to foraging bats will be retained with it predicated that only small sections of poor-quality hedgerow will be removed to accommodate the grid connection cables and access routes. Where possible and practical construction access and cabling will use existing field entrances and horizontal directional drilling (HDD) will install the cables under hedgerows.
- 6.10.13. The majority of the terrestrial habitat for GCN within the Proposed Development was considered either suboptimal or unsuitable with the majority of suitable habitat to be retained. As there remains a possibility that GCN might be present in low numbers or might enter the construction area, an application for a Natural England District Level Licence for GCN will be made. The terms of this licence will include an appropriate payment to be determined by Natural England to further the enhancement of GCN in the region.
- 6.10.14. It is not anticipated that any significant areas of potential reptile habitat or potential hibernacula features would need to be cleared to facilitate the Proposed Development. However, should small-scale clearance be necessary, this should be carried out during the reptile active season (i.e. late March/April - October inclusive, dependent on local weather conditions). For clearance of vegetation this should be done in a staged

approach allowing any reptiles to move out of the way into adjacent retained habitat with vegetation cut to approximately knee height, then after 24 hours vegetation will be cut to ground-level. The project ecologist will supervise works and relocate any reptiles found.

- 6.10.15. Badger setts recorded within the Proposed Development were mainly located within hedgerows or woodland along the edge of the Site Area. It is anticipated that sett closure will not be required, with any badger setts recorded to be protected from direct impacts maintain a suitable stand of distance measured from professional judgement from existing setts and micro-siting equipment if required. Furthermore, any exposed trenches or holes are to be covered up when contractors are off site (i.e. at night time) or a slope provided to allow any trapped badgers a safe exit. Security fencing used around the Panel Areas will be permeable to badgers allowing continued movement across the Site Area.
- 6.10.16. For mobile species such as badger, pre-construction surveys will be required to check the status of the setts identified and to locate any new active setts that would need to be protected.
- 6.10.17. Likewise, security fencing will consider the requirement for larger mammals such as deer to be able to move through the wider countryside.
- 6.10.18. All works in proximity to waterbodies/watercourses should follow measures outlined in a CEMP to ensure their complete protection against pollution, silting and erosion.
- 6.10.19. No works within 8m of all waterbodies/watercourses would occur and no night time working is envisaged (the period when otters are most active). Therefore, no disturbance to foraging otter is envisaged.
- 6.10.20. The loss of ground nesting bird breeding and foraging habitat to be mitigated through the provision of ground nesting zones, areas with no panels within the Proposed Development application boundary which will be subject to continued farming activity but managed in a way that delivers the nesting conditions required by curlew, skylark and lapwing.

Operational mitigation

- 6.10.21. The ground nesting zones will likely be managed as meadow with no grazing during the nesting season (April to August) and a late summer hay cut after young birds have fledged.
- 6.10.22. Regular checks of fencing will occur to ensure no deer or other large mammals have become trapped and badger access points will be checked to ensure they remain operational.
- 6.10.23. The main operation mitigation will be the ongoing management of margin, species rich meadow areas and the land underneath the panels as set out under enhancement below.

Enhancement

- 6.10.24. This section outlines the proposed enhancement measures including how a significant gain in biodiversity will be achieved during the operational phase of the Proposed Development.
- 6.10.25. A Landscape and Ecology Management Plan (LEMP) will be produced for the DCO application and secured as a Requirement to the DCO. This document will contain details of habitat creation and management to be undertaken during the operational phase of the development and is likely to include the following measures:
- Where possible hedgerows across the Proposed Development which have been historically removed and replaced with fencing will be re-planted. Existing hedgerows will be enhanced with planting along defunct hedgerows where landscape concerns suggest its effective mitigation. Only native species will be planted along these hedgerows;
 - Reduced cutting (flailing) along existing hedgerows to benefit nesting birds and invertebrate;
 - Field margins between the boundary hedgerows and the security fencing will be enhanced in line with three options and managed accordingly: provision of winter wild bird food and (sowing with specific wild bird winter food), provision of rough grass margins (sowing with tussock forming grass species), and provision of flower rich margins (sowing with a wildflower seed);
 - Land under and between Panel Areas will be enhanced in line with three options and managed accordingly: wildflower mix, legume rich mix and low maintenance grass. Sowing of the wildflower mix option would be best targeted at fields with the lowest Agricultural Land Classification (ALC);
 - Provision of ground nesting zones to be managed specifically for curlew;
 - Provision of c. 2-3ha of land in Panel Area C: Byers Gill Wood which is close to Newton Ketton Meadow SSSI to be sown with lowland meadow seed mix providing additional flower rich meadow habitat as well as habitat for ground nesting birds such as skylark and meadow pipit;
 - Provision of area in Panel Area D: Great Stainton to be sown with lowland meadow seed mix providing suitable nesting habitat for skylark and potentially lapwing; and
 - Consideration will be given to provision of boxes to increase the opportunities for roosting bats and birds such as barn owl.

6.11. Assessment of likely significant effects

Construction

- 6.11.1. Teesmouth and Cleveland Coast is an SPA, and Ramsar Site, and is of international importance. Potential impacts are the displacement of wintering birds forming part of the waterfowl assemblage. However, this is unlikely given relatively low numbers of wintering birds recorded within the Site Area suggesting no functionally linked land to the designated site and the availability of alternate farmland habitat in the wider area. Any effects would therefore be short-term in duration and of negligible magnitude and not significant.

- 6.11.2. Thrislington SAC is 9985m and a total of four SSSI and two Local Nature Reserves are within 2km of the Site Area. Thrislington SAC is of international importance and is designated for semi-natural dry grasslands, broadleaved deciduous woodland and scrubland. Considering the light, noise and pollution control measures that will be set out in the CEMP, it is expected that there would be negligible impacts on these designated sites. Any effects would be short-term in duration and of negligible magnitude and are therefore not significant.
- 6.11.3. There are two LWS within 1 km of the Site Area, which are Carr House Pond Darlington and Wynyard Woodland Park Stockton, which are 0m and 65m, respectively from the Proposed Development. Carr House Pond is important in regard to its pond and marshy grassland while Wynyard woodland is important in regard to the presence of GCN and harvest mouse and neutral grassland. Considering the light, noise and pollution control measures that will be set out in the CEMP, it is expected that there would be negligible impacts on these designated sites. Any effects would be short-term in duration and of low adverse to negligible magnitude and are therefore not significant.
- 6.11.4. Semi-improved grassland, woodland dense scrub, treelines, swamp and ponds are of local value. The majority of these habitat types are along field margins with it expected that most of these habitats will be retained. Considering buffers and fencing to be used to protect these habitats from construction activities and the light, noise and pollution control measures that will be set out in the CEMP with replacement of habitats (planting and sowing) that are removed, any effects would therefore be short-term in duration and of low adverse to negligible magnitude and not significant.
- 6.11.5. Construction activities are predicted to result in the potential for the loss of small sections of hedgerow as a result of grid connection cables and access routes. Whilst the extent of any loss of this habitat is currently unknown, the majority of hedgerows across the Proposed Development will be avoided with the hedgerows to be affected poor quality hedgerows. Sections of hedgerow to be removed will be replanting with native species. This impact has been assessed as short term and of low adverse to negligible and is not considered significant.
- 6.11.6. Watercourses to be protected from construction activities with appropriate buffers with all works in proximity to waterbodies/watercourses will follow measures outlined in a CEMP to ensure their complete protection against pollution, silting and erosion. It is expected that any effects would therefore be short-term in duration and of low adverse to negligible magnitude and not significant .
- 6.11.7. Common Valerian was recorded within the study area which is a species present on the red list for England [26] and listed as near-threatened, likely due to a loss of suitable habitat. The tributary this plant was recorded on is not expected to be impacted on by the Proposed development. Therefore, the impacts of construction on this plant species is expected to be of negligible magnitude and not significant.
- 6.11.8. The revised layout avoids open water and some areas where wintering geese were recorded in the winter. Low numbers of wintering birds have been recorded within the

study area. There will be an allocation of discrete areas that will remain free of solar panels to provide continued availability of habitat. The impact on wintering birds has been assessed as short term and of low adverse magnitude and is not considered significant.

- 6.11.9. The revised layout avoids areas of nesting lapwing and curlew. Provision of discrete parcels with no panels to provide nesting opportunities for ground nesting birds with hedgerow enhancement and provision of rough grassland such as meadows to improve foraging habitat. Clearance of vegetation of value to nesting birds will be completed outside of the bird-breeding season. Should it not be possible to avoid this season, vegetation will be inspected/surveyed by the project ecologist immediately before clearance. The impact to nesting birds is dependent on the provision of parcels of land with areas of land with no panels required to offset the loss of ground nesting habitat. The impact on breeding birds could therefore range from high to medium adverse magnitude which would be considered significant.
- 6.11.10. Revised layout enabling the retention of habitats suitable for invertebrates such as field margins, woodland and the majority of hedgerows and associated trees. Planting along field margins, under panels and planting lost hedgerows with additional planting along gappy hedgerows is likely to increase invertebrate numbers and diversity. Therefore, the impact on invertebrates has been assessed as short term and of low adverse magnitude and is not considered significant.
- 6.11.11. Taking into account the retention of areas considered to be of potential for terrestrial GCN (hedgerows and field margins), and the compensation to be provided via the District Level Licence application payment, the impacts of construction on GCN is expected to be short term and of low adverse magnitude and is not considered significant.
- 6.11.12. Taking into account the retention of areas considered to be of potential for reptiles (field margins and scrub), the impacts of construction on reptiles are expected to be of low adverse magnitude, which will be short term and not significant.
- 6.11.13. Taking into account the retention of all boundary features and other features that would be of value to foraging bats and the retention of all known trees with suitable PRF with mitigation measures to protect these features during construction with suitable buffers and lighting, the magnitude of the impacts of construction on all bat species would be of short term and of low adverse magnitude and not significant.
- 6.11.14. Retention of habitat suitable for foraging, commuting and roosting bats such as field margins, woodland, scrub and the majority of hedgerows and associated trees with maintenance of appropriate buffers between solar panels and trees with potential bat roost features. No trees are anticipated to require felling. Any tree to be felled will be subject to a pre-construction check to determine its current bat roost potential. Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced commuting and foraging habitat for bats. Therefore, the impact on all bat species has been assessed as short term and of low adverse magnitude and is not considered significant.

- 6.11.15. To prevent disturbance to commuting and foraging otter there will be appropriate buffers between construction and riparian boundaries and watercourses. Protection measures will be implemented and adopted during construction, formalised through a CEMP with no works in the vicinity of waterbodies/watercourses during hours of darkness. Therefore, the impact on otter has been assessed as short term and of negligible magnitude and is not considered significant.
- 6.11.16. Taking into account the retention of all known setts, pre-construction surveys, and the need for a Natural England licence should an active sett need to be disturbed, the impacts of construction on badgers is expected to be short term and of low adverse magnitude and not significant.
- 6.11.17. As habitats suitable for brown hare and hedgehog will be retained with field margin habitats enhanced the impact on these species has been assessed as short term and of low adverse magnitude and is not considered significant.

Operation

- 6.11.18. Solar farms are passive developments which require minimal operational work. Therefore, no direct impacts on nearby SPA, SAC, SSSI, LNR & LWS are expected from the Proposed Development, and as such is considered to be no change and not significant.
- 6.11.19. As solar farms are passive developments the impacts from the Proposed Development during operation on habitats would be minimal. As such, no impacts on the woodlands, hedgerows and watercourses within the Site Area are expected from the Proposed Development.
- 6.11.20. The new habitat creation and enhancement including planting of hedgerows, areas of wildflower meadow and legume rich sowing and the strengthening of planting within hedgerows/tree lines as mitigation, means that the overall impact of operation on habitats is expected to be low beneficial, which would result in a medium beneficial effect in the long-term, and expected to achieve a significant net gain in biodiversity.
- 6.11.21. The revised layout avoids open water and some areas where wintering geese were recorded in the winter. Low numbers of wintering birds have been recorded within the study area. Therefore, the impact of operation on wintering birds is therefore considered to be long term and of low adverse magnitude which would be considered not significant.
- 6.11.22. The discrete areas allocated for ground nesting birds, curlew and lapwing will be managed in a manner sympathetic to ground nesting birds, for example late summer hay cuts after young birds have fledged. Habitat creation including hedgerows, field margin sowing, and meadow grassland would benefit invertebrates and in turn foraging and nesting birds. There will be the continued loss of ground nesting bird habitat due to the placement of panel areas. The overall impact of operation on nesting birds is therefore considered to be long term and of high to medium adverse magnitude which would result in a significant impact.

- 6.11.23. All boundary features which are of value to foraging/commuting and potential bat roost features in trees will be retained with suitable buffers to allow the continued use of these features across the Site Area. It is therefore expected that there will be no impacts on bat foraging and roosting habitat within the Site Area. The additional habitat creation including hedgerows, field margin sowing, and meadow grassland would benefit invertebrates and in turn foraging bats and would enhance habitat corridors / ecological networks across the Proposed Development. With the lack of operational lighting, the impact of operation on bats is expected to be long term and of low beneficial magnitude.
- 6.11.24. Habitat creation including hedgerows and habitat enhancement in field margin and under Panel Areas would benefit invertebrates, reptiles, GCN and other amphibians. Therefore, the impact of operation on invertebrates, reptiles and GCN are expected to be long term and range from a low to medium beneficial magnitude.
- 6.11.25. The creation of the grassland habitat and woodland habitat within the Proposed Development will benefit badger, brown hare and hedgehog in the area, creating new foraging habitats that are of a higher quality than the existing arable landscape. Therefore, the impact of operation on badgers, brown hare and hedgehog is expected to be to be of low beneficial magnitude.

Decommissioning

- 6.11.26. Prior to the decommissioning of the development, a Decommissioning Environmental Management Plan (DEMP) will be produced, setting out measures to avoid or minimise impacts during the decommissioning phase. It is expected that this document will include similar measures to those identified above.

6.12. Monitoring

- 6.12.1. Post-construction monitoring will be carried to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support. Monitoring will be set out in the LEMP to be submitted with the DCO application and secured as a DCO Requirement.

6.13. Summary

- 6.13.1. This chapter has considered:
- statutory designated sites within 10km of the Site Area and within 2km for SSSI and 1km for non-statutory designated sites;
 - breeding and winter birds;
 - habitats and invasive species;
 - invertebrates;
 - amphibians including GCN;

- reptiles;
- bats;
- water vole and otter;
- badger; and
- other species such as brown hare and hedgehog.

Preliminary Construction and Decommissioning Assessment

6.13.2. Construction and decommissioning of the Proposed Development is expected to have a negligible or minor effect (not significant).

Preliminary Operational Assessment

6.13.3. Operation of the Proposed Development is expected to have no change or beneficial effect (not significant).

Table 6-5 Summary of potential effects

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
Teesmouth and Cleveland SPA, Ramsar and proposed Ramsar site	Construction: Potential disturbance and displacement of wintering wildfowl part of the waterfowl assemblage of the Teesmouth and Cleveland SPA and Ramsar site.	Construction: <ul style="list-style-type: none"> Revised layout avoids open water and some areas where geese were recorded in the winter. Displacement unlikely given relatively low numbers of wintering birds recorded within the Site Area Noise and visual disturbance will not impact on the integrity or the functioning of SPA, Ramsar & SAC sites, owing to the distance between these sites and the Site Area. This potential impact will be assessed through a Habitat Regulations Screening Assessment (HRA). 	International	High	Short term (during construction) & reversible	Negligible	Construction: Not significant
	Operational: Potential indirect impacts through noise, lighting or visual	Operational: <ul style="list-style-type: none"> Solar farms are passive developments which require minimum operational work. Therefore, no operational impacts on this site are expected from the Proposed Development. 		High	No potential impacts expected	Negligible	Operational: No change
Thrislington SAC	Construction: Potential indirect impacts to the Thrislington SAC through noise,	Construction: <ul style="list-style-type: none"> Noise and visual disturbance will not impact on the integrity or the SAC site, owing to the distance between these sites 	International	High	Short term & reversible	Negligible	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	water quality, lighting or visual	and the Site Area. This potential impact will be assessed through a Habitat Regulations Screening Assessment (HRA).					
	Operational: Potential indirect impacts through noise, lighting or visual	Operational: <ul style="list-style-type: none"> Solar farms are passive developments which require minimum operational work. Therefore, no operational impacts on this site are expected from the Proposed Development. 		High	No potential impacts expected	Negligible	Operational: No change
Briarcroft Pasture SSSI, Whitton Bridge Pasture SSSI, Redcar Field SSSI & Newton Ketton Meadow SSSI	Construction: Potential indirect impacts through noise, water quality, lighting or visual	Construction: <ul style="list-style-type: none"> Construction will not directly impact on habitats within these designated sites. Noise and visual disturbance will not impact on the integrity or the functioning of SSSI sites, as standard environmental protection measures will be implemented and adopted during construction, formalised through a CEMP. 	National	High	Short term & reversible	Negligible	Construction: Not significant
	Operational: Potential indirect impacts through noise, lighting or visual	Operational: <ul style="list-style-type: none"> Solar farms are passive developments which require minimum operational work. Therefore, no operational impacts on this site are expected from the Proposed Development. 		High	No potential impacts expected	Negligible	Operational: No change

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
Hardwick Dene & Elm Tree Woods LNR & Stillington Forest Park LNR, Carr House Pond	Construction: Potential indirect impacts through noise, water quality, lighting or visual	Construction: <ul style="list-style-type: none"> As above 	National	High	Short term & reversible	Negligible	Construction: Not significant
	Operational: Potential indirect impacts through noise, lighting or visual	Operational: <ul style="list-style-type: none"> As above 		High	No potential impacts expected	Negligible	Operational: No change
Darlington LWS & Wynyard Woodland Park Stockton LWS	Construction: Potential indirect impacts through noise, water quality, lighting or visual	Construction: As above	County	Medium	Short term & reversible	Negligible to Low Adverse	Construction: Not significant
	Operational: Potential indirect impacts through noise, lighting or visual	Operational: As above		Medium	No potential impacts expected	Negligible	Operational: No Change
Habitats - arable and grassland habitats	Construction: Loss of these habitats to facilitate the Panel Areas and cable corridor	Construction: <ul style="list-style-type: none"> These habitats are species-poor and had little intrinsic botanical value and are common in the surrounding environment. Their loss is not considered to be significant. Under and between Panel Areas these habitats to be 	Site	Low	Long term	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		enhanced in line with three options and managed accordingly: wildflower mix, legume rich mix and low maintenance grass.					
	Operational: There are no pathways (e.g. habitat loss and pollution) during operation of the Proposed Development which could affect habitats.	Operational: <ul style="list-style-type: none"> As solar farms are passive developments the impacts from the Proposed Development during operation on habitats would be minimal. Enhancement of arable and grassland habitats through planting under and between panels will increase biodiversity. 		Low	Long term (operational 40 years) & reversible after life of project	Medium Beneficial	Operational: Significant Beneficial
Habitats - semi-improved grassland, woodland, dense scrub, hedgerows, treelines, swamp & ponds	Construction: Loss of these habitats to facilitate the Panel Areas and cable corridor.	Construction: <ul style="list-style-type: none"> The majority of these habitat types are along field margins with the majority of these habitats to be retained. Field boundaries will be managed to enhance biodiversity with sowing along field margins (sowing with specific wild bird winter food, sowing of tussock forming grass species and sowing of wildflower seed mix) and planting of lost hedgerows in the landscape 	Local	Low	Short term & reversible (replacement planting and sowing)	Negligible to Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		with additional planting along gappy hedgerows.					
	Operational: There are no pathways (e.g. habitat loss and pollution) during operation of the Proposed Development which could affect habitats.	Operational: <ul style="list-style-type: none"> As solar farms are passive developments the impacts from the Proposed Development during operation on habitats would be minimal. The new habitat creation and enhancement including planting of hedgerows, and sowing of higher biodiversity grassland species, means that the overall impact of operation on habitats is expected to be low beneficial. 		Low	During (operation – 40 years) & after operation	Medium Beneficial	Operational: Significant Beneficial
Watercourses	Construction: Pollution to watercourses.	Construction: <ul style="list-style-type: none"> Appropriate buffers to watercourses. All works in proximity to waterbodies/watercourses will follow measures outlined in a CEMP to ensure their complete protection against pollution, silting and erosion. 	County	Medium	Short term & reversible	Negligible to Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	Operational: There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect watercourses.	Operational: <ul style="list-style-type: none"> As solar farms are passive developments the impacts from the Proposed Development during operation on watercourses would be minimal. 		Medium	No potential impacts expected	Negligible	Operational: No change
Wintering bird assemblage	Construction: Low numbers of wintering birds recorded within the study area. Loss of foraging habitat for wintering bird due to disturbance and the placement of Solar PV modules.	Construction: <ul style="list-style-type: none"> Revised layout avoids open water and some areas where geese were recorded in the winter. Allocation of discrete areas that will remain free of solar panels to provide continued availability of habitat. Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced roosting and foraging habitat for wintering birds. Sowing with specific wild bird winter food mix along field margins. 	County: great crested grebe, grey partridge, herring gull, linnet, pink-footed goose, stock dove and wigeon District: common gull, starling & tree sparrow	Medium	Long term & partially reversible	Low Adverse	Construction: Not significant
	Operational: Potential increase in foraging due to enhancement of habitats. Increased	Operational: <ul style="list-style-type: none"> Potential increase in invertebrate diversity with an increase in foraging and roosting habitat due to habitat 		Medium	Long term (operational – 40 years)	Low Adverse	Operational: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	roosting habitat due to hedgerow planting, enhancement and relaxing hedgerow cutting. Solar free panel areas proving continued foraging habitat.	and enhancement measures along field boundaries and hedgerows. <ul style="list-style-type: none"> Solar free panels areas to provide continued availability of foraging habitat for birds such as curlew, lapwing and skylark. 					
Breeding bird assemblage	Construction: Loss of breeding habitat for nesting birds through disturbance and the placement of Solar PV modules	Construction: <ul style="list-style-type: none"> Revised layout avoids open water and some areas of nesting lapwing and curlew. Provision of discrete parcels with no panels to provide nesting opportunities for ground nesting birds. Clearance of vegetation of value to nesting birds will be completed outside of the bird-breeding season Should it not be possible to avoid this season, vegetation will be inspected/surveyed by the project ecologist immediately before clearance. Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced foraging and nesting habitat for birds. 	County: skylark, tree sparrow and yellowhammer District: grey partridge, lapwing, curlew, and reed bunting	Medium	Long term (for operation of solar farm) & partially reversible	High to Medium Adverse	Construction: Significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		<ul style="list-style-type: none"> Provision of rough grass, wildflower and game cover and winter seed source sowing within field margins improving foraging habitat for bird species. Area underneath and between panels will be sown with one of 3 potential options, aiming to increase invertebrates and improve foraging habitat for birds. 					
	<p>Operational: Open ground will provide breeding and foraging habitat for ground nesting birds such as curlew, lapwing and skylark. Increased nesting and foraging habitats due to habitat enhancement of field margins, hedgerows and under solar panel area</p>	<p>Operational:</p> <ul style="list-style-type: none"> The discrete areas allocated for ground nesting birds will be managed in a manner sympathetic to ground nesting birds, for example late summer hay cuts after young birds have fledged. Habitat creation including hedgerows, field margin sowing, and meadow grassland would benefit invertebrates and in turn foraging and nesting birds. 		Medium	Long term (for operation of solar farm) & partially reversible	Medium Adverse	<p>Operational: Significant – residual effects will depend on efficacy of mitigation</p>
Invertebrates	<p>Construction: Potential short-term decrease in invertebrate</p>	<p>Construction:</p> <ul style="list-style-type: none"> Revised layout enabling the retention of habitats suitable for invertebrates such as field 	Site	Low	Short term & reversible	Low Adverse	<p>Construction: Not significant</p>

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	numbers. The Site Area is likely to support an invertebrate assemblage typical of farmland landscapes which would not be of particular importance with the surrounding environment containing a similar landscape.	<p>margins, woodland and the majority of hedgerows and associated trees.</p> <ul style="list-style-type: none"> Planting along field margins, under panels and planting lost hedgerows with additional planting along gappy hedgerows is likely to increase invertebrate numbers and diversity across the Site Area. 					
	Operational: Likely Potential increase in invertebrate abundance and diversity due to habitat enhancement	Operational: <ul style="list-style-type: none"> Habitat creation including hedgerows and habitat enhancement along field margin and under Panel Areas would benefit invertebrates. 		Low	Long term (operation – 40 years)	Medium Beneficial	Operational: Significant Beneficial
GCN and other amphibians	Construction: Potential loss of GCN and amphibian breeding habitat if suitable ponds are removed for the placement	Construction: <ul style="list-style-type: none"> Revised layout enabling the majority of habitat suitable for GCN and amphibians to be retained such as field margins, woodland, scrub and the majority of hedgerows. 	Local	Low	Short term & partially reversible	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	of Solar PV modules.	<ul style="list-style-type: none"> Existing ponds to be retained and enhanced where possible. Any potential impact to GCN to be offset by a Natural England District Level Licence for GCN. 					
	<p>Operational: There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect habitat suitable for these species. Habitat creation of hedgerows and enhancement of field margins and under panel areas to benefit GCN and amphibians.</p>	<p>Operational:</p> <ul style="list-style-type: none"> As solar farms are passive developments the impacts from the Proposed Development during operation on GCN and amphibians would be minimal. Habitat creation including hedgerows and habitat enhancement along field margin and under Panel Areas would benefit GCN and amphibians. 		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Significant Beneficial
Reptiles	<p>Construction: Potential loss of reptile habitat</p>	<p>Construction:</p> <ul style="list-style-type: none"> Revised layout enabling the retention of habitat suitable for reptiles such as field margins, woodland, scrub and the majority of hedgerows. Should habitat suitable for reptiles require clearing it will be done in accordance with a 	Site	Low	Short term & partially reversible	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		method statement to safeguard reptiles.					
	Operational: Habitat creation of hedgerows and enhancement of field margins and under panel areas to benefit reptiles.	Operational <ul style="list-style-type: none"> Habitat creation of hedgerows and habitat enhancement in field margin and under Panel Areas would benefit reptiles 		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Significant Beneficial
Nathusius' pipistrelle	Construction: Disturbance to foraging bats due to noise, as well as changes to habitat due to the placing of Solar PV modules which could potentially lead to a temporary reduction in bat insect prey Potential loss of roosting habitat Potential loss of commuting habitat	Construction: <ul style="list-style-type: none"> Revised layout enabling the retention of habitats suitable for foraging, commuting and roosting bats such as field margins, woodland, scrub and the majority of hedgerows and associated trees. Maintenance of appropriate buffers between solar panels and potential bat roost trees. No trees are anticipated to require felling. Any tree to be felled will be subject to a pre-construction check to determine its current bat roost potential. Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced commuting and foraging habitat for bats. 	County	Medium	Short term & reversible if no roosts are to be removed	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		<ul style="list-style-type: none"> Planting along field margins and under panels with the aim of increasing invertebrate numbers and diversity which will enhance foraging for bats 					
	<p>Operational: Potential increase in invertebrate diversity with an increase in foraging habitat for bat species due to habitat and enhancement measures along field boundaries and under Panel Areas.</p> <p>More commuting habitats available due to the planting of lost hedgerows, and planting up of gappy hedgerows</p>	<p>Operational:</p> <ul style="list-style-type: none"> All boundary features which are of value to foraging/commuting and potential bat roost features in trees will be retained with suitable buffers to allow the continued use of these features across the Site Area. It is therefore expected that there will be no impacts on bat foraging and roosting habitat within the Site Area from the Proposed Development. Habitat creation including hedgerows with field margin sowing and meadow grassland would benefit invertebrates and in turn foraging bats. 		Medium	Long term (operation – 40 years)	Low Beneficial	Operational: Significant Beneficial
All other bat species recorded within the study area	Construction: Same as above	Construction: Same as above	Local	Low	Short term & reversible if no roosts are to be removed	Low Adverse	Construction: Same as above
	Operational: Same as above	Operational: Same as above		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Same as above

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
Otter	Construction: Disturbance to foraging otter and potential pollution to watercourses	Construction: <ul style="list-style-type: none"> Maintenance of appropriate buffers between solar panels and riparian boundaries and watercourses. Protection measures will be implemented and adopted during construction, formalised through a CEMP. No works in the vicinity of waterbodies/watercourses during hours of darkness. 	Local	Low	Short term & reversible	Negligible	Construction: Not significant
	Operational: There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect habitat suitable for these species. Otters will be able to commute and forage along watercourse within the Proposed Development	Operational: <ul style="list-style-type: none"> As solar farms are passive developments the impacts from the Proposed Development during operation on GCN and amphibians would be minimal. 		Low	No potential impacts expected	Negligible	Operational: No change
Badger	Construction: Disturbance to badger, as well as changes to foraging	Construction: <ul style="list-style-type: none"> Revised layout enabling the retention of field margins, 	Local	Low	Short term & reversible	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	habitat due to the placing of Solar PV modules	<p>woodland with no sett closure expected.</p> <ul style="list-style-type: none"> Setts will be protected with appropriate buffers to prevent disturbance. Any exposed trenches or holes are to be covered up when contractors are off site (i.e. at night time) or a slope provided to allow any trapped badgers a safe exit. Security fencing used around the Panel Areas will be permeable to badgers allowing continued movement across the site. 					
	<p>Operational: Badger will be able to forage and commute across the Proposed Development.</p> <p>Enhanced foraging across the Proposed Development.</p>	<p>Operational:</p> <ul style="list-style-type: none"> Regular checks of fencing will occur to ensure badger access points remain operational. The creation of hedgerows and the and habitat enhancement in field margin and under Panel Areas would benefit foraging badgers. 		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Beneficial
Brown hare	<p>Construction: Disturbance to brown hare, as well as changes to foraging habitat due</p>	<p>Construction:</p> <ul style="list-style-type: none"> Revised layout enabling the retention of field margins, treeline, hedgerows and woodland which would 	Local	Low	Short term & reversible	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	to the placing of Solar PV modules	<p>typically be used as resting up areas and cove from predators.</p> <ul style="list-style-type: none"> Security fencing used around the Panel Areas will be permeable to hares allowing continued movement across the Site Area. Surrounding habitats that can be used by brown hare in the locality. 					
	<p>Operational: Enhanced foraging across the Proposed Development</p>	<p>Operational:</p> <ul style="list-style-type: none"> Regular checks of fencing will occur to ensure access points remain operational. <p>The creation of hedgerows and the and habitat enhancement in field margin and under Panel Areas would benefit brown hare</p>		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Beneficial
Deer	<p>Construction: Fragmentation of foraging routes across the wider landscape</p>	<p>Construction:</p> <ul style="list-style-type: none"> Design of Security fencing used around the Panel Areas will fence fields individually rather than a single fence around the entire perimeter to allow access by deer. This will enable them to use retained margins adjacent to field boundaries to move across the wider landscape, whilst still being excluded from panel areas. 	Local	Low	Short term & reversible	Low Adverse	Construction: Not significant

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
	Operational: Design of Security fencing used around the Panel Areas. Deer will be able to move freely across the Proposed development	Operational: No measures required.		Low	Long term (operation – 40 years) & reversible	Negligible	Operational: No change
Hedgehog	Construction: Disturbance to hedgehog, as well as changes to foraging habitat due to the placing of Solar PV modules	Construction: <ul style="list-style-type: none"> ▪ Revised layout enabling the retention of field margins, treeline, hedgerows and woodland which would typically be used as resting up areas. ▪ Security fencing used around the Panel Areas will be permeable to hedgehogs allowing continued movement across the Site Area ▪ Surrounding habitats that can be used by hedgehog in the locality. 	Local	Low	Short term & reversible	Low Adverse	Construction: Not significant
	Operational: Enhanced foraging across the Proposed Development	Operational: <ul style="list-style-type: none"> ▪ Regular checks of fencing will occur to ensure access points remain operational. ▪ The creation of hedgerows and the and habitat enhancement in field margin 		Low	Long term (operation – 40 years)	Low Beneficial	Operational: Beneficial

Ecological receptor	Description of potential impact	Embedded design, mitigation, and enhancement measures	Importance of receptor	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of potential effect
		and under Panel Areas would benefit brown hare					

Further work

6.13.4. Further assessment and development of mitigation measures will be undertaken as part of the ES and through the completion of the following surveys, assessments and management plans:

- Areas marked as 'to be surveyed' within the Site Area will be surveyed before the submission of the ES. These areas are small sections mainly along the cable route corridor;
- LEMP to be provided with the DCO application which will detail the management of landscape and ecological features, to be secured via a requirement of the DCO; and
- Undertake the in-combination and cumulative effects assessments.

Bibliography

- [1] European Commission, Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (Birds Directive) 2009. Available at: <https://www.legislation.gov.uk/eudr/2009/147>, 2009.
- [2] European Commission, Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) 1992. Available at: <https://www.legislation.gov.uk/eudr/1992/43>, 1992.
- [3] HMSO, The Conservation of Habitats and Species Regulations (Habitat Regulations) 2017. Available at: <https://www.legislation.gov.uk/ukxi/2017/1012> EnglandandWales, 2017.
- [4] HMSO, The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573/pdfs/ukdsi_978_0111176573_en.pdf, 2019.
- [5] HMSO, The Wildlife and Countryside Act (WCA) 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>, 1981.
- [6] HMSO, Countryside and Rights of Way Act 2000. Available at: <https://www.legislation.gov.uk/ukpga/2000/37/contents>, 2000.
- [7] HMSO, The Environment Act 2021. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>, 2021.
- [8] HMSO, “The Natural Environment and Rural Communities (NERC) Act 2006. Available at: <https://www.legislation.gov.uk/ukpga/2006/16>,” 2006.
- [9] HMSO, Hedgerow Regulations 1997. HMSO, London. Available at: <http://www.legislation.gov.uk/ukxi/1997/1160/contents/made>, 1997.
- [10] HMSO, Protection of Badgers Act 1992. HMSO, London. Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents>, 1992.
- [11] HMSO, The Invasive Alien Species (Enforcement and Permitting) Order 2019. Available at: <https://www.legislation.gov.uk/ukxi/2019/527/article/1/made>, 2019.
- [12] Department of Energy and Climate Change, National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf, 2011.
- [13] Department of Energy and Climate Change, National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37048/1940-nps-renewable-energy-, 2011.
- [14] D. f. E. a. C. Change, “NPS for Electricity Network Infrastructure (EN-5_,” The Stationery Office, London, 2011.
- [15] Department for Levelling Up, Housing and Communities, National Planning Policy Framework. Available

at:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf, 2021.

- [16] HM Government, A Green Future: Our 25 Year Plan to Improve the Environment. Available at: <https://www.gov.uk/government/publications/25-year-environmentplan>, 2018.
- [17] Department for Environment, Food and Rural Affairs, Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at:<https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosyst>, 2020.
- [18] Darlington Borough Council, Darlington Local Plan 2016 – 2036. Available online at: <https://microsites.darlington.gov.uk/media/2399/local-plan-adopted-feb22v2.pdf>, 2016.
- [19] Stockton-on-Tees Borough Council, Stockton-on-Tees Borough Council Local Plan. Available at: https://www.stockton.gov.uk/media/2518/Local-Plan-2019/pdf/Local_Plan_2019.pdf?m=637810468860870000, 2019.
- [20] Durham County Council , “County Durham Plan. Available online at: <https://www.durham.gov.uk/media/34069/County-Durham-Plan-adopted-2020-/pdf/CountyDurhamPlanAdopted2020vDec2020.pdf?m=637725862605900000>,” 2020.
- [21] Chartered Institute of Ecology and Environmental Management, Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winches, 2018.
- [22] B. C. P. E. R. N. L. a. T. J. Butcher, UK Habitat Classification – Habitat Definitions V1.1 at <http://ukhab.org>, 2020.
- [23] B. S. a. A. S. Group, Bird Survey Guidelines for Assessing Ecological Impacts, 2022.
- [24] J. Marchant, BTO Common Birds Census instructions. BTO, Tring., 1983.
- [25] JBM Solar, Byers Gill Solar EIA Scoping Report, 2022.
- [26] P. L. S. A. T. W. K. P. D. R. F. H. C. F. M. M. J. P. T. P. C. & T. I. Stroh, A Vascular Plant Red List for England. Botanical Society of Britain and Ireland,, 2014.
- [27] J. Collins, Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London., 2016.