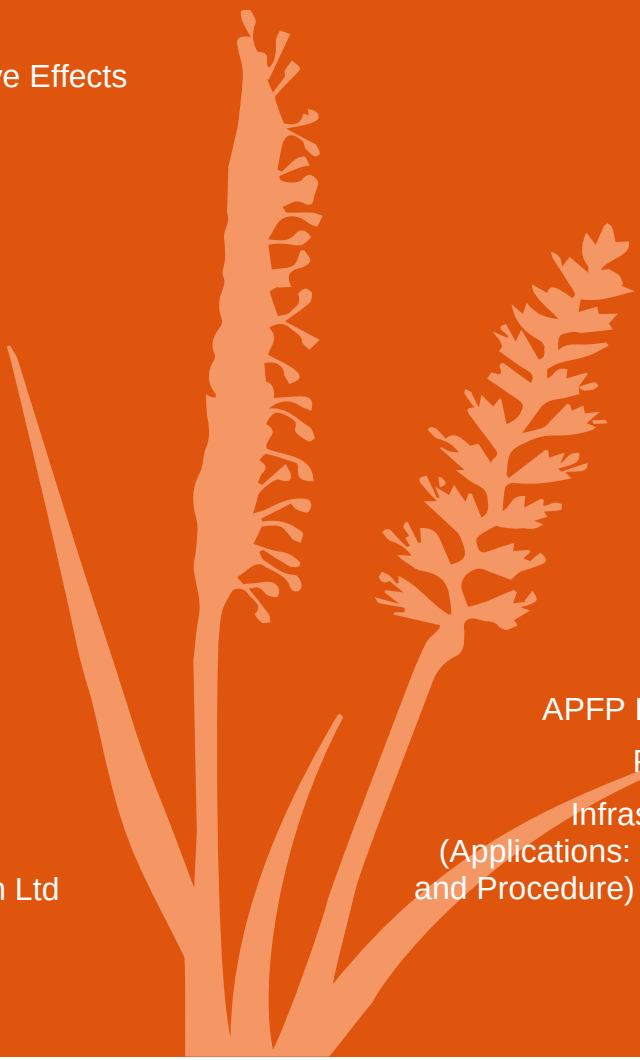
Springwell Solar Farm

Environmental Statement

Volume 1
Chapter 16: Cumulative Effects



APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

EN010149/APP/6.1
November 2024
Springwell Energyfarm Ltd

Table of Contents

16. Cumulative effects

16.1. Introduction

16.1.1. This chapter presents the approach to the assessment and identification of cumulative effects. This chapter should be read in conjunction with the following figures presented in **ES Volume 2 [EN010149/APP/6.2]** and appendix presented in **ES Volume 3 [EN010149/APP/6.3]**:

- **Figure 16.1: Cumulative Long List Radius**;
- **Figure 16.2: Cumulative Short List Developments**;
- **Figure 16.3: Cumulative ZTV – Springwell and National Grid Navenby Substation**;
- **Figure 16.4: Cumulative ZTV – Springwell and Navenby Heath BESS**;
- **Figure 16.5: Cumulative ZTV – Springwell and RAF Digby Office and Training Building**;
- **Figure 16.6: Cumulative ZTV – Springwell, National Grid Navenby Substation and Navenby Heath BESS**;
- **Figure 16.7: Cumulative ZTV – Springwell, National Grid Navenby Substation and RAF Digby Office and Training Building**;
- **Figure 16.8: Best and Most Versatile (BMV) Agricultural Land and Cumulative Developments**; and
- **Appendix 16.1: Cumulative Long List**.

16.1.2. Cumulative effects occur as a result of several actions on an environmental receptor which may overlap or act in combination. The following types of cumulative effects have been considered in accordance with the Environmental Impact Assessment (EIA) Regulations and best practice guidance:

- **Intra-project combined effects –** the interaction and combination of different environmental residual (post-additional mitigation) effects from within the Proposed Development affecting a receptor; and
- **Inter-project cumulative effects –** the combined residual (post-mitigation) effects of the Proposed Development and 'other existing development and/or approved development' on a single receptor/resource.

16.2. Legislative framework, planning policy and guidance

16.2.1. The assessment has been undertaken with regard to the following legislation, planning policy and guidance.

Legislation

16.2.2. Schedule 4 paragraph (5)(e) of the EIA Regulations **[Ref. 16-1]** states that the ES should include *"a description of the likely significant effects of the development on the environment resulting from… the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the uses of natural resources"*.

16.2.3. Regulation 5(2) of the EIA Regulations states that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape.

16.2.4. Regulation 5(2)(e) of the EIA Regulations refers to the need to assess "*the interaction between those factors.*"

National Planning Policy

16.2.5. Overarching National Policy Statement for Energy (NPS EN-1) (2023) **[Ref. 16-2]** provides the basis for decisions regarding nationally significant energy infrastructure. There are multiple references to cumulative assessment including paragraph 4.1.5, which requires that potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts are considered.

16.2.6. National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023) **[Ref. 16-3]** sets out the policies relating to electricity generation from renewable sources of energy and includes multiple references to cumulative assessment. Section 2.10 gives specific consideration to solar development including assessment of cumulative impacts.

16.2.7. National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023) **[Ref. 16-4]** paragraph 2.9.10 makes reference to cumulative landscape and visual impacts where new overhead lines are required along with other related developments such as substations, wind farms and/or other new sources of power generation.

16.2.8. National Planning Policy Framework (NPPF) (December 2023) **[Ref. 16-5]** Section 49, 115, 160, 166, 191, 192 and 216 makes reference to ensuring adverse cumulative effects are addressed appropriately, particularly related to highways, landscape and visual, flood risk, ground conditions and pollution, air quality, human health and the historic environment. Consultation on the proposed reform to the NPPF ended on the 24

September 2024. The **Planning Statement [EN010149/APP/7.2]** considers both the current and consulted NPPF.

Local Planning Policy

16.2.9. Central Lincolnshire Local Plan (2018-2040) adopted 13 April 2023 **[Ref. 16-6]** Policy S14 Renewable Energy makes reference to the consideration of both individual and cumulative impacts of a scheme, and Policy S67 Best and Most Versatile agricultural land references the combined loss of this resource. Where >1ha of BMV land is to be lost as part of the development, should be accompanied by an Agricultural Land Classification (ALC) statement (see **ES Volume 1, Chapter 11: Land, Soil and Groundwater [EN010149/APP/6.1]** and **ES Volume 3, Appendix 11.1A: Springwell Central Agricultural Land Classification**, **Appendix 11.1B: Springwell East Agricultural Land Classification** and **Appendix 11.1C: Springwell West Agricultural Land Classification [EN010149/APP/6.3])**.

Guidance

16.2.10. Relevant guidance has been considered during the preparation of this assessment, comprising primarily the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]** on inter-project cumulative effects and guidance from the Institute of Environmental Management and Assessment (IEMA) **[Ref. 16-8]**.

16.3. Stakeholder engagement

16.3.1. **Table 16.1** provides a summary of the stakeholder engagement activities undertaken separately from the EIA scoping, non-statutory consultation, statutory consultation and targeted consultation process in support of the preparation of this assessment, as well as detailing the matters raised, how such matters have been addressed, and where they have been addressed in the ES.

16.3.2. **ES Volume 3, Appendix 5.3: Scoping Opinion Response Matrix [EN010149/APP/6.3]** presents the responses received via the Scoping Opinion and the Applicant's response to each matter raised.

16.3.3. **Appendix A-4, J-1, J-2** and **K-3** of the **Consultation Report [EN010149/APP/5.1]**, which is submitted in support of the Development Consent Order (DCO) Application, sets out the feedback received during non-statutory, statutory and targeted consultation and how regard has been afforded by the Applicant to each matter raised.

Table 16.1 Summary of stakeholder engagement

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location of where this matter is addressed in the ES
North Kesteven District Council planning team and Lincolnshire County Council planning team	25 July 2024	As part of the bi-monthly progress calls with the Councils, the approach to the inter-project cumulative effects assessment was discussed and the latest short list of developments presented. The slide deck provided a recap of the criteria being used for the inclusion of developments on the long and short lists (as consulted on in the Preliminary Environmental Information Report) and the maximum Zone of Influence (ZoI) selected. An email was sent to North Kesteven District Council and Lincolnshire County Council to seek agreement on the developments identified in the short list, prior to the inter-project cumulative effects assessment being completed.	Inter-project cumulative effects assessment completed.	The confirmed short list is presented in **Table 16.3** of this chapter with the assessment presented in **Section 16.7** of this chapter.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location of where this matter is addressed in the ES
Lincolnshire County Council Infrastructure Manager	31 July 2024	Email correspondence containing planning applications which Lincolnshire County Council consider to be relevant to the cumulative effects assessment, and highlighting the recently launched (July 2024) consultation the Lincolnshire New Minerals and Waste Local plan. Outstanding query from the Preliminary Environmental Information Report as to how minerals and waste sites have been considered in the environmental assessment.	The list of planning applications has been reviewed against the criteria for inclusion in the long and short list. The potential for inter-project cumulative effects with mineral developments has been considered, with an internal review having been completed of Lincolnshire County Council's Lincolnshire Minerals and Waste Local Plan: Preferred Approach for Updating the Plan – Regulation 18 Consultation, Site Assessment Report (June 2024) **[Ref. 16-9]**, to identify sites within the 10 kilometres (km) ZoI.	The long list is provided in **ES Volume 3, Appendix 16.1: Cumulative Long List [EN010149/APP/6.3]**, whilst the confirmed short list is presented in **Table 16.3** of this chapter with the assessment in **Section 16.7** of this chapter.
North Kesteven District Council planning team	7 August 2024	Email correspondence containing planning applications within North Kesteven District Council which the	The list of planning applications has been reviewed against the criteria for inclusion in the long and short list (see entry below	The long list is provided in **ES Volume 3, Appendix 16.1: Cumulative Long List**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location of where this matter is addressed in the ES
		Council advise should be considered in the cumulative effects assessment.	for reply to North Kesteven District Council).	**[EN010149/APP/6.3]**, whilst the confirmed short list is presented in **Table 16.3** of this chapter with the assessment in **Section 16.7** of this chapter.
North Kesteven District Council Planning Team	20 August 2024	Email response from the Applicant to North Kesteven District Council on 20 August 2024. The email contained a table of the planning applications provided on 7 August 2024 (as per entry above), and a response as to whether each application was to be included in the long and/or short lists for the cumulative effects assessment.	The Applicant requested that any further queries be raised at one of the monthly progress meetings.	The long list is provided in **ES Volume 3, Appendix 16.1: Cumulative Long List [EN010149/APP/6.3]**, whilst the confirmed short list is presented in **Table 16.3** of this chapter with the assessment in **Section 16.7** of this chapter.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location of where this matter is addressed in the ES
North Kesteven District Council Planning Team	26 September 2024	As part of a bespoke agricultural and soils meeting, the approach to the cumulative BMV assessment was discussed. This included reference to the other DCO BMV assessments that had been through Examination which were used to inform the approach.	N/A – no specific issues raised.	The BMV assessment is located in **Section 16.8** of this chapter.

16.4. Approach to assessment

Intra-project combined effects

16.4.1. The approach to the assessment of interactions of environmental effects (intra-project combined effects) has considered the changes in baseline conditions at common sensitive receptors (i.e., those receptors that have been identified as experiencing likely significant effects by more than one environmental factor) due to the Proposed Development.

16.4.2. The assessment has been based upon residual (post-additional mitigation) effects of '**slight/minor**' or greater significance only ('**negligible**' residual effects have not been considered). The assessment includes consideration of where multiple **not significant** effects could combine to become **significant**.

16.4.3. The study area for the assessment of intra-project combined effects has been informed by the study areas for the individual environmental factor assessments.

Stage 1: Screening

16.4.4. Screening has been undertaken to determine whether a sensitive receptor is exposed to more than one type of residual (post-additional mitigation) effect during the construction, operation (including maintenance) and/or decommissioning phases of the Proposed Development. Those common sensitive receptors exposed to two or more types of residual (post-additional mitigation) effects with significance of '**slight/minor**' or greater, have been taken forward to Stage 2 of the assessment.

16.4.5. If there is only one type of effect on a sensitive receptor (i.e. only one environmental factor assessment has identified effects on that sensitive receptor), then it has been considered that there are no potential intra-project combined effects, and the sensitive receptor has not been taken forward to Stage 2 of the assessment.

Stage 2: Assessment for intra-project combined effects

16.4.6. A quantitative assessment of the overall significance of the intra-project combined effects on common sensitive receptors identified at Stage 1 has been undertaken, where possible, based on technical information provided in the environmental factor assessments **(ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1])** and supporting appendices, as well as professional judgement. Given that the types of effects may be very different in some cases, a quantitative assessment has not always been possible, and where that is the case, it has been necessary to apply professional judgement in determining the significance of each individual effect.

16.4.7. The evaluation at the receptor level has considered:

- the magnitude of change at the common receptor;
- previously identified sensitivity/importance/value;
- duration and reversibility of interaction.

16.4.8. The focus has been on determining a change in the level of effect likely to be experienced and whether this is significant or not.

Inter-project cumulative effects

16.4.9. The approach to the assessment of inter-project cumulative effects has considered the deviation from the baseline conditions at common sensitive receptors as a result of changes brought about as a result of the Proposed Development in combination with one or more other existing development and/or approved developments. The assessment of the inter-project cumulative effects is based upon the residual (post-additional mitigation) effects that have been identified in the various environmental factor assessments for the Proposed Development **(ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1])**, as well as available environmental information for the other existing development and/or approved developments.

16.4.10. In accordance with the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]**, the identification of other existing development and/or approved developments comprises two clear stages, as follows:

- **Stage 1:** establish a long list of other existing development and/or approved developments based on appropriate spatial and temporal limits.
- **Stage 2:** apply a clear rationale to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in a significant inter-project cumulative effect for inclusion within the assessment.

Stage 1: Long list methodology

16.4.11. In accordance with the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]**, the first task in establishing the long list of relevant other existing development and/or approved development(s) is to determine the 'search area'. For the purposes of this assessment, the 'search area' has been determined by affording consideration to the ZoI for each environmental factor assessed within this ES.

16.4.12. The ZoI for each environmental factor is defined as the spatial area over which an effect is likely to be experienced. The ZoI for each environmental factor has been identified based on the extent of the likely effects as

identified as the study area in each of the individual environmental factor assessments **(ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1])**, whilst also reflecting any additional area over which cumulative effects may occur for particular cumulative scenarios (e.g., sequential cumulative visual effects on users of linear routes).

16.4.13. The environmental factor-specific study areas presented in **ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1]**, and appropriate justifications for these study areas, are provided below in **Table 16.2**.

Table 16.2 Zone of Influence for each environmental factor

Environmental factor	Zone of Influence	Justification
Biodiversity	2km from the Order Limits (extended to 10km in certain circumstances)	Background data searches for statutory and non-statutory designated sites and protected species records focus on the Order Limits and a 2km buffer, extended to 10km for Special Protection Areas, Special Areas of Conservation and Ramsar sites. Therefore, the Order Limits and 2km surrounding is considered to be the ZoI.
Air Quality	250m from the Order Limits	Based on the Institute of Air Quality Management (IAQM) construction dust guidance **[Ref. 16-10]**, the study area for sensitive human receptors for demolition, earthworks and general construction activities is up to 250m from the Order Limits. For trackout activities[1], the study area is up to 50 metres (m) from the edge

[1] Trackout is defined as the transport of dust and dirt from the construction/demolition sites onto public road network, where it may be deposited and then re-suspended by vehicles using the network.

Environmental factor	Zone of Influence	Justification
		of the road likely to be affected by trackout. The study area for sensitive ecological receptors for demolition, earthworks and general construction activities is up to 50m from the Order Limits. For trackout activities, the study area is up to 50m from the edge of the roads likely to be affected by trackout.
Cultural heritage	10km from the Order Limits	The Zone of Theoretical Visibility (ZTV) presented in **ES Volume 2, Figures 10.5 - 10.9 [EN010149/APP/6.2]** demonstrate that any visibility of the Proposed Development, including the Springwell Substation, would be limited to a maximum distance of 5km from the Order Limits. In theory, there could be inter-project cumulative effects to heritage assets within this distance of the Order Limits as a result of other existing development and/or approved developments of a similar height within 5km of the asset and the ZoI for cultural heritage is therefore set at 10km from the Order Limits.
Climate	Not applicable (global)	Greenhouse gas (GHG) emissions are inherently cumulative, where the sensitive receptor is the global climate. As such, it

Environmental factor	Zone of Influence	Justification
		is not possible to define a ZoI for the assessment for inter-project cumulative effects on GHG emissions, and therefore not possible to carry out a cumulative assessment. Emissions from the National Grid Navenby Substation have been considered on a non-cumulative basis, and are presented in **ES Volume 1, Chapter 8: Climate [EN010149/APP/6.1]**
Landscape and visual	10km from the Order Limits	The ZTVs presented in **ES Volume 2, Figures 10.5 - 10.9 [EN010149/APP/6.2]** demonstrate that any visibility of the Proposed Development, including the Springwell Substation, would be limited to a maximum distance of 5km from the Order Limits. In theory, sequential cumulative visual effects on users of linear routes (e.g. roads or long distance recreational footpaths) could be influenced by developments beyond the ZoI of the Proposed Development itself. In order to consider this scenario, the ZoI for the cumulative Landscape Visual Impact Assessment is set at 10km from the Order Limits.

Environmental factor	Zone of Influence	Justification
Land, soil and groundwater (excluding BMV agricultural land – see **Section 16.8** of this chapter)	1km from the Order Limits	A 1km buffer has been considered with regard to identifying land, soil and groundwater related receptors that could be impacted by the construction, operation (including maintenance) and/or decommissioning of the Proposed Development.
Noise and vibration	300m from the Order Limits (for construction and decommissioning) Approximately 600m from the Limits (for operation (including maintenance))	The study area for the construction and decommissioning phase assessments considers noise and vibration sensitive receptors that are located within 300m of the Order Limits, or the nearest or most potentially affected receptor. This has been determined based on the guidance set out in BS 5228-1: 2009+A1: 2014 **[Ref. 16-11]**, BS 5228-2: 2009+A1: 2014 **[Ref. 16-12]** and DMRB 'LA 111 – Noise and Vibration **[Ref. 16-13]**. For the assessment of operational (including maintenance) phase noise levels, the study area extends out to the nearest or most exposed noise sensitive receptors to the Order Limits. This has been determined based on the guidance set out in BS 4142:2014+A1:2019 **[Ref. 16-14]**.

Environmental factor	Zone of Influence	Justification
Traffic and transport	Extent of the local road network including: B1202, B1188, B1191, A15 and Gorse Hill Lane	Extent of the local road network affected by the construction, operation (including maintenance) and decommissioning phases, as well as any identified sensitive receptors. This study area has been identified assuming that all construction traffic routes to the Proposed Development will follow these primary links for access (**ES Volume 2, Figure 14.1: Study Area [EN010149/APP/6.2]**.
Water	1km from the Order Limits	A 1km study area has been considered with regard to identifying hydrological features and surface water related receptors that could be impacted by the construction, operation (including maintenance) and/or decommissioning of the Proposed Development.

16.4.14. The overall combined 'search area' for the long list of relevant other existing development and/or approved development(s) has been based on the largest ZoI (study area) in terms of distance, which in this case is 10km. However, and notwithstanding the above, consideration has been afforded to the adoption of a wider more regional level study area for cumulative assessment in relation to BMV agricultural land and transport (as noted in **Table 16.1** and discussed further in **Section 16.8**).

16.4.15. Following the adoption of the 10km ZoI, a planning application search was undertaken to identify other existing development and/or approved developments within the 10km ZoI, using the planning portals of North Kesteven District Council, Lincolnshire County Council and the Planning Inspectorate.

16.4.16. The 10km ZoI extends from the 'bounding circle' which surrounds the Order Limits, as presented on **ES Volume 2, Figure 16.1: Cumulative Long List Radius [EN010149/APP/6.2]** which takes an overly precautionary approach and, in some cases, extends wider than 10km from the Order Limits.

16.4.17. The central National Grid Reference point of other existing development and/or approved developments has been used to determine their location, in the absence of an application boundary in GIS format.

16.4.18. Only the following types of other existing developments and/or approved developments have been considered for inclusion on the long list, as the Applicant considers that any development that does not fall within these types would not likely give rise to a significant cumulative effect[2]:

- Employment developments;
- Residential developments of 10+ dwellings;
- Minerals and waste applications;
- Industrial developments;
- NSIP developments[3];
- Transport infrastructure developments (trunk roads or motorways only); and
- Energy infrastructure developments.

16.4.19. Of the development types listed above, only those that meet one or more of the following criteria have been included on the long list (in accordance with the 'Tier 1' and 'Tier 2' descriptions in the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]**):

- Projects that are under construction but that will not be completed prior to the Proposed Development commencing[4];

[2] Based on professional judgement with reference to EIA screening thresholds and reference to definitions of major development.
[3] As defined by the Planning Act 2008. Available online: https://www.legislation.gov.uk/ukpga/2008/29/contents
[4] In accordance with the Planning Inspectorate's Advice on Cumulative Effects Assessment, other projects that are expected to be completed before construction of the Proposed Development, and the effects of those projects have been fully determined within their respective applications, are considered as part of the baseline.

- Projects with planning permission within the last five years[5] (whether under the Planning Act 2008 or other regimes), but not yet implemented;
- Submitted applications (whether under the Planning Act 2008 or other regimes), but not yet determined; and
- Projects on the Planning Inspectorate's Programme of Projects where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

16.4.20. The Applicant's interpretation of the last bullet point above is that this solely relates to Nationally Significant Infrastructure Projects (NSIPs). However, the Applicant has chosen to widen this particular criterion to include projects screened as EIA development under other regimes where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

16.4.21. It should be noted that with reference to 'Tier 3' descriptions in the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]**, the following other existing development and/or approved development(s) have not been considered for inclusion in the long list. None of the below will have sufficient environmental assessment information freely and publicly available to inform the inter-project cumulative effects assessment, nor a high level qualitative assessment. The Applicant therefore does not consider the below to be 'existing development and/or approved development':

- Projects on the Planning Inspectorate's Programme of Projects where an EIA Scoping Report has not been submitted;
- Projects that have been identified in the relevant Development Plan(s) (and emerging Development Plans); and
- Projects identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

16.4.22. The long list of other existing development and/or approved developments is provided in **ES Volume 3, Appendix 16.1: Cumulative Long List [EN010149/APP/6.3]**. This long list has been kept under review by the Applicant's Planning Team to allow for a robust assessment of inter-project cumulative effects. The information provided in **ES Volume 3,**

[5] A five-year period is considered a reasonable time period to capture all other existing development and/or approved developments that still have the potential to be built. Standard planning permission conditions typically state that development must be begun no later than the expiration of three years from the date of permission. Developments with planning permission older than five years will likely have been built or will not likely be built at all.

Appendix 16.1: Cumulative Long List [EN010149/APP/6.3] is accurate as of 30 August 2024.

16.4.23. It should be noted that two other existing developments and/or approved developments have not met the above criteria and have therefore not been included in the long list. The first is a large residential development north of Ruskington (20/0391/FUL), located within 0.5km from the Order Limits, which is currently under construction and assumed to be operational by 2026, and therefore there will be no overlap with the construction of the Proposed Development. In accordance with the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]**, the operation of this development has been considered as part of the baseline.

16.4.24. The second development is Anglian Water's proposed Lincolnshire Reservoir. The proposed reservoir footprint is >10km from the Order Limits; however, ancillary infrastructure (e.g. pipelines) may be required that extend within the 10km ZoI. Although public consultation for the scheme has commenced, an EIA Scoping Report has yet to be submitted. The information available from the Phase 2 consultation (30 May – 9 August 2024), provides an overview of the design principles, opportunities and assessment approach for key environmental topics. There is insufficient information available to identify pipeline routes and/or common sensitive receptors and therefore there is insufficient information to consider this development within the inter-project cumulative effects assessment.

Stage 2: Short list methodology

16.4.25. Following the formation of the long list, the eligible other existing developments and/or approved developments identified have been through further assessment (Stage 2) to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in significant inter-project cumulative effects.

16.4.26. The criteria used to determine whether to include or exclude an existing development and/or approved development on the short list reflects the process established by the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]** and has regard to relevant policy and guidance documents and consultation with the relevant statutory consultation bodies (particularly North Kesteven District Council and Lincolnshire County Council). The Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]** states that the criteria should address the following:

- **Temporal scope**: The relative construction, operation and decommissioning programmes of the other existing and/or approved

developments identified in the ZoI together with the Proposed Development, to establish whether there is overlap and any potential for interaction.

- **Scale and nature of development**: The scale and nature of the other existing and/or approved developments identified in the ZoI that are likely to interact with the Proposed Development. Statutory definitions of major development and EIA screening thresholds may be of assistance when considering issues of scale.
- **Other factors**: For example, the nature and, or capacity of the receiving environment, which could make a significant cumulative effect with the other existing and/or approved developments more or less likely. Consider using a source-pathway receptor approach to inform the assessment.

16.4.27. The Planning Inspectorate's Advice on Cumulate Effects Assessment **[Ref. 16-7]** suggests that professional judgement may also be used to supplement the threshold criteria and in order to avoid excluding other existing development and/or approved development that is:

- "Below the threshold criteria limits but has characteristics likely to give rise to a significant effect; or
- Below the threshold criteria limits but could give rise to a cumulative effect by virtue of its proximity to the proposed NSIP [i.e. the Proposed Development]".

16.4.28. The Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]** also notes:

- "Professional judgement could be applied to support the exclusion of other existing and, or approved development that exceeds the thresholds but may not give rise to evident effects. All the other existing and, or approved development considered should be documented and the reasons for inclusion or exclusion clearly stated."

16.4.29. Taking the above into consideration, the other existing development and/or approved developments on the long list have been reviewed against the following criteria to form the short list of other existing development and/or approved developments:

- **Criteria 1**: The other existing development and/or approved development has a construction, operational and/or decommissioning phase that may overlap with any phase of the Proposed Development;
- **Criteria 2**: The other existing development and/or approved development and the Proposed Development share common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly

affected by the combination of the other existing development and/or approved development and the Proposed Development;

- **Criteria 3**: The other existing development and/or approved development has sufficient environmental assessment information readily and publicly available (including traffic flows) to inform the inter-project cumulative effects assessment. The assessment of each existing development and/or approved development on the short list will be proportionate to the environmental assessment information available[6].

16.4.30. Where an existing development and/or approved development meets all of the above criteria, it has been included on the 'short list' and has been taken forward for further consideration in the assessment. The 'short list' is detailed below in **Table 16.3** and the location of each development is shown in **ES Volume 2, Figure 16.2: Cumulative Short List Developments [EN010149/APP/6.2]**.

16.4.31. This short list has been kept under review and consulted upon with North Kesteven District Council and Lincolnshire County Council to allow for a robust assessment of inter-project cumulative effects. A number of the residential developments identified by North Kesteven District Council (in **ES Volume 3, Appendix 5.2: Scoping Opinion [EN010149/APP/6.3]** and during subsequent consultation in July and August 2024) are within the 10km ZoI and have characteristics that could have inter-project cumulative effects (e.g. in terms of biodiversity, landscape) and have therefore been included in the short list.

16.4.32. It should be noted that whilst the Applicant recognises that Fosse Green Energy (application reference EN010154) and Heckington Fen Solar Park (application reference EN010123) fall outside of the 10km ZoI, they have been included in the short list as both are very close to the edge of the 10km ZoI and both projects are similar in nature to the Proposed Development. Therefore, in the interests of transparency, the Applicant considers that it would be best practice to include them.

16.4.33. The information provided in **Table 16.3** is accurate as of 31 August 2024, the assessment cut-off date. Note that the identification numbers in the first column of **Table 16.3** correspond with those in **ES Volume 3, Appendix 16.1: Cumulative Long List [EN010149/APP/6.3]**.

[6] In the unlikely event that a Tier 1 or 2 development, which it is known will be progressed, but has insufficient environmental assessment information, a detailed inter-project cumulative effects assessment may not be possible. It may, however, still be prudent to consider the development in the inter-project cumulative effects assessment. The assessment may therefore take the form of listing the development and why it hasn't been considered in detail, or the potential inter-project cumulative effect could be discussed at a high level (qualitatively) using professional judgement.

Table 16.3 Short list of other existing development and/or approved development[7]

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
4	20/0029/FUL	Town and Country Planning Act 1990	Erection of 329 no. dwellings, formulation of new access points from Sleaford Road and Dunston Road, provision of new internal access roads, and provision of new sustainable drainage infrastructure	0.37km north east	Approved – Operation proposed for 2026	Yes
6	EIA/37/22	Town and Country Planning Act 1990	Proposed construction of an anaerobic digestion plant and associated infrastructure	2km north east	Pre-application (scoping opinion received) – Construction year unknown	Yes

[7] The Scoping Opinions of North Kesteven District Council and West Lindsey District Council listed developments for inclusion in the inter-project cumulative effects assessment, specifically with regards to traffic and transport and BMV. Of these, the Triton Knoll development [redacted] Accessed on 16/07/2024) and Viking Link [redacted] Accessed on 16/07/2024) have already been completed, and therefore the Applicant considers that inter-project cumulative effects are not possible. Similarly, the Sleaford South Sustainable Urban Extension development (13/0498/OUT) is progressing through reserved matter applications and expected to be constructed by 2027, before the Proposed Development, and therefore there is no temporal overlap.

[8] Note that the identification numbers in the first column of Table 16.3 correspond with those in **ES Volume 3, Appendix 16.1: Cumulative Long List [EN010149/APP/6.3]**.

[9] Relevant documentation reviewed at North Kesteven District Council's planning portal (https://planningonline.n-kesteven.gov.uk/online-applications/), Lincolnshire County Council's planning portal (https://lincolnshire.planning-register.co.uk/Disclaimer?returnUrl=%2F) or the Nationally Significant Infrastructure Project website (https://www.gov.uk/government/organisations/planning-inspectorate).

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
7	23/0390/EIA SCO	Town and Country Planning Act 1990	Navenby Heath 400 Megawatt (MW) Battery Storage Development	2km north west	Pre-application (scoping opinion received) – Construction year unknown	Yes
10	EN010151	Planning Act 2008	Beacon Fen Energy Park	7.45km south east	Pre-Application – Construction is anticipated to start in 2026 (subject to consent)	Yes
12	EN010154	Planning Act 2008	Fosse Green Energy	11.24km north west	Pre-Application - Construction anticipated to commence 2031. Operation expected to commence 2033.	No
13	EN010123	Planning Act 2008	Heckington Fen Solar Park	12.97km south east	Examination - Construction will commence, at the earliest, in the	No

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
					Spring 2025 for 30 months. Earliest operation Autumn 2027.	
14	17/1038/ FUL	Town and Country Planning Act 1990	Erection of 91no. residential (C3) dwellings comprising of 2no., 3no., and 4no., bed houses and the associated infrastructure, site accesses and landscaping	5.44km north west	Approved (Nov 2018)	Yes
18	24/0583/ FUL	Town and Country Planning Act 1990	Residential development of 34 affordable dwellings at Land to the East of High Dyke, Navenby, Lincolnshire including associated infrastructure and landscaping	1.27km north west	Awaiting decision	Yes
24	16/0498/ OUT	Town and Country Planning Act 1990	Sleaford West Sustainable Urban Extension development Mixed use urban extension of up to 1,400 dwellings, employment and education land, local centre, new roundabout onto A15 and associated works	5.4km south	Approved (April 2023)	Yes

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
25	16/1564/ OUT 24/0841/RESM	Town and Country Planning Act 1990	Lincoln South East Quadrant Residential development of up to 450 dwellings, provision of primary school land (1.8ha) and formation of roundabout on Canwick Avenue along with associated highways, drainage and open space infrastructure (outline with means of access)	9.48km north east	Approved (Dec 2022)	Yes
26	PL/0094/23	Town and Country Planning Act 1990	For a southern extension to Dunston Quarry at Land south of Dunston Quarry, Lincoln Road, Dunston	2.84km north	Approved (May 2024). Extraction period of 15 years.	Yes
27	23/1419/ FUL	Town and Country Planning Act 1990	Mareham Lane Solar development Installation of a solar farm comprising ground mounted solar photovoltaic (PV) panels with a generating capacity of up to 49.99MW Alternating Current (AC), including mounting framework, inverters, underground cabling, stock proof fence, CCTV, internal tracks and associated infrastructure, landscaping	9.58km south	Application submitted – proposed 50 year operation period. Construction dates unknown.	Yes

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
			and ecological works for a temporary period of 50 years			
28	23/1283/ FUL	Town and Country Planning Act 1990	Hybrid planning application seeking full planning for use of land as public open space and outline planning permission for residential development (14 dwellings)	Adjacent to Order Limits	Application submitted – construction dates unknown	Yes
30	24/0959/FUL	Town and Country Planning Act 1990	RAF Digby Proposed office and training building	Adjacent to Order Limits/within Order Limits	Application submitted	Yes
31	20/1357/EIASCR 20/1475/FUL	Town and Country Planning Act 1990	Sleaford Moor Enterprise Park Hybrid application for employment park development	5.78km south east	Application submitted	Yes
37	20/0057/OUT	Town and Country Planning Act 1990	Bracebridge Heath – land off Sleaford Road Residential development of up to 1,087 dwellings, up to 0.44ha Use Class C2	9km north	Approved 5 April 2023	Yes

No.[8]	Application reference[9]	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI
			(residential institution), up to 2.6ha employment use development			
38	24/0374/CCC 22/1426/EIASCO	Town and Country Planning Act 1990	North Hykeham relief road	8.3km north east	Comments on planning application made 23 April 2024	Yes

Stage 3: Information gathering

16.4.34. The other existing developments and/or approved developments that form part of the short list have been subject to a review of environmental information, where available, including details of:

- Location;
- Programme, including construction, operation (including maintenance) and decommissioning;
- Baseline data;
- Effects arising from such other existing development and/or approved developments on common sensitive receptors; and
- Proposed design.

Stage 4: Assessment

16.4.35. There is no formal guidance on the criteria for determining significance of inter-project cumulative effects. The following principles have been considered in assessing the significance of inter-project cumulative effects, in accordance with the Planning Inspectorate's Advice on Cumulative Effects Assessment **[Ref. 16-7]** and in consideration of any mitigation measures required to avoid, prevent, reduce or, if possible, offset any identified significant adverse inter-project cumulative effects:

- The duration of effect (temporary or permanent);
- The extent of effect (the geographical area);
- The type of effect (whether additive or synergistic);
- The frequency of the effect;
- The value and resilience of the receptor affected; and
- The likely success of mitigation.

16.4.36. When considering the inter-project cumulative effects with other existing developments and/or approved developments, it has been assumed that standard and good practice mitigation measures will be applied to the developments (e.g. use of Construction Environmental Management Plans) and that such mitigation would be secured as part of any planning permission granted. As such, it is appropriate to rely on these mitigation measures when completing the inter-project cumulative effects assessment.

16.4.37. The Applicant considers it not possible to assess all the inter-project cumulative effects of decommissioning activities as there is currently no mechanism to identify other existing development and/or approved developments that would be relevant at that time. However, where

possible, an assessment has been completed. It is anticipated that further consideration of the potential inter-project cumulative effects of decommissioning will be a matter for the relevant consenting authority at the time.

16.4.38. Regarding waste during decommissioning, several solar farm developments are being progressed in Lincolnshire, which subject to the granting of planning permission and operational lifespan, could generate decommissioning waste at the same time. Those closest to the Proposed Development, Fosse Green Energy and Beacon Fen Energy Park, are behind in terms of the planning process, being at the Scoping stage and statutory consultation (with Preliminary Environmental Information Report) respectively.

16.4.39. The Proposed Development is anticipated to generate a substantive amount of waste electrical and electronic equipment at decommissioning which would include Solar PV modules, batteries, and substation equipment, as well as other smaller quantities of waste electrical and electronic equipment from supporting electrical infrastructure. As such, these will be recovered and recycled by an authorised reprocessor, as required by the Waste Electrical and Electronic Equipment Regulations 2013 **[Ref. 16-15]**. To ensure that this is done to "Best Available Treatment Recovery and Recycling Techniques", a list of up-to-date authorised reprocessors will be established.

16.4.40. The **Outline Decommissioning Environment Management Plan [EN010149/APP/7.13]** for the Proposed Development provides outline measures for the management of waste, including during the decommissioning phase. This will be secured by a requirement to the DCO. In line with Central Lincolnshire Local Plan (2023) **[Ref. 16-6]** Policy S14 Renewable Energy: Decommissioning renewable energy infrastructure, this considers "…*how the materials to be removed would, to a practical degree, be re-used or recycled*." Fosse Green Energy has committed to producing a Decommissioning Environmental Management Plan, as has Beacon Fen Energy Park, with the latter also producing a Waste and Recycling Strategy, with the DCO submissions expected winter 2024/25.

16.5. Assessment of intra-project combined effects

16.5.1. The types of receptor groups typically identified as being subject to intra-project combined effects are as follows:

- Air quality;
- Landscape and visual resources: landscape character; visual receptors (residents; users of public rights of way; other visual receptors);
- Ecology and biodiversity: ecological nationally designated sites;

- Historic environment: settings of nationally designated heritage assets;
- Access and highways: road users, residents; pedestrians/cyclists; sensitive local uses (e.g. schools, hospitals, local facilities);
- Noise and vibration: residents;
- Air quality: residents; ecological designated sites;
- Water resources and ground conditions: land at risk of flooding land quality/soils;
- Agriculture: agricultural land; farm businesses; and
- Socio-economics: employment levels and tourism.

16.5.2. Intra-project effects have on the whole been considered within the technical chapters **(ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1])**. For example, habitat degradation from dust and water pollution and species disturbance from light, noise, vibration and human activity, are both considered in **ES Volume 1, Chapter 7: Biodiversity [EN010149/APP/6.1]**. Visual impacts and restrictions to Public Rights of Way (PRoW) access are considered in **ES Volume 1, Chapter 13: Population [EN010149/APP/6.1]**.

16.5.3. A review of the sensitive receptor (or sensitive receptor group) identified in each technical chapter, and whether the same receptor is exposed to more than one type of residual (post-additional mitigation) effect of '**slight/minor**' significance or greater, during the construction, operation (including maintenance) and/or decommissioning phases of the Proposed Development has been completed. This has been undertaken using each of the summary tables presented in the final sections of **ES Volume 1, Chapters 6 - 15 [EN010149/APP/6.1]**.

16.5.4. This has identified one receptor which may experience intra-combination effects during construction, from a change in traffic volume and temporary visual amenity changes; users of the B1191. Both specific residual effects were identified as **slight/minor**.

Mitigation measures have already been identified in each individual chapter to minimise the individual effects, which will be secured through the implementation of the **Outline Construction Environmental Management Plan (oCEMP) [EN010149/APP/7.7]**. Construction effects at each receptor are considered to be temporary, and the effects on these receptors would be transient and only during use of certain sections of the B1191 where the Proposed Development can be viewed. On this basis, the intra-combination effect is considered to be **slight/minor** and **not significant**.

16.6. Assessment of inter-project cumulative effects and information in relation to GHG emissions: National Grid Navenby Substation

16.6.1. National Grid Electricity Transmission has completed non-statutory consultation on the proposed Navenby substation, north of Heath Lane, Navenby (consultation closed 16 October 2024). This new substation would facilitate the grid connection for the Proposed Development **[Ref.16-16]**.

16.6.2. As a planning application is yet to be submitted (anticipated Spring 2025), the following assumptions, using similar applications and National Grid's factsheet on substation construction **[Ref.16-17]**, have been made in order to complete a high-level appraisal of the inter-project cumulative effects of the Proposed Development with the proposed National Grid Navenby substation:

- The siting and design of the National Grid substation will follow The Horlock Rules (2009) **[Ref. 16-18]** which were established by National Grid to provide principles to follow when designing infrastructure and overhead line connections;
- The location for the substation is c.1.4km east of Navenby, in a c.32ha field, as presented in **ES Volume 2, Figure 3.1: Zonal Masterplan [EN010149/APP/6.2]**;
- The development will likely consist of the following infrastructure; 8 No. 140 MVA transformers, 11 No. 400 kilovolt (kV) circuit breakers, 30 No. 400 kV surge arrestors, 11 No. 400 kV Air Insulated Switchgear (AIS) bays and 176 No. 400 kV post insulators. The site is also likely to require a new permanent access track from the local public road to the substation compound, internal access roads and parking provision, security fencing and CCTV.
- It is assumed that the overhead line gantries would be up to 15m in height with the transformers up to 12.5m in height. The connecting overhead line towers are assumed to be up to 60m.
- As a number of solar farm developments already progressing through the planning process require a connection to the new National Grid Navenby Substation, it is assumed that the relevant planning submission supported by any necessary environmental assessments would be submitted in spring 2025, with construction commencing in 2026, for approximately three years **[Ref. 16-16]**.
- It is assumed that the National Grid Navenby Substation will be permanent development.

16.6.3. It is assumed that the construction phase will be up to 24 months. It is assumed that the construction works will be subject to a Construction

Environmental Management Plan incorporating latest guidance and best practice measures.

16.6.4. **Table 16.4** below presents an assessment of the likely inter-project cumulative effects with the proposed National Grid Navenby Substation.

16.6.5. An assessment of inter-project cumulative effects with the National Grid Navenby Substation for landscape and visual effects during the operation (including maintenance) phase and climate effects (GHG emissions) is not contained within **Table 16.4**, rather individual sections are include below; see **paragraph 16.6.6** for climate and **paragraph 16.6.11** for landscape and visual effects.

Table 16.4 Inter-project cumulative effects with National Grid Navenby Substation during construction and operation (including maintenance)

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Air quality					
Neighbouring residents and designated sites (Local Wildlife Sites (LSWs))	Construction, operation (including maintenance) and decommissioning	Potential effects from dust and particulate matter emissions from Site activities, including the operation of the construction equipment during construction and decommissioning phases. Potential effects from road traffic exhaust emissions during construction operation (including maintenance) and decommissioning phases.	For dust soiling effects on people and property: medium risk from demolition (during decommissioning phase) activities, low risk from earthworks and construction activities, , and negligible risk from trackout and demolition (during construction phase) activities. For human health impacts: negligible risk for every activity. For ecological impacts: negligible risk for every activity.	It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	Provided there is adequate mitigation for the National Grid Navenby Substation development there should be no inter-project cumulative effect. It is anticipated that this would be secured as part of any permission that is granted, and are therefore confident relying upon this mitigation as part of this assessment.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			The temporary nature of the plant to be used is unlikely to cause a risk of emissions that could result in an exceedance of the Air Quality Standards. The Proposed Development and the National Grid Navenby Substation are not expected to generate traffic exceeding the Environmental Protection UK and IAQM 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality screening criteria during construction, operational and decommissioning phases.		

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			Air quality issues are to be managed for the Proposed Development through the following: **oCEMP [EN010149/APP/7.7]** **Outline Construction Traffic Management Plan (oCTMP) [EN010149/APP/7.8]** **Outline Operational Environmental Management Plan (oOEMP) [EN010149/APP/7.10]** **Outline Decommissioning Environmental Management Plan [EN010149/APP/7.13]**		

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Biodiversity					
Navenby Heath Road Verges LWS	Construction and operation (including maintenance)	Potential loss of calcareous grassland if a section of Navenby Heath Road Verges LWS needs to be removed for highways access (although it is not currently known if this is required). Sections of Navenby Heath Road Verges LWS grassland are proposed to be lost for access to the Proposed Development so this could have a combined effect from further habitat loss and fragmentation if this is also required	It is anticipated that if a section of grassland road verge needs to be removed for access to Navenby Substation then this would be relatively small scale (a 100m length of grass verge is less than 3% of the total length of the LWS). The adverse effect of habitat loss would be long term and is considered of up to the local level and not significant. For the Proposed Development, the adverse effect of the grassland LWS verges proposed to be lost is not considered significant and would be sufficiently compensated by new habitat creation. Therefore,	No additional mitigation required. It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	Provided there is adequate mitigation for the National Grid Navenby Substation development there should be no inter-project cumulative effect. It is anticipated that this would be secured as part of any permission that is granted, and are therefore confident relying upon this mitigation as part of this assessment.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		for National Grid Navenby Substation.	provided there is adequate mitigation/compensation for the National Grid Navenby Substation development there should be no inter-project cumulative effect.		
Ground nesting birds	Construction and operation (including maintenance)	Loss of arable habitat for ground nesting birds.	The field where the National Grid Navenby Substation is proposed to be developed is *c.* 30 ha. Ground nesting birds, if using this area, would be displaced during construction and operational phases. Although, considering the extent of arable land in the surrounding area that could support displaced birds, this is considered a relatively small area of habitat loss. This is anticipated to be a long term, adverse effect, of up to the local level and not	No additional mitigation required. It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	Provided there is adequate mitigation for the National Grid Navenby Substation development there should be no cumulative inter-project cumulative effect. It is anticipated that this would be secured as part of any permission that is granted, and are therefore confident relying upon this

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			significant. The areas proposed to be retained and improved for ground nesting birds for the Proposed Development are anticipated to sufficiently mitigate the effects of habitat loss. Therefore, provided there is adequate mitigation or compensation for the National Grid Navenby Substation development there should be no inter-project cumulative effect.		mitigation as part of this assessment.
Bats	Construction	Adverse effect on [redacted] and foraging behaviour if it is required to create gaps in hedgerows of more than 10m wide for access or cable	Fragmentation of hedgerows during construction is anticipated to be a short term, adverse effect at the local level. If the hedgerows affected are not directly connected to any significant communal	No additional mitigation required. It is assumed that appropriate mitigation would be in place for	Provided there is adequate mitigation for the National Grid Navenby Substation development there should be no inter-project cumulative effect. It is anticipated

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		installation. If so, it is anticipated that only a few hedgerows would be fragmented and that they would be fully re-instated after works or re-instated along new road/track boundaries. The new roads/tracks would be less than 10m wide so [redacted] would not be affected during the operational phase.	[redacted] this should not affect the conservation status of the local [redacted] population and would therefore not be significant. For the Proposed Development, the effects of hedgerow fragmentation would be sufficiently mitigated for [redacted] Therefore, provided there is adequate mitigation, for example, temporarily 'in-fill' gaps in key hedgerows during construction and re-instating hedgerow gaps after works or re-instate along new road/track boundaries/visibility splays for the National Grid Navenby Substation development, there should	the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	that this would be secured as part of any permission that is granted, and are therefore confident relying upon this mitigation as part of this assessment.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			be no inter-project cumulative effect.		
Bats	Construction, operation (including maintenance) and decommissioning	Disturbance to [redacted] from lighting, noise and vibration.	Disturbance during construction, operation and decommissioning could cause a long term, adverse effect on [redacted]. It is a relatively small area so is considered at the local level. However, if there are any significant communal bat roosts within the proposed site or nearby which are dependent on the site then this could have a likely significant effect. For the Proposed Development, disturbance to bats would be sufficiently mitigated. Therefore, provided there is adequate mitigation for the National Grid Navenby Substation development	No additional mitigation required. It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	Provided there is adequate mitigation for the National Grid Navenby Substation development there should be no inter-project cumulative effect. It is anticipated that this would be secured as part of any permission that is granted, and are therefore confident relying upon this mitigation as part of this assessment.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			there should be no inter-project cumulative effect.		
Cultural heritage					
Unknown below ground archaeology	Construction and operation (including maintenance)	Potential effects from construction impacting on currently unknown below ground heritage assets that extend across the National Grid Navenby Substation footprint and the cable route for the Proposed Development.	If currently unknown remains are of medium importance and extend across both construction areas the impacts could be of major magnitude resulting in a likely significant effect. The Proposed Development includes a programme of archaeological work in advance of construction will ensure that archaeological remains are recorded appropriately to their significance.	It is assumed that the substation will also complete a programme of archaeological work if required.	No residual inter-project cumulative effect.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Designated heritage assets	Construction and operation (including maintenance)	Potential effects resulting from changes to the setting of designated heritage assets as a result of both the Proposed Development and the National Grid Navenby Substation.	Closest designated heritage assets are the Navenby Conservation Area (c. 1.7 km to the west), the listed buildings within the conservation area and the grade II listed Green Man Farmhouse (NHLE 1280733) c. 0.5 km to the north. There is no predicted visibility of the development from Navenby and effect of the Proposed Development and the National Grid Navenby Substation on the significance of the listed farmhouse would not result in likely significant effects.	No additional mitigation required.	No residual inter-project cumulative effect.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Land, soil and groundwater					
Land contamination	Construction and operation (including maintenance)	There is the potential for contamination from the Proposed Development to occur alongside contamination from the National Grid Navenby Substation.	The effect is considered to be negligible for the Proposed Development and development of the National Grid Navenby Substation would not be expected to increase the potential risk relating to land contamination, assuming similar management plans are required to prevent contamination.	No additional mitigation required.	No significant residual inter-project cumulative effect.
Groundwater	Construction and operation (including maintenance)	Potential contamination of groundwater resources could occur as a result of the Proposed Development and the National Grid Navenby Substation.	The effect is considered to be negligible for the Proposed Development and development of the National Grid Navenby Substation would not be expected to increase the potential risk relating to groundwater quality, assuming similar	No additional mitigation required.	No significant residual inter-project cumulative effect.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			management plans are in place.		
BMV land	Construction and operation (including maintenance)	Assuming the National Grid Navenby Substation is located within BMV land, there is the potential for an inter-project cumulative effect on use of BMV land during construction and operation.	The effect on availability of BMV land for the Proposed Development is temporary (with BMV land being available for agricultural use after decommissioning), the cumulative inter-project cumulative effect due to the development of the National Grid Navenby Substation during construction and operation and is considered to be low adverse and not significant.	No additional mitigation required.	Although the National Grid Navenby Substation is assumed to be a permanent development, the majority of the land occupied by the Proposed Development will be returned to agricultural use after decommissioning, therefore the residual inter-project cumulative effect is considered to be not significant.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Noise and vibration					
Neighbouring residents	Construction and operation (including maintenance)	Assuming similar noise levels from the transformers used in the Springwell Substation, potential operational effects from the National Grid Navenby Substation are in the order of 20 – 25 dBA $L_{S,T}$ at the closest receptor to the Proposed Development, The Bungalow. This level is generally around 10 dB below the predicted noise levels from the Proposed Development and is therefore not	No inter-project cumulative effects during the construction and operational (including maintenance) phases are anticipated.	Not applicable.	No residual inter-project cumulative effect anticipated.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		considered to significantly increase noise levels at the receptor. Potential construction phase inter-project cumulative effects are anticipated to be subject to their own site-specific mitigation measures to reduce potential inter-project cumulative effects which are not significant for the closest receptor (The Bungalow) for the Proposed Development.			

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Population					
Occupancy	Construction	The construction phase programmes of the Proposed Development and the National Grid Navenby Substation are likely to overlap. There is potential for inter-project cumulative effects on accommodation providers and local services as a result of the potential influx of construction staff to the area.	No inter-project cumulative effects are anticipated as the potential impact of the Proposed Development on occupancy was deemed to be negligible and therefore will not contribute to inter-project cumulative effects with the National Grid Navenby Substation.	Not applicable.	No residual inter-project cumulative effect anticipated.
Employment	Construction	Potential beneficial impacts on employment opportunities during the construction	Sensitivity of a person having a job is high whilst the magnitude of inter-project cumulative effect related to an increase in the	Not applicable as the effects are beneficial.	Potentially significant beneficial effect or potentially not significant beneficial effect.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		phase. The peak number of construction phase employment opportunities associated with the Proposed Development was deemed significant. Therefore, as the construction phases of the projects overlap, there will likely be additional employment opportunities during this period.	number of construction jobs is expected to be minor. This will result in a temporary, short term **slight** or **moderate** beneficial effect which **may be significant** or **may not be significant**.		
Traffic and transport					
Users of the road network and sensitive locations (e.g.,	Construction and operation (including maintenance)	Potential effects on severance, driver delay, pedestrian delay and NMU	Severance: no likely significant effect Driver delay: to depend on vehicle routing for the	It is assumed that appropriate mitigation would be in place for	Provided there is adequate mitigation for the National Grid Navenby Substation

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
hospitals, schools, residential areas with provision for walking and cycling)		amenity, fear and intimidation, accidents and road safety from traffic associated with the construction and operational phases. Inter-project cumulative effects on the road network to depend on the project defined vehicle routes for the National Grid Navenby Substation, subject to the mitigation measures specific to the development.	National Grid Navenby Substation. The A15/B1202 junction is currently operating close to its maximum theoretical capacity and by future years, is predicted to operate beyond its maximum capacity. Lincolnshire County Council is currently exploring potential upgrades and improvements to the junction. Pedestrian delay: no likely significant effect. NMU amenity: no likely significant effect. Fear and intimidation: no likely significant effect. Accidents and road safety: no likely significant effect.	the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	development there should be no inter-project cumulative effect.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
			Traffic and transport issues are to be managed for the Proposed Development through the following: **oCEMP [EN010149/APP/7.7]** **oCTMP [EN010149/APP/7.8]** **oOEMP [EN010149/APP/7.10]** **Outline Travel Plan** (which forms part of the **oCTMP [EN010149/APP/7.8]**). which includes a traffic management measure as an alternative to implementation of a junction improvement scheme at the A15/B1202 junction.		

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
Water					
Water quality	Construction and operation (including maintenance)	There is potential during the construction and operational phase activities for local watercourse water quality to degrade due to increased silt-laden runoff and pollution arising from the potential of spillages and leaks of fuels, oils and chemicals. It is assumed the appropriate management and mitigation plans will be followed to ensure no degradation of the local water quality	No inter-project cumulative effects during the construction and operational (including maintenance) phases are anticipated provided that the appropriate management and mitigation plans are followed to prevent degradation of water quality for both the National Grid Navenby Substation and the Proposed Development. Water quality issues are to be managed for the Proposed Development through the following: **oCEMP [EN010149/APP/7.7]**	It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	No residual inter-project cumulative effects anticipated.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		within the water environment.	**oOEMP [EN010149/APP/7.10]**		
Flood risk	Operation (including maintenance)	Increased hard standing areas has the potential to increase rates of surface water runoff from what was previously considered permeable land. Cumulatively this has the potential to lead to increased flood risk. As part of the planning application process applicants are required to consider surface water management to ensure no	No inter-project cumulative effects during the operational (including maintenance), phase is anticipated provided that the National Grid Navenby Substation provide surface water management strategies. Flood risk issues are to be managed for the Proposed Development through the following: **Flood Risk Assessment** and supporting **Outline Drainage Strategy [EN010149/APP/7.16]**	It is assumed that appropriate mitigation would be in place for the National Grid Navenby Substation development, as is good practice and standard for schemes of this nature.	No residual inter-project cumulative effects anticipated.

Common receptor/matter	Relevant phase	Description of inter-project cumulative effect	Significance of inter-project cumulative effect (including Proposed Development mitigation)	Cumulative mitigation requirements	Residual inter-project cumulative effect
		increase in water quantities leaving a development and therefore no increase in flood risk. Therefore, is it assumed there will be no cumulative increase in flood risk.			

Climate (GHG emissions)

16.6.6. Although GHG emissions associated with the National Grid Navenby Substation are outside the scope of the GHG assessment for the Proposed Development, in light of recent case law and experience on other energy projects that connect into infrastructure that is consented separately (the most common example at the moment being carbon capture and storage projects), it was considered that it may be helpful to provide further information on potential emissions associated with the proposed National Grid substation into which the Proposed Development will connect. Therefore, for contextual purposes, this section provides an outline of the GHG emissions associated with the proposed National Grid Navenby Substation[10].

16.6.7. The emissions associated with the construction of the National Grid Navenby Substation building were modelled using One Click LCA software, and a 40-year service life has been applied. To estimate emissions associated with the substation equipment, the following equipment list was assumed based on knowledge of similar schemes:

- 7 No. 140MVA transformers
- 11 No. 400kV circuit breakers
- 30 No. 400kV surge arrestors
- 11 No. 400kV AIS Bays
- 176 No. 400kV post insulators

16.6.8. For the calculations of emissions associated with the National Grid Navenby Substation, the following key assumptions were applied:

- All equipment sourced from Europe. This is based on publicly available data.
- 1% construction waste for all products, with the exception of transformers where no waste is anticipated (consistent with no waste anticipated for transformers within the main assessment).
- 30-year service life for AIS bays, circuit breakers and post insulators, 40-year service life for transformers and a 10-year service life for surge arresters. This is based on information contained within Environmental Product Declarations and publicly available data.
- Representative Environmental Product Declarations could not be sourced for the AIS bays, surge arrestors or circuit breakers (only low to

[10] The assessment for the Proposed Development is provided in **ES Volume 1, Chapter 8: Climate [EN010149/APP/6.1]**.

medium voltage ratings available). Therefore, results have been uplifted to account for the difference in specification to ensure the results are conservative.

16.6.9. The GHG emissions from the National Grid Navenby Substation have been included in this assessment for context, for the reasons set out above. This National Grid Navenby Substation has the potential to support multiple future renewable energy development in the region, additional to the Proposed Development. As such, no judgement has been made as to the percentage of these emissions which should be apportioned to the Proposed Development and figures have been provided here for the full substation based on the available information.

16.6.10. The predicted lifecycle GHG emissions of the National Grid Navenby Substation are displayed in **Table 16.5**. Product emissions are the largest emissions source (79%), followed by end of life (11%). It should be noted that operational emissions include replacement emissions[11], due to lack of available data. Moreover, fuel use data and information relating to worker travel was also unavailable. However, it is important to note that that product stage emissions are likely to be the largest source of emissions, which are included.

Table 16.5 Lifecycle emissions from National Grid Navenby Substation

Component	Emissions (tCO_2e)	Proportion of emissions (%)
Product Stage (A1-3)	5,434	79
Construction Process Stage (A4-A5)	626	9
Operation (B4)	118	2
End of life (C1-4)	740	11
Total	**6,918**	**100**

[11] Associated with the replacement of components of the scheme.

Landscape and visual assessment

Cumulative landscape effects during construction

16.6.11. It is possible that the construction programme for the National Grid Navenby Substation may overlap with construction of Springwell West and as such inter-project cumulative effects on landscape character may arise within Landscape Character Area (LCA) 7: Limestone Heath over the same tract of the landscape as identified in relation to operational effects.

16.6.12. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that during construction the Proposed Development on its own would result in a major/moderate residual adverse effect on landscape character across a defined tract of the landscape within LCA 7 which extends up to Heath Lane and this is considered to be significant on a solus basis.

16.6.13. If both the Proposed Development and the proposed National Grid Navenby Substation were constructed at the same time, this major/moderate adverse effect on existing landscape character would extend further north approximately up to the B1202.

16.6.14. Therefore, in the scenario that the National Grid Navenby Substation was constructed at the same time as the Proposed Development, and with regard to the following tract of the landscape within LCA 7, during construction there would be a major/moderate adverse cumulative residual effect which is considered to be significant:

- From the B1202 in the north to just south of Dunston Pit Plantation and extending west of the A15 as far as Wellingore Heath, Temple Bruer and Brauncewell;
- To the east of the A15, potentially extending up to Heath Road as far as RAF Digby;
- On the eastern side of Heath Road extending up to a series of plantations to the east (Bloxham Woods, Ashby Thorns, Rowston Covert); and
- Across the tract of land between RAF Digby, Scopwick, the B1188 and Rowston Covert.

Cumulative visual effects during construction

16.6.15. It is possible that construction of the National Grid Navenby Substation may coincide with construction of Springwell West and as such inter-project cumulative effects on views from the A15 may arise over the same length of the route as identified in relation to operational effects.

16.6.16. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that during construction the Proposed

Development on its own would result in a moderate adverse effect on views from the A15 and this is considered to be significant on a solus basis.

16.6.17. If both the Proposed Development and the proposed National Grid Navenby Substation were constructed at the same time, this effect on views from the A15 would extend further north approximately up to the B1202.

16.6.18. Therefore, in the scenario that the National Grid Navenby Substation was constructed at the same time as the Proposed Development, during construction, there would be a moderate adverse cumulative residual effect on views from the A15 which is considered to be significant.

Landscape effects during operation (including maintenance)

16.6.19. Both Springwell West and the proposed National Grid Navenby Substation would be located in Landscape Character Area (LCA) 7: Limestone Heath. Neither would have a likely significant effect on landscape character either individually or in combination beyond LCA 7.

16.6.20. A cumulative ZTV plan showing the extent of cumulative visibility between the Springwell Substation/Battery Energy Storage System (BESS) and the National Grid Navenby Substation (up to 15m in height) is presented in **ES Volume 2, Figure 16.3: Cumulative ZTV – Springwell and National Grid Navenby Substation [EN010149/APP/6.2]**. The cumulative ZTV presented in **ES Volume 2, Figure 16.3: Cumulative ZTV – Springwell and National Grid Navenby Substation [EN010149/APP/6.2]** does not take account of the new pylons up to 60m high in the National Grid Navenby Substation proposal. As these would replace existing pylons of a similar height on the approximate alignment of the existing overhead electricity line, any cumulative effects are likely to be limited to those arising in conjunction with the infrastructure up to 15m within the National Grid substation compound. As with the other ZTVs presented in **ES Volume 2 [EN010149/APP/6.2]**, the cumulative ZTVs tend to exaggerate the actual visibility of both developments.

16.6.21. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that the sensitivity of LCA 7 to Solar PV development and ancillary infrastructure including substations and BESS is medium/low. Although the National Grid Navenby Substation proposal includes the replacement of two existing pylons with four new pylons, in terms of scale and nature of the main National Grid compound infrastructure proposed, it is similar to that proposed at Springwell Substation and therefore this judgement applies equally to the type of development proposed at the National Grid Navenby Substation.

16.6.22. It has been assessed that initially (in year 1 of operation) the Proposed Development on its own would result in large to medium scale change to landscape character within the Order Limits and surrounding Springwell West reducing to small scale change beyond a maximum distance of 1km. Following the establishment of mitigation planting (year 10), the scale of landscape change would be less than in year 1, but it is likely that large or medium scale change would remain over a relatively wide extent of LCA 7 surrounding Springwell West.

16.6.23. It is likely that the proposed National Grid Navenby Substation would give rise to a broadly similar scale of landscape change over a similar or marginally wider radius surrounding it within LCA 7.

16.6.24. The National Grid Navenby Substation would therefore extend large/medium scale change within LCA 7 further north from Heath Lane, potentially up to the B1202.

16.6.25. In the tract of land between Springwell Substation and the proposed National Grid Navenby Substation, the scale of change in landscape character within LCA 7 would be large but only marginally greater than if either development was constructed in isolation. This tract of land is already traversed by a row of pylons carrying a high voltage overhead electricity line and is influenced by traffic on the A15. Gorse Covert and mature trees along Gorse Lane also provide a strong visual break between the two developments.

16.6.26. North of Heath Lane, any impact on landscape character could be attributed exclusively to the National Grid Navenby Substation whilst to the south of Gorse Hill Lane any impact on landscape character could be attributed almost exclusively to the Proposed Development. Nonetheless, if both schemes were developed, a greater proportion of LCA 7 as a whole would experience large or medium scale change than if either project was developed in isolation.

16.6.27. Additional mitigation in the form of an **Outline Landscape Management Plan (oLEMP) [EN010149/APP/7.9]** has already been proposed for the Proposed Development. It is assumed that a similar commitment would be agreed in relation to the National Grid Navenby Substation. It is further assumed that any landscape mitigation proposals implemented around the National Grid Navenby Substation would mature over approximately the same timeframe as that proposed around the Springwell Substation and BESS. No further additional mitigation has therefore been proposed to mitigate inter-project cumulative effects between the two developments.

16.6.28. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that during the operation phase, the Proposed Development on its own would result in a major/moderate residual adverse effect on landscape character across a defined tract of

the landscape within LCA 7 which extends up to Heath Lane and this is considered to be significant on a solus basis.

16.6.29. If both the Proposed Development and the proposed National Grid Navenby Substation were developed in combination, this major/moderate adverse effect on existing landscape character would extend further north approximately up to the B1202.

16.6.30. Therefore, in the scenario that the National Grid Navenby Substation was developed in combination with the Proposed Development, and with regard to the following tract of the landscape within LCA 7, during operation, there would be a major/moderate adverse cumulative residual effect in both year 1 and year 10 which is considered to be significant:

- From the B1202 in the north to just south of Dunston Pit Plantation and extending west of the A15 as far as Wellingore Heath, Temple Bruer and Brauncewell;
- To the east of the A15, potentially extending up to Heath Road as far as RAF Digby;
- On the eastern side of Heath Road extending up to a series of plantations to the east (Bloxham Woods, Ashby Thorns, Rowston Covert); and
- Across the tract of land between RAF Digby, Scopwick, the B1188 and Rowston Covert.

Visual effects during operation (including maintenance)

16.6.31. The cumulative ZTV presented in **ES Volume 2, Figure 16.3: Cumulative ZTV – Springwell and National Grid Navenby Substation [EN010149/APP/6.2]** suggests a degree of theoretical cumulative visibility between Springwell Substation/BESS and the National Grid Navenby Substation extending up to approximately 5km from Springwell Substation. However as reported in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]**, actual visibility of the Proposed Development would be far more limited than implied on the ZTVs. The same is likely to be the case in relation to the infrastructure up to 15m in height within the National Grid Navenby Substation. Whilst the replacement pylons in the National Grid Navenby Substation proposal would potentially be visible from a greater distance, beyond 5km they would not be discernible from the existing pylons on the overhead electricity line which are of a similar height.

16.6.32. With reference to the assessment viewpoints presented in **ES Volume 4 [EN010149/APP/6.4]**, the proposed National Grid Navenby substation would be prominent at Viewpoints 30, 37 and 39 but, of these, there would be no view of the Proposed Development at Viewpoints 37 and 39. Therefore the only assessment viewpoint at which there would be any

combined visibility simultaneously between the two developments would be at Viewpoint 30 and at this location, the Proposed Development would result in only a small scale of change in the view and not increase the overall scale of change in the view arising from the National Grid Navenby Substation.

16.6.33. There are very few locations where both the Proposed Development and the National Grid Navenby Substation would be visible simultaneously or in combination. Gorse Hill Covert acts as a strong visual barrier between the two developments.

16.6.34. The only locations where there would be views of both developments at the same time would be from a length of the A15 and potentially from short sections of the PRoW network between Heath Lane in the north and Gorse Hill Lane in the south (incorporating PRoWs Wlgr/3/1, Wlgr/3/2, Wlgr/2/3 and Wlgr/2/4). Gorse Lane which runs between Heath Lane and Gorse Hill Lane is enclosed by dense hedgerows and enables only heavily filtered glimpses during the winter in the direction of either scheme.

16.6.35. There are no residential properties which would have clear views of both the Proposed Development and the National Grid Navenby Substation. No property which would experience a major or moderate effect on visual amenity as a result of the Proposed Development on a solus basis would experience any greater than a negligible additional visual effect as a result of the National Grid Navenby Substation proposal.

16.6.36. It is therefore assessed that there would be no significant simultaneous or in combination cumulative visual effects (experienced at a static location in the landscape) between the Proposed Development and the National Grid Navenby Substation.

16.6.37. There would however be a sequential cumulative visual effect (experienced when moving through a landscape) when travelling along the A15. The sensitivity of users of the A15 has been assessed to be medium/low.

16.6.38. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that the Proposed Development on its own would result in a large or medium scale of change in the view between the turning for Temple High Grange Farm in the north and the minor road turning to Dale Farm in the south (a distance of approximately 6.5km). Beyond this section of the road there would be a negligible scale of change in the view.

16.6.39. The National Grid Navenby Substation would be set back from the A15 by at least 700m but would be visible to varying degrees along a length of this road between the junction with the B1202 in the north and Gorse Hill Lane in the south (a distance of approximately 4km).

16.6.40. For a 1km section of the road between the turning for Temple High Grange Farm and Gorse Hill Lane the two developments would theoretically be visible at the same time but in reality, they would lie in different directions from the road and therefore whether travelling north or south along the A15 only one or the other would be prominent at any given moment in time.

16.6.41. No further additional mitigation has been proposed to mitigate inter-project cumulative effects between the two developments.

16.6.42. In the scenario that the National Grid Navenby Substation was developed in combination with the Proposed Development the extent of the A15 over which new energy infrastructure was visible would be greater than if either project was developed in isolation although the magnitude of effect south of Gorse Hill Lane would be no greater than if the Proposed Development was developed in isolation.

16.6.43. It has been assessed in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** that during operation the Proposed Development on its own would result in a major/moderate adverse effect on views from the A15 in year 1 of operation but that by year 10 this would reduce to a moderate adverse effect on views from the same length of the A15. In both years 1 and 10, this is considered to be significant on a solus basis.

16.6.44. If both the Proposed Development and the proposed National Grid Navenby Substation were developed together these effects on views from the A15 would extend further north approximately up to the B1202.

16.6.45. Therefore, in the scenario that the National Grid Navenby Substation was developed together with the Proposed Development, during operation, there would be a major/moderate adverse cumulative residual effect in year 1 and a moderate adverse cumulative residual effect on views from the A15 in year 10 which is considered to be significant in both cases.

16.7. Assessment of inter-project cumulative effects: other existing development and/or approved developments

Air quality

16.7.1. There are no developments on the short list that lie within the ZoI for air quality (250 m) apart from the Heath Road, Scopwick residential development (23/1283/FUL) and RAF Digby proposed office and training building development (24/0959/FUL). Both developments are expected to agree and follow site specific Construction Environmental Management Plan or Dust Management Plan and Decommissioning Environmental Management Plan that will adequately control dust emissions and

construction/decommissioning plant exhaust emissions from construction and decommissioning.

16.7.2. Cumulative construction, early decommissioning (20 years from commissioning) and decommissioning phases Annual Average Daily Traffic data (two-way trips) have been considered within this assessment (at the request of North Kesteven District Council). Construction and decommissioning phases traffic data are provided in **Table 16.6** and **Table 16.7** respectively.

Table 16.6 Cumulative construction phase traffic data

Link	2028 Cumulative construction traffic	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
A15 (north of B1191)	385	170
A15 (south of B1191)	346	170
B1191 (between RAF Digby and Ashby de la Launde)	168	80
B1191 (between Scopwick and RAF Digby)	168	80
B1188 (north of Scopwick)	200	80
B1188 (south of Digby)	40	0
A15 (south of Metheringham Heath Lane)	616	170
A15 (north of Leasingham)	313	170
B1188 (south of Scopwick)	40	0
B1202	78	0
Navenby Lane	71	0

Link	2028 Cumulative construction traffic	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
Gorse Hill Lane	637	80
Temple Road	5	30

Table 16.7 Cumulative decommissioning phase traffic data

Link	Cumulative early decommissioning traffic (year 2050)		Cumulative decommissioning traffic (year 2060)	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
A15 (north of B1191)	385	170	385	170
A15 (south of B1191)	346	170	346	170
B1191 (between RAF Digby and Ashby de la Launde)	168	80	168	80
B1191 (between Scopwick and RAF Digby)	168	80	168	80
B1188 (north of Scopwick)	200	80	200	80
B1188 (south of Digby)	40	0	40	0
A15 (south of Metheringham Heath Lane)	616	170	616	170
A15 (north of Leasingham)	313	170	313	170

Link	Cumulative early decommissioning traffic (year 2050)		Cumulative decommissioning traffic (year 2060)	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
B1188 (south of Scopwick)	40	0	40	0
B1202	78	0	78	0
Navenby Lane	71	0	71	0
Gorse Hill Lane	637	80	637	80
Temple Road	5	30	5	30

16.7.3. The predicted cumulative construction, early decommissioning and decommissioning phases Light Duty Vehicles generation slightly exceeds the Environmental Protection UK and IAQM 2017 guidance screening criteria (i.e. a change of Light Duty Vehicles of more than 500 Annual Average Daily Traffic Annual Average Daily Traffic) **[Ref. 16-19]** on A15 (south of Metheringham Heath Lane) and Gorse Hill Lane. The predicted cumulative construction, early decommissioning and decommissioning phases Heavy Duty Vehicles generation slightly exceeds the Environmental Protection UK and IAQM 2017 guidance screening criteria (i.e. a change of Heavy Duty Vehicles of more than 100 Annual Average Daily Traffic on A15 (north of B1191), A15 (south of B1191), A15 (south of Metheringham Heath Lane) and A15 (north of Leasingham).

16.7.4. Despite these slight exceedances and based on the review of baseline conditions, the annual mean NO_2 and PM_{10} concentrations at the Site are expected to be well below the Air Quality Standards. Furthermore, there is a minimal number of high sensitive receptors located close to these affected roads. The traffic effects during construction and decommissioning will be limited to a relatively short period at each section/phase of the Proposed Development and the developments on the short list, and will be along traffic routes employed by haulage/construction vehicles and workers. It should also be noted that the Proposed Development and the developments on the short list are not predicted to cause an increase of more than 500 Annual Average Daily Traffic of Light Duty Vehicles or 100 Annual Average Daily Traffic of Heavy Duty Vehicles on any other roads. All of the short-listed developments are expected to agree and follow site-specific Construction Traffic Management Plan and

Decommissioning Environmental Management Plan that will adequately control road traffic exhaust emissions from construction and decommissioning.

16.7.5. The Proposed Development and all of the short-listed developments are not predicted to generate traffic exceeding the Design Manual for Roads and Bridges LA 105 Air Quality screening criteria **[Ref. 16-19]** (i.e. Light Duty Vehicles equal to or more than 1,000 Annual Average Daily Traffic or Heavy Duty Vehicles equal to or more than 200 Annual Average Daily Traffic) on any construction and decommissioning traffic routes within 200m of the LWSs. Therefore, it is considered unlikely that the additional cumulative construction and decommissioning phases traffic emissions as a result of the Proposed Development and all of the short-listed developments will cause a significant adverse effect on the nearby LWSs.

16.7.6. Overall, with appropriate mitigation measures in place, the construction and decommissioning phases inter-project cumulative effect is considered to be not significant.

16.7.7. Cumulative operational (including maintenance) phase Annual Average Daily Traffic data (two-way trips) is provided in **Table 16.8** below.

Table 16.8 Cumulative operational phase traffic data

Link	Cumulative operational traffic	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
A15 (north of B1191)	16	40
A15 (south of B1191)	16	40
B1191 (between RAF Digby and Ashby de la Launde)	10	0
B1191 (between Scopwick and RAF Digby)	10	0
B1188 (north of Scopwick)	10	0
B1188 (south of Digby)	10	0
A15 (south of Metheringham Heath Lane)	16	40
A15 (north of Leasingham)	16	40
B1188 (south of Scopwick)	10	0
B1202	10	0
Navenby Lane	10	0

Link	Cumulative operational traffic	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
Gorse Hill Lane	10	0
Temple Road	10	0

16.7.8. The Proposed Development and all of the short-listed developments are not expected to generate traffic exceeding the relevant screening criteria once operational (i.e. Environmental Protection UK-IAQM 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality screening criteria). All of the short-listed developments are expected to follow best practice mitigation measures and site-specific Operational Environmental Management Plan to minimise emissions to air. Therefore, exceedance of the relevant Air Quality Standards is considered unlikely, and the cumulative operational phase effect is considered not significant.

Biodiversity

16.7.9. There are several other existing development and/or approved developments within 10km of the Proposed Development, which include three other large solar NSIPs of which two that fall outside of the 10km ZoI that have been included in this assessment for robustness. These are Beacon Fen Energy Park, Fosse Green Energy and Heckington Fen Solar Park (although the latter two are c. 11.2km and 13km from the Proposed Development, respectively). There are also four large housing developments (*c.* 300-1,000 dwellings) and several other smaller scale developments including Mareham Lane solar development (up to 49.99 MW), a battery storage facility, an anaerobic digester, a quarry extension and three relatively small-scale housing developments (between 14 - 90 dwellings).

16.7.10. These other existing development and/or approved developments have the potential for overlapping spatial and temporal interactions particularly the large-scale solar developments (NSIPs), which cover similarly large areas of agricultural land and are the same development type. For the solar NSIPs there could be a temporal overlap of construction periods with the Proposed Development and potential for large-scale habitat change of a similar type (agricultural land) over the relatively long-term c. 40-year operational phases.

16.7.11. The solar NSIPs are mostly on arable land. The cumulative loss of arable habitat from these developments, when combined with the Proposed Development, could change the availability of farmland habitat in the North Kesteven district. The main effects on ecological receptors by the

loss of arable habitat or change to habitat due to large-scale developments are considered to be displacement of ground [redacted] and [redacted]. If ground [redacted] and [redacted] are displaced at this landscape scale, then this could be a significant inter-project cumulative effect at the district level.

16.7.12. Ground [redacted] and [redacted] are most likely to be affected by the following cumulative impacts:

- Habitat loss (land take);
- Habitat fragmentation (including connectivity);
- Disturbance effects (comprising light, noise and visual effects); and
- Incidental mortality.

16.7.13. For the Proposed Development, habitat creation, improvement and mitigation measures are proposed in order to minimise impacts and there is not anticipated to be any significant adverse residual effects on any ecological receptors.

16.7.14. Although there would be a temporary adverse effect on ground [redacted] during the construction phase from habitat loss and disturbance, this would be short-term, at the local level and not significant. The amount of habitat to be retained and improved is considered sufficient to support the existing ground nesting/wintering bird assemblages within the Order Limits and would also provide a significant beneficial long-term effect at the local level for all birds. It is considered likely that birds would be able to use the improved habitat relatively quickly, once established, within the construction phase.

16.7.15. Mitigation measures are considered likely to be effective with regards to [redacted] ensuring good connectivity with the wider landscape and buffers to hedgerows and linear features providing enhanced foraging habitat. However, there is research indicating a potential displacement of [redacted] due to solar farms, although this is not conclusive and the exact mechanism causing any displacement is not known. Therefore, using the Precautionary Principle, there is anticipated to be a potential long-term adverse residual effect on [redacted] due to the change of habitat (installation of PV modules) for the duration of the operational phase. However, it is considered likely to be at the local level and not significant due to habitat improvement measures which are considered sufficient to support the [redacted]assemblages within the Order Limits.

16.7.16. For existing development and/or other approved developments (listed in **Table 6.3**) as planning permission has been approved for these developments it is assumed they are subjected to the respective mitigation plans agreed with the regulatory agencies, and that adverse effects on

ecological receptors have been mitigated and are not significant. Whilst not all of the other existing development and/or approved developments identified have mitigation proposals that are currently in the public domain, as many are at pre-application or scoping stages in the DCO process, it is assumed for the purpose of this cumulative assessment that sufficient mitigation strategies would be provided to ensure each development proposal would not result in residual adverse effects for biodiversity including ground [redacted] and [redacted]

16.7.17. For any large scale solar or housing developments involving the loss of arable land, that are not considering mitigation, then these could have a significant adverse effect on [redacted] and [redacted] However, this would be considered as an 'independent' effect - as the Proposed Development is not considered likely to have any significant adverse residual effects ensuring there would be no inter-project cumulative effects.

16.7.18. The inter-project cumulative effects assessment for biodiversity is provided in **Table 16.9** below.

Climate

16.7.19. GHG emissions are inherently cumulative, as all emissions have the same impact on the same ultimate receptor (i.e. the global climate).The impact of these emissions is climate change, or global warming, caused by the radiative forcing effects of GHGs in the atmosphere. The affected receptor is the global climate and all the ecosystems and biomes that depend on it.

16.7.20. As the receptor is not geographically constrained it is not appropriate to undertake a conventional inter-project cumulative effects assessment. Consideration of cumulative GHG emissions is inherent within the preliminary GHG assessment undertaken as part of this Environmental Statement (ES) (as detailed in **ES Volume 1, Chapter 8: Climate [EN010149/APP/6.1])**, as the emissions of the Proposed Development are assessed within the context of the UK carbon budget. This approach is well established and supported by case law.

Cultural heritage

16.7.21. There are six other existing development and/or approved developments within the 10km ZoI identified for cultural heritage. The Heath Road, Scopwick residential development (23/1283/FUL) will impact on the known archaeological remains within this area, which would also be impacted by the low-voltage electrical cabling route for the Proposed Development. This could result in a likely significant effect as any archaeological remains within the footprint of the housing development would be removed. A programme of archaeological work in advance of construction would

mitigate this impact. This development could also result in changes to the setting of the Scopwick Conservation Area and listed buildings within it as well as to the grade II listed Farmyard north of The Firs (NHLE 1280661). However the Applicant considers that the inter-project cumulative effect of these changes in combination with the Proposed Development will not result in a likely significant effect.

16.7.22. The RAF Digby proposed office and training building development (24/0959/FUL) may impact on currently unknown remains if they are present within the development footprint, if these remains extend into the low-voltage electrical cabling route of the Proposed Development a cumulative impact may occur. This impact could result in a likely significant effect if the remains are of high importance, or where the impacts are of moderate magnitude or higher. A programme of archaeological work is to be undertaken for the Proposed Development, and therefore will mitigate these impacts. The Applicant therefore predicts that no inter-project cumulative effects will arise from changes in the setting of heritage assets, due to the small scale of the RAF Digby development.

16.7.23. The anaerobic digester plant (EIA/37/22) and Navenby Heath battery storage (23/0390/EIA SCO) developments could result in cumulative impacts to designated heritage assets through changes in their setting. The anaerobic digester would be largely screened from view from the closest designated asset (Wright's Farmhouse (NHLE 1064291)) by intervening buildings and it is the Applicant's view that this would result in at most a minor impact to this medium importance asset. Visibility of Navenby Heath battery storage from Green Man Farmhouse (NHLE 1280733) is considered by the Applicant to result in at most a minor impact on this medium importance asset. Likely significant cumulative effects are therefore not predicted.

16.7.24. No inter-project cumulative effects are predicted as a result of the Dunston Road development (20/0029/FUL) as no in combination views of the Dunston Road development and the Proposed Development are predicted from any of the heritage assets included in the ES.

16.7.25. No inter-project cumulative effects are predicted as a result of the Beacon Fen Energy Park (EN010151) due to the distance between Beacon Fen Energy Park and the Proposed Development (7.45km).

16.7.26. All of the other existing development and/or approved developments within 10km of the Proposed Development[12] are sufficiently distant from any heritage assets impacted by the Proposed Development that no likely significant cumulative effects are predicted as the topography, intervening buildings or vegetation will result in there being no in combination views with the Proposed Development inter-project cumulative effects.

16.7.27. The inter-project cumulative effects assessment for cultural heritage is provided in **Table 16.10**.

[12] EN010154 Fosse Green Energy, EN010123 Heckington Fen Solar Park, 17/1038/ FUL Grantham Road, Waddington, 24/0583/ FUL High Dyke, Navenby, 16/0498/ OUT Sleaford West Sustainable Urban Extension, 16/1564/ OUT Lincoln South East Quadrant, PL/0094/23 Dunston quarry expansion, 23/1419/ FUL Mareham Lane solar farm development, 20/1357/EIASCR and 20/1475/FUL Sleaford Moor Enterprise Park, 20/0057/OUT Sleaford Road, Bracebridge Heath, 24/0374/CCC and 22/1426/EIASCO North Hykeham relief road.

Table 16.9 Biodiversity inter-project cumulative effects assessment

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
4	20/0029/FUL	Dunston Road, Metheringham Residential development (329 dwellings)	Construction works are underway on a c. 15ha arable field, c. 0.37km north-east of the Proposed Development. Mitigation measures are provided to avoid disturbance and improve habitat for [redacted] and [redacted] however ground [redacted] were not considered to require mitigation. It has been granted planning permission and therefore is assumed that the development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.	No additional mitigation required	No significant inter-project cumulative effects are anticipated.
6	EIA/37/22	Anaerobic digestion plant	The development is proposed on c. 8 hectares (ha) of agricultural land c. 2 km from the Proposed Development.	No additional mitigation required	It is a relatively small-scale development and therefore

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			This is at pre-application stage – so there is no information on the biodiversity assessment or mitigation. Potential effects on receptors are likely to include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Stakeholders have advised that ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improving connectivity with wider ecological networks. Therefore, it is assumed that the development will adequately mitigate impacts.		the amount of habitat loss is minimal and potential inter-project cumulative effects on [redacted] and [redacted] are not considered likely to be significant.
7	23/0390/EIA SCO	Navenby Heath 400MW Battery storage Development	This development is proposed on c. 11.8ha of agricultural land (although only 5ha would be	No additional mitigation required	It is a relatively small-scale development

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			developed) and is c. 2km from the Proposed Development. This development is currently at pre-application stage and there is no information on mitigation measures. The Scoping request report states that although an Ecological Impact Assessment would be produced (EcIA) it is considered that there would be no likely significant effects on biodiversity and therefore no ES Biodiversity Chapter would be prepared. This approach was considered acceptable by North Kesteven District Council, provided it could be shown from the EcIA that there would be no likely significant effects and a Biodiversity Net Gain report produced to show how a minimum 10% net gain would be met and secured over the long term.		and habitat loss is minimal with abundant similar arable habitat in the local area, therefore potential inter-project cumulative effects on [redacted] and [redacted] are not considered likely to be significant.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance.		
10	EN010151	Beacon Fen Energy Park	This is a large-scale solar development (c. 600MW) proposed on c. 1,036ha of agricultural land c. 7.45km from the Proposed Development. Potential effects, particularly on [redacted], are likely to be similar to the Proposed Development, which include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. It is at pre-application stage. The PEIR states that mitigation will be within the site and that mitigation for habitat loss will include habitat creation and enhancement to support biodiversity net gain. The	No additional mitigation required	Adverse effects on ground nesting birds and bats are anticipated to be mitigated, subject to agreement with the relevant authority. There is anticipated to be no significant cumulative adverse effects.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			indicative mitigation layout plan includes creation of wildflower meadow, pasture and planting of new hedgerows and woodland strips.		
12	EN010154	Fosse Green Energy	This is a large-scale solar development (c. 350MW) proposed on agricultural land c. 11.2km from the Proposed Development. Potential effects, particularly on [redacted], are likely to be similar to the Proposed Development, which include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. It is at pre-application stage so there is limited information on mitigation. The Scoping Report (June 2023) states that: • the design will seek to avoid designated	No additional mitigation required	Adverse effects on ground nesting birds and bats are anticipated to be mitigated, subject to agreement with the relevant authority. There is anticipated to be no significant cumulative adverse effects.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			sites and important habitats; • Grassland is proposed adjacent to and under solar PV Arrays for birds and invertebrates, including ground nesting birds. • New hedgerow and tree planting is proposed..		
13	EN010123	Heckington Fen Solar Park	This a large solar development (c. 400MW) proposed on of c. 524ha of agricultural land c. 13km from the Proposed Development. Potential effects, particularly on ground nesting birds and bats, are similar to the Proposed Development, which include: habitat loss, fragmentation and/or	No additional mitigation required	Adverse effects on ground nesting birds and bats are anticipated to be mitigated, subject to agreement with the relevant authority. There

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			degradation; barriers to dispersal; and disturbance. The **oLEMP [EN010149/APP/7.9]** details mitigation for ground nesting birds which would be secured as part of the DCO. This includes meadow creation and 'skylark plots' in areas of arable cultivation to mitigate for at least 124 skylark territories, which were recorded on the site. It also details measures to avoid disturbance and improve habitat for [redacted]		is anticipated to be no significant cumulative adverse effects.
14	17/1038/ FUL	Grantham Road, Waddington Residential development (91 dwellings)	Application approved. This is a relatively small-scale housing development of c. 90 dwellings development on c. 3ha of agricultural land c. 5.4km from the Proposed Development. Breeding bird surveys found only [redacted] and considered the site to be of less than local	No additional mitigation required	It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant inter-

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			value for [redacted]. Therefore, the effect of habitat loss on [redacted] was not considered significant. Bat surveys found low activity on the site. With mitigation to avoid disturbance and enhance hedgerows there was considered to be no significant adverse effect on [redacted]		project cumulative effects are anticipated.
18	24/0583/ FUL	High Dyke, Navenby Residential development (34 dwellings)	Application awaiting decision. The proposal is in an arable field c. 1.47ha in size and c. 1.27km from the Proposed Development. Effects on [redacted] are not considered significant and no specific mitigation is provided. Effects on receptors will be mitigated by provision of [redacted] and [redacted] and the provision of [redacted]. The loss of arable land is to	No additional mitigation required	It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant inter-project cumulative

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			be offset by provision of habitats of medium to high distinctiveness. The development is small scale (34 houses).		effects are anticipated.
24	16/0498/ OUT	Sleaford West Sustainable Urban Extension Residential development (1400 dwellings)	Application approved. The proposal is located across five arable fields and two fields of unmanaged grassland totalling c. 80ha in size and is located c. 5.4km from the Proposed Development. Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Appropriate mitigation measures and the creation of habitat is proposed to mitigate for effects on receptors. As the application has been approved it is assumed that the	No additional mitigation required	It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated. effects are anticipated.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.		
25	16/1564/ OUT	Lincoln South East Quadrant Residential development (450 dwellings)	Application has been approved. The proposal is located on predominantly agricultural land, with the total site being approximately 21ha in size, located c. 9.5km from the Proposed Development. Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Effects on receptors will be mitigated by provision of [redacted] and the provision of [redacted]. Linear features on site are to be retained and	No additional mitigation required	It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			enhanced where possible using native planting. As the application has been approved it is assumed that the development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.		
26	PL/0094/23	Dunston quarry expansion	Application approved. The proposal is located on predominantly agricultural land *c.* 6.3ha in size and located *c.* 2.8km from the Proposed Development. Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation. Due to the size of the site and the extension of appropriate habitats	No additional mitigation required	It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			off-site the impact on [redacted] was assessed as being minor. As approved, it is assumed that the development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.		
27	23/1419/ FUL	Mareham Lane solar farm development	Planning application submitted. This is a relatively small-scale solar farm (up to 49.99MW) proposed on predominantly agricultural land, of *c.* 72ha and located *c.* 9.6km from the Proposed Development. Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Effects on receptors will be mitigated by provision of [redacted], habitat creation and	No additional mitigation required	It is assumed that, if approved, the development proposal would be adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			improvement to provide additional foraging for [redacted] on site. An agreement has been made with the Lincolnshire Wildlife Trust to compensate for the losses of [redacted] on site, in the form of a financial contribution to manage habitat off-site.		
28	23/1283/ FUL	Heath Road, Scopwick Residential development (14 dwellings)	Application submitted. This relatively small-scale housing proposal is located on a mix of semi-improved grassland and arable grass ley, with the total site being *c.* 2.47ha in size and is located on the Springwell Central boundary of the Proposed Development. Potential effects on receptors especially [redacted], include: habitat loss, fragmentation and/or degradation.	No additional mitigation required	It is a small scale development and habitat loss is minimal with abundant similar arable habitat in the local area, therefore potential inter-project cumulative effects on [redacted] and ground

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			Potential effects on receptors are to be mitigated through the use of a [redacted] sensitive lighting plan and limiting the removal of suitable nesting habitat to outside of the bird nesting season.		[redacted] are not considered likely to be significant. It is assumed that, if approved, the development proposal would be adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.
30	24/0959/FUL	RAF Digby Proposed office and training building	Application submitted. The proposal is located in a large field of grassland within the RAF Digby site, adjacent to the	No additional mitigation required	It is assumed that, if approved, the development proposal would

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			proposed development. Proposed haul roads would use existing farm tracks. Ground nesting birds found on the site were [redacted] (between 7-18 territories) and [redacted](up to 3 territories). Although some grassland would be lost from the site (modified and calcareous grassland) compensation is proposed off-site in the local area. The ecological impact assessment considers no likely significant effects after mitigation.		be adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.
31	20/1357/EIASCR 20/1475/FUL	Sleaford Moor Enterprise Park	Application submitted. The proposal is located on a single arable field *c.* 14.2ha in size and is located *c.* 5.8km from the Proposed Development.	No additional mitigation required	It is assumed that, if approved, the development proposal would be adequately mitigated for

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			Potential effects on receptors especially ground [redacted] including [redacted], include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Potential effects on receptors are to be mitigated by the retention and enhancement of hedgerows and field margins, tree planting, erection of bird boxes and the creation of meadow grassland and areas of open water to enhance foraging opportunities. It is assumed that the development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.		impacts and therefore no significant inter-project cumulative effects are anticipated.
37	20/0057/OUT	Sleaford Road, Bracebridge Heath	Application approved. The proposal is located on predominantly agricultural land,	No additional mitigation required	It is assumed that, if approved, the

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
		Residential development and employment use	with the total site being *c.* 45ha in size and is located *c.*9 km from the Proposed Development. Potential effects on receptors especially [redacted] include: habitat loss, fragmentation and/or degradation; barriers to dispersal; and disturbance. Potential effects on receptors are to be mitigated by the erection of [redacted] as well as a range of habitat improvement measures. As approved - it is assumed that the development proposal has adequately mitigated for impacts and therefore no significant cumulative impacts are anticipated.		development proposal would be adequately mitigated for impacts and therefore no significant inter-project cumulative effects are anticipated.
38	24/0374/CCC 22/1426/EIASCO	North Hykeham relief road	Application submitted. This is a proposal for a new road c. 8km long on c. 200ha of mostly	No additional mitigation required	Adverse effects on ground [redacted] are

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			arable land c. 8.3km from the Proposed Development. The ES considers no likely significant effects are likely on the conservation status of farmland [redacted]. Mitigation includes creation of grassland, new hedgerows and minimising disturbance to [redacted]		anticipated to be mitigated, subject to agreement with the relevant authority. There is anticipated to be no significant inter-project cumulative adverse effects.

Table 16.10 Cultural heritage inter-project cumulative effects assessment

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
4	20/0029/FUL	Dunston Road, Metheringham Residential development (329 dwellings)	The approved residential development (20/0029/FUL) is an extension of Metheringham to the north and there would be no in combination views, affecting the same heritage receptors, with the Proposed Development. No significant inter-project cumulative effects on heritage assets are anticipated with this development.	No additional mitigation required	None
6	EIA/37/22	Anaerobic digestion plant	The proposed anaerobic digestion plant and associated infrastructure (EIA/37/22) is located on the former RAF Metheringham site and the local planning authority (Lincolnshire County Council) has requested that heritage be scoped into the assessment. At a maximum height of 25.5m, there could be inter-project cumulative effects on assets to the east of the	No additional mitigation required	The inter-project cumulative effect of development in the wider surroundings of Wright's Farmhouse will have a minor impact on the significance of the grade II listed building through changes in its wider setting and is not

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			Order Limits. The grade II listed Wright's Farmhouse (NHLE 1064291) is the closest designated asset, approximately 180 m west of the proposed anaerobic digester plant and separated by other buildings.		considered to result in a likely significant effect.
7	23/0390/EIA SCO	Navenby Heath battery storage project	The proposed Navenby Heath battery storage development north of Green Man Road, Navenby (23/0390/EIASCO) is at an early stage of development; the local planning authority has asked that cultural heritage to be scoped into the EIA. With a proposed maximum height of 2.9m, the storage units could result in inter-project cumulative effects on assets to the northwest of the Order Limits. Closest assets are the conservation areas of Boothby Graffoe and Navenby (c. 1.5 km west of the BESS), the listed buildings within the	No additional mitigation required	No in combination views from the conservation areas or listed buildings within them are predicted. The inter-project cumulative effect of development in the wider surroundings of Green Man Farmhouse will have a minor impact on the significance of the grade II listed building

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			conservation areas and the grade II listed Green Man Farmhouse (NHLE 1280733) c. 1.5km to the east.		through changes in its wider setting and is not considered to result in a likely significant effect.
10	EN010151	Beacon Fen Energy Park	Although within the cultural heritage ZoI, the Beacon Fen Energy Park NSIP proposal is located sufficiently far from the nearest assets that are predicted to be affected by the Proposed Development (being c. 6km southeast of the Brauncewell scheduled monument) that significant inter-project cumulative effects are considered unlikely.	No additional mitigation required	None
28	23/1283/ FUL	The Heath Road Scopwick residential development	Potential effects from construction impacting on below ground heritage assets that extend across the low-voltage electrical cabling routes for the Proposed Development and the	The Proposed Development includes a programme of archaeological	No significant residual effect following mitigation measures for

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			housing development. The impacts could be of major magnitude resulting in a likely significant effect. Potential effects may arise from changes to the setting of designated heritage assets (Scopwick Conservation Area and listed buildings within it; grade II listed farmyard north of the Firs (NHLE 1280661)) as a result of both the Proposed Development and the residential development.	work in advance of construction which will ensure that archaeological remains are recorded appropriately to their significance. It is anticipated that archaeological mitigation measures if required for the Heath Road development will be secured by condition on this Town and Country Planning	the Proposed Development and Heath Road development The inter-project cumulative effect of development in the surroundings of the conservation area and listed buildings will have a minor impact on their significance through changes in their setting and is not considered to result in a

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
				Act (TCPA) application.	likely significant effect.
30	24/0959/FUL	RAF Digby Proposed office and training building	The proposal is located on agricultural land adjacent to the Proposed Development. The heritage assessment submitted with the RAF Digby planning application found that there would be physical impacts on remains associated with the WWII airfield and any impacts could be mitigated through preservation by record prior to development . There is no overlap between the heritage assets within the Order Limits of the Proposed Development and the heritage assets within the RAF Digby development area and no cumulative effects are predicted.	The Proposed Development includes a programme of archaeological work in advance of construction will ensure that archaeological remains are recorded appropriately to their significance. It is anticipated that if approved the RAF Digby development	No significant residual effects

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			The heritage assessment submitted with the RAF Digby application concluded that there would be no effect on the setting of any designated heritage assets. No cumulative impacts are therefore predicted.	would be subject to an archaeological condition for mitigation.	

Landscape and visual

16.7.28. The inter-project cumulative effects assessment for Landscape and Visual is provided in **Table 16.11** below. An assessment of the cumulative landscape and visual effects of the Proposed Development, National Grid Navenby Substation and Navenby Heath BESS in combination are detailed within **paragraph 16.7.51** of this chapter. An assessment of the cumulative landscape and visual effects of the Proposed Development, National Grid Navenby Substation and the proposed RAF office and training building in combination are detailed within **paragraph 16.7.48** of this chapter.

Land, soil and groundwater

16.7.29. The ZoI for land, soil and groundwater (excluding BMV agricultural land), identified in **Table 16.2**, is 1km. There are three existing and/or approved developments within 1km of the Order Limits. There is potential for temporary construction related accidental spills to have a combined effect on groundwater receptors. However, it is assumed that all three developments will be subject to the respective mitigation plans agreed with the relevant authorities, and that adverse effects on groundwater receptors would be mitigated and not be significant. In view of this, the probabilities of significant inter-project cumulative effects occurring on groundwater is anticipated to be low. No interaction of impact on soils would be expected between the Proposed Development and existing development and/or approved developments within the short list and therefore, no inter-project cumulative likely significant effects are anticipated.

16.7.30. The inter-project cumulative effects assessment of BMV agricultural land is discussed separately in **Section 16.8**.

Noise and vibration

16.7.31. Of the commercial developments listed in **Table 16.3**, the Navenby Heath BESS is considered to be the nearest with fixed plant infrastructure considered to be located at sufficient distance from the Proposed Development to not cause possible cumulative impact. Commercial developments including, and beyond, this development are considered to have a negligible impact on the sensitive receptors that have been considered in the noise assessment, detailed in **ES Volume 1, Chapter 12: Noise and Vibration [EN010149/APP/6.1]**. No likely significant effects are predicted during the operational (including maintenance) phase of the Proposed Development, and hence the Applicant considers that inter-project cumulative effects are not significant.

16.7.32. The proposed office and training building at RAF Digby (24/0959/FUL) has the potential for inter-project cumulative effects. Operational noise levels of ≤ 26 dB $L_{Ar,t}$ are anticipated from the Proposed Development for

receptors along Martin Court, Ashby de la Launde. The design criteria discussed within the RAF Digby planning application is 37 dB $L_{Ar,1hour}$ during the daytime and 25 dB $L_{Ar,15minute}$ during the night-time for receptors that are closer to the proposed office and training building at RAF Digby that are not assessed for the Proposed Development. The Applicant therefore anticipats that the Proposed Development would not significantly increase noise levels at receptors along Martin Court and would be not significant.

16.7.33. Overall, inter-project cumulative effects on noise and vibration sensitive receptors, common to the Proposed Development and other existing development and/or approved developments, are considered to be not significant.

Population

16.7.34. The ZoI for population is 500m where it applies to cumulative effects on (PRoW, etc.). Within the ZoI there is one approved planning application (20/0029/FUL) for the development of 329 dwellings with associated access, and two applications awaiting decision for the use of land as public open space and outline planning permission for up to 14 dwellings (23/1283/FUL) and a proposed office and training building at RAF Digby (24/0959/FUL).

16.7.35. The approved housing development (20/0029/FUL) will be operational at the start of the Proposed Development's construction phase and therefore it is unlikely that there would be any inter-project cumulative effects during either the construction or operational phase.

16.7.36. Further assessment of the cumulative effects from the solar projects within Lincolnshire are provided in **Section 16.9**.

Traffic and transport

16.7.37. The ZoI for traffic and transport is identified in **Table 16.2** and covers the extent of the local road network, including the B1202, B1188, B1191 and A15. Traffic and transport effects are inherently cumulative as future traffic growth, calculated using TEMPro growth factors, takes into account potential operational traffic associated with developments in the area. It is however recognised that TEMPro growth factors, while useful to account for housing and employment growth, may not reflect construction traffic associated with nearby schemes, or construction and operational traffic associated with Nationally Significant Infrastructure Projects. For residential developments that are predicted to open and overlap with the construction of the Proposed Development, it has been assumed that any operational traffic would already have been taken into account within the TEMPro growth factors.

16.7.38. For traffic and transport, in particular, the emergence of inter-project cumulative effects would depend on the likely routes used by cumulative development traffic (HGV and worker cars), and whether they overlap with routes used by the Proposed Development in the construction phase. Interaction and potential impacts on PRoW in respect to severance is considered for traffic and transport, though no effects are anticipated.

16.7.39. A review of the construction flows and associated routes of short-listed projects from relevant documentation available on planning portals has been completed to determine any potential overlapping with the Proposed Development from other existing development and/or approved developments, where this information is available.

16.7.40. Of the short-list projects within the ZoI for traffic and transport, the following schemes are considered to overlap in geography (road links), and timeframe during either construction or operation:

- Heckington Fen Solar Park (including works to Bicker Fen substation), planning reference EN010123;
- Sleaford West Sustainable Urban Extension, planning reference 16/0498/OUT; and
- RAF Digby proposed office and training building, planning reference 24/0959/FUL.

16.7.41. The justification for excluding the other existing development and/or approved development[13] is included in **ES Volume 3, Transport Assessment [EN010149/APP/6.3] Table 6.1**.

16.7.42. Construction vehicles for Heckington Fen Solar Park and Sleaford West would use the A15, which is also the proposed construction phase route as the Proposed Development. There is potential for temporary construction related effects on other road users and sensitive locations (e.g., hospitals, schools, residential areas with provision for walking and cycling). However, the impact from the cumulative change in traffic on the A15 in construction is likely to be small based on the anticipated vehicle number estimates available for these proposed developments for assessment, and subject to various mitigation measures agreed with the relevant authorities. Due to the limited spatial cross-over and minimal construction traffic vehicle numbers overlapping the Proposed

[13] Developments excluded: EN010005 Triton Knoll, 17/1200/FUL Viking Link, EN010151 Beacon Fen Energy Park, EN010126 Temple Oaks Renewable Energy Park, WA010003 Lincolnshire Reservoir, 13/0498/OUT Sleaford South, 16/1564/OUT and 20/0057/OUT Lincoln South East Quadrant, 20/0029/FUL Land between Sleaford Road and Dunston Road, Metheringham, EIA/37/22 Anaerobic Digestion Plant, former RAF Metheringham, 23/0390/EIASCO Navenby Heath BESS, 24/0959/FUL RAF Digby Operational building.

Development construction traffic routes identified and assessed within the ES assessments, the inter-project cumulative effects is unlikely to rise as a result of the interaction between the Proposed Development and other existing development and/or approved developments and therefore considered to be not significant.

16.7.43. Additionally, of the developments listed in **Table 16.3**, the RAF Digby proposed office and training building (24/0959/FUL) and Bracebridge Heath (20/0057/OUT) are considered to be within the traffic and transport ZOI, as these developments would use the B1191 and A15 to access their sites. There is potential for temporary construction related effects on all road users and sensitive locations (e.g., hospitals, schools, residential areas with provision for walking and cycling). However, it is assumed that these developments would be subject to the respective mitigation plans agreed with the relevant local authorities, and that adverse impacts on other road users and sensitive locations could be mitigated where realistic expectation is such that where mitigation is required, it is provided with regard to standard good practice and its effectiveness of such measures is well known. As such, a significant inter-project cumulative effect occurring on traffic and transport is unlikely during the construction phase.

16.7.44. Consideration of the RAF Digby construction and operation phase has been undertaken, with the construction phase due to end in 2027, assumed to be prior to the construction phase of the Proposed Development; and the operational phase traffic considered unlikely to pose significant inter-project cumulative effects on traffic and transport is during the construction phase where traffic flows are minimal and assessments are not provided beyond the RAF Digby operational access point on Cuckoo Lane.

16.7.45. Construction of the North Hykeham Relief Road (application reference 24/0374/CCC and 22/1426/EIASCO) is anticipated to be completed at a similar timing to the start of the construction of the Proposed Development. The scheme is also expected to reduce traffic flows on the A15.

16.7.46. All other existing development and/or approved developments are not assessed in detail from a traffic and transport perspective either as a result of no geographical or timeframe overlap, or where vehicle movements are already captured within the baseline and or TEMPro future year traffic estimates.

Water

16.7.47. The ZoI for water, as identified in **Table 16.2**, is 1km. There are two approved residential development (20/0029/FUL and 23/1283/ FUL), and one application at RAF Digby (24/0959/FUL) within 1km of the Order Limits. There is potential for temporary construction related accidental

spills and/or silt runoff to have a combined effect on surface water receptors. However, it is assumed that the proposed residential development will be subject to the respective mitigation plans agreed with the relevant authorities, and that adverse effects on surface water receptors would be mitigated and not be significant. In view of this, the probabilities of significant inter-project cumulative effects occurring on surface water during construction is anticipated to be low.

Table 16.11 Landscape and visual inter-project cumulative effects assessment

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
4	20/0029/FUL	Dunston Road, Metheringham Residential development (329 dwellings)	The approved residential development (20/0029/FUL) is essentially an extension of an existing settlement resulting in extremely localised landscape and visual effects. Any effects associated with 20/0029/FUL would be restricted to the far (northern) side of Metheringham, some distance from the Order Limits. There would be no visibility of the scheme in combination with any views of the Proposed Development. No significant cumulative landscape or visual effects are anticipated with this development.	No additional mitigation required	None
6	EIA/37/22	Anaerobic digestion plant	The proposed anaerobic digestion plant is located east of the B1189 in a field surrounded by tall mature tree belts and large utilitarian buildings to the immediate west and therefore	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			any landscape and visual effects arising would be relatively localised. As demonstrated in **ES Volume 1, Chapter 10: Landscape and Visual [EN010149/APP/6.1]** there would be no significant landscape or visual effects associated with the Proposed Development west of the Metheringham to Sleaford railway line which is well over 1km west of the proposed anaerobic digestion plant. There would be no visibility of the anaerobic digestion plant in combination with any views of the Proposed Development. No significant cumulative landscape or visual effects are anticipated with this development.		
7	23/0390/EIA SCO	Navenby Heath battery storage project	The proposed Navenby Heath battery storage development is located approximately 2.5km to the	No additional mitigation required	Minor (adverse) on landscape character of

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			north of Springwell Substation on the northern side of Green Road. The proposed National Grid Navenby Substation lies between the two sites. A cumulative ZTV illustrating the extent of cumulative visibility between Springwell Substation/BESS and Navenby Heath BESS is presented in **ES Volume 2, Figure 16.4: Cumulative ZTV – Springwell and Navenby Heath BESS [EN010149/APP/6.2]**. There would potentially be some negligible glimpses of Navenby Heath BESS from the A15 but otherwise there would be no visual connectivity between the two project or any shared visual receptors. There would be no discernible view of the Proposed Development from either Green Man Road or Heath Lane that lie between the two sites. There would be minor additional		LCA 7: Limestone Heath

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			inter-project cumulative effect on landscape character in LCA 7: Limestone Heath if both schemes were developed in combination but this would be a small additional effect in relation to the Proposed Development. No significant cumulative landscape or visual effects are anticipated.		
10	EN010151	Beacon Fen Energy Park	The Beacon Fen Energy Park NSIP proposal is located approximately 7.45km away from the Proposed Development in a different landscape character area (the Fens) and there would be no visual connection with the Proposed Development. There would therefore be no shared landscape or visual receptors. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
12	EN010154	Fosse Green Energy	The solar and energy storage element of the Fosse Green Energy NSIP is located in the vale west of the Lincoln Cliff, in a different character area (the Witham and Brant Vales) and would have no visual connection with the Proposed Development. There would therefore be no shared landscape or visual receptors. Although indicative grid connection corridor options extend to the A15 north of the Proposed Development, it is understood that this would be via an underground cable and therefore no significant landscape or visual effects are anticipated in combination with this project.	No additional mitigation required	None
13	EN010123	Heckington Fen Solar Park	The Heckington Fen Solar Park NSIP proposal is located some considerable distance away from the Proposed Development in a	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			different landscape character area (the Fens) and there would be no visual connection with the Proposed Development. There would therefore be no shared landscape or visual receptors. No significant cumulative landscape or visual effects are anticipated.		
14	17/1038/ FUL	Grantham Road, Waddington Residential development (91 dwellings)	The development lies over 6km to the north-west of any above ground infrastructure in the Proposed Development. It is a modest extension on the existing edge of Waddington village and is bound to the immediate south by RAF Waddington airfield. There would be no shared visual receptors or any visual connectivity between the two projects. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
18	24/0583/ FUL	High Dyke, Navenby Residential development (34 dwellings)	The development lies approximately 2.5km to the north-west of any above ground infrastructure in the Proposed Development. It is a relatively small extension on the existing edge of Navenby village. There would be no shared visual receptors or any visual connectivity between the two projects. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None
24	16/0498/ OUT	Sleaford West Sustainable Urban Extension Residential development (1400 dwellings)	This major urban extension to Sleaford lies over 5km to the south of Springwell West. It is bound by existing urban development, railway lines and the A15. It lies in a different character area (Slea Valley) and there would be no visual connectivity between the two projects. In theory, people on an extended journey along the A15 would pass both projects	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			sequentially with a break of over 5km between them but as the Sleaford West Sustainable Urban Extension is located adjacent to existing urban context, the inter-project cumulative effects would be no greater that that assessed in relation to the solus effects of the Proposed Development. No significant cumulative landscape or visual effects are anticipated.		
25	16/1564/ OUT	Lincoln South East Quadrant Residential development (450 dwellings)	The development lies almost 12km to the north of any above ground infrastructure that forms part of the Proposed Development. It is a modest extension on the existing northern edge of Bracebridge Heath and is bound to the immediate south existing urban development. There would be no shared visual receptors or any visual connectivity between the two projects. No significant cumulative	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			landscape or visual effects are anticipated.		
26	PL/0094/23	Dunston quarry expansion	This development is a modest extension to an existing quarry over 3km to the north of Springwell East. The development lies on the far side of Metheringham and dense hedgerows screen the site from the B1188. There would be no visual connectivity between the two developments. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None
27	23/1419/ FUL	Mareham Lane solar farm development	The proposed solar farm lies well over 10km to the south of the Proposed Development in a different landscape character area and there would be no visual connection with the Proposed Development. There would therefore be no shared landscape or visual receptors. No significant	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			cumulative landscape or visual effects are anticipated.		
28	23/1283/ FUL	Heath Road, Scopwick Residential development	This relatively small, proposed housing development lies within Scopwick and is bound to the south, east and west by existing housing and to the north-east by a block of woodland. Given the scale, nature and context of the development no significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None
30	24/0959/FUL	RAF Digby Proposed office and training building	This proposed development constitutes a large new building on land adjacent to the existing complex of buildings at RAF Digby with associated infrastructure including a new access road from the A15. The proposed development lies between Springwell Central and Springwell West. Given the proposed height of	No additional mitigation required	Minor (adverse) on landscape character of LCA 7: Limestone Heath; Minor (adverse) on users of Navenby Lane, B1191 (Heath

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			the building combined with the flat topography surrounding the site, it is likely that the building would be visible from various locations within the landscape and visual study area either in combination or sequentially with the Proposed Development. Any views of the new building would be seen in the context of the existing RAF Digby complex. A cumulative ZTV illustrating the extent of cumulative visibility between Springwell Substation/BESS and the proposed RAF Digby office and training building is presented in **ES Volume 2, Figure 16.5: Cumulative ZTV – Springwell and RAF Digby Office and Training Building [EN010149/APP/6.2]**. This proposed development constitutes a large new building on land adjacent to the existing		Road) and PRoWs and lanes between the B1191 (Heath Road), Bloxholm Lane and Green Man Lane extending up to the A15

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			complex of buildings at RAF Digby with associated infrastructure including a new access road from the A15. The proposed development lies between Springwell Central and Springwell West. A cumulative ZTV illustrating the extent of cumulative visibility between Springwell Substation/BESS and the proposed RAF Digby office and training building is presented in **ES Volume 2, Figure 16.5: Cumulative ZTV – Springwell and RAF Digby Office and Training Building [EN010149/APP/6.2]**. There would be a slight additional magnitude of effect on landscape character in LCA 7: Limestone Heath if both schemes were developed in combination but this would be a relatively small additional effect in relation to the Proposed Development. Given the proposed		

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			height of the building combined with the flat topography surrounding the site, it is likely that the building would be visible to some extent from various locations within the landscape and visual study area either in combination or sequentially with the Proposed Development. Specifically there would be some in combination of sequential views from Navenby Lane, the B1191 (Heath Road) and PROWs between the B1191 (Heath Road), Bloxholm Lane and Green Man Lane extending up to the A15. Any views of the new building would be seen in the context of the existing RAF Digby complex. There would be a slight additional magnitude of effect on these visual receptors if both schemes were developed in combination but this would be a relatively small		

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			additional effect in relation to the Proposed Development. No significant cumulative landscape or visual effects are anticipated.		
31	20/1357/EIASCR 20/1475/FUL	Sleaford Moor Enterprise Park	The proposed development lies adjacent to an existing complex of business units south of the A17, on the edge of Sleaford and over 6km to the south of the Proposed Development. There would be no visual connectivity between the two developments. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None
37	20/0057/OUT	Sleaford Road, Bracebridge Heath Residential development and employment use	The development lies almost 11km to the north of any above ground infrastructure in the Proposed Development. It is an urban extension on the existing eastern edge of Bracebridge Heath and is bound to the immediate west by existing urban development. There	No additional mitigation required	None

ID	Application Reference	Other existing development and/or approved development description	Assessment of inter-project cumulative effect with the Proposed Development	Additional mitigation requirements	Residual inter-project cumulative effect
			would be no shared visual receptors or any visual connectivity between the two projects. No significant cumulative landscape or visual effects are anticipated.		
38	24/0374/CCC 22/1426/EIASCO	North Hykeham relief road	The development lies well over 9km to the north-west of any above ground infrastructure in the Proposed Development. RAF Waddington airfield lies between the two projects. There would be no shared visual receptors or any visual connectivity between the two projects. No significant cumulative landscape or visual effects are anticipated.	No additional mitigation required	None

Cumulative landscape and visual effects of the Proposed Development, National Grid Navenby Substation, Navenby Heath BESS and RAF Digby Office and Training Building in combination

16.7.48. **Section 16.6** above considers the inter-project cumulative effects of the Proposed Development with the National Grid Navenby substation only whilst **Table 16.11** above considers the inter-project cumulative effects of the Proposed Development with either Navenby Heath BESS or RAF Digby development individually. Various scenarios exist in which different combinations of these projects may be consented and constructed.

16.7.49. Three additional cumulative scenarios have been identified which may give rise to additional inter-project cumulative effects on landscape and visual amenity, namely:

- The Proposed Development with National Grid Navenby Substation and Navenby Heath BESS;
- The Proposed Development with National Grid Navenby Substation and the proposed RAF Digby office and training building; and
- The Proposed Development with National Grid Navenby Substation, Navenby Heath BESS and the proposed RAF Digby office and training building.

16.7.50. A cumulative ZTV illustrating the extent of cumulative visibility between Springwell Substation/BESS, the National Grid Navenby Substation and Navenby Heath BESS is presented in **ES Volume 2, Figure 16.6: Cumulative ZTV – Springwell, National Grid Navenby Substation and Navenby Heath BESS [EN010149/APP/6.2]**.

16.7.51. A cumulative ZTV illustrating the extent of cumulative visibility between Springwell Substation/BESS, the National Grid Navenby Substation and proposed RAF Digby office and training building is presented in **ES Volume 2, Figure 16.7: Cumulative ZTV – Springwell, National Grid Navenby Substation and RAF Digby Office and Training Building [EN010149/APP/6.2]**.

16.7.52. In relation to the first of these scenarios (that is the Proposed Development, the National Grid Navenby Substation and Navenby Heath BESS together), any additional inter-project cumulative effects on landscape character and visual amenity resulting from the development of the Proposed Development, National Grid Navenby Substation and Navenby Heath BESS would be only marginally greater than if the first two of these projects were constructed together (as assessed earlier in this chapter).The extent of major/moderate effects on LCA 7 would not extend noticeably further north than would be the case in this scenario and no visual receptors would be affected to a discernibly greater degree than

already assessed in relation to the inter-project cumulative effects previously assessed. Therefore, any negligible additional inter-project cumulative effects in this scenario would be not significant.

16.7.53. In relation to the second of these scenarios (that is the Proposed Development, the National Grid Navenby Substation and the RAF Digby office and training building together), any additional inter-project cumulative effects on landscape character and visual amenity resulting from the development of the Proposed Development, National Grid Navenby Substation and RAF Digby office and training building would be only marginally greater than if the first two of these projects were constructed together (as assessed earlier in this chapter).The extent of major/moderate effects on LCA 7 would not extend noticeably further north than would be the case in this scenario and no visual receptors would be affected to a discernibly greater degree than already assessed in relation to the inter-project cumulative effects previously assessed. Therefore, any negligible additional inter-project cumulative effects in this scenario would be not significant.

16.7.54. In relation to the third of these scenarios (that is the Proposed Development, the National Grid Navenby Substation, Navenby Heath BESS and the RAF Digby office and training building together), any additional inter-project cumulative effects on landscape character and visual amenity would be only marginally greater than if the Proposed Development and the National Grid Navenby Substation were constructed together (as assessed earlier in this chapter).The extent of major/moderate effects on LCA 7 would not extend noticeably further north than would be the case in this scenario and no visual receptors would be affected to a discernibly greater degree than already assessed in relation to the inter-project cumulative effects previously assessed. Therefore, any negligible additional inter-project cumulative effects in this scenario would be not significant.

Additional mitigation

16.7.55. No significant inter-project cumulative effects have been identified and therefore it is considered that there is no additional mitigation is required above what is described in **ES Volume 1, Chapter 3: Proposed Development Description [EN010149/APP/6.1]** and is secured within the DCO.

16.7.56. No additional mitigation beyond that proposed in this ES and in the environmental documents of all other existing developments and/or approved developments assessed within this chapter has been recommended.

16.8. Assessment of BMV agricultural land

Approach

16.8.1. Grade 1, Grade 2 and Grade 3a soils are considered to be BMV agricultural land. National planning policy advocates the avoidance of BMV land where possible, although development of solar sites is not prohibited on BMV (see **ES Volume 1, Chapter 11: Land, Soil and Groundwater [EN010149/APP/6.1]** for further context).

16.8.2. The approach to the assessment of the inter-project cumulative effects of the temporary loss of use of BMV agricultural land has been informed by the approaches by other solar DCOs that have been through Examination in the Lincolnshire area (e.g. Mallard Pass Solar Project, Cottam Solar Project etc).

16.8.3. The assessment is therefore only considering other solar development, and a county ZoI. Given the Proposed Development's proximity to Nottinghamshire, the ZoI comprises the county of Lincolnshire, in addition to any solar developments within 1km of the border with Nottinghamshire (to the west of the Proposed Development).

16.8.4. The cumulative solar farm developments have been derived from the Planning Inspectorate's mapping tool and that of Lincolnshire County Council and Nottinghamshire County Council and align with the criteria outlined in **paragraph 16.4.25** in defining the short list for inter-project cumulative effects.

16.8.5. An extract of the regional plan of Predictive BMV land assessment has been used to map the Order Limits/Red Line Boundaries for each of the developments, where available (see **ES Volume 2, Figure 16.8: Best and Most Versatile (BMV) Agricultural Land and Cumulative Developments [EN010149/APP/6.2]**). Where a Preliminary Environmental Information Report or Environmental Statement (under both the DCO and Town and Country planning routes) has been submitted, these have been reviewed to determine the amount of agricultural land to be affected by each development. Where there is no quantification of BMV loss (e.g. if the development is only at Scoping stage), the provisional ALC maps[14] have been used to make an informed estimate, based on the information available at the time of writing. Where Grade 3 is shown, an

[14] Available on https://magic.defra.gov.uk/.

assumption has been made that half will be subgrade 3a and half subgrade 3b[15].

Assessment

16.8.6. **Table 16.12** identifies each of the solar farm cumulative developments within the ZoI and estimated the total amount of BMV to be impacted by each, during the operational lifespan of the development.

[15] This approach has been adopted in other solar DCO BMV cumulative developments and is considered to be a precautionary basis on which to complete the assessment.

Table 16.12 BMV agricultural land: temporary loss per cumulative development

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
Beacon Fen Energy Park (EN010151)	A 400MW solar photovoltaic farm incorporating up to 600MVA Battery Energy Storage System and on-site substation and electrical connection, including solar PV panels up to 4.5m in height; single stacked BESS units up to 4.5m in height; security perimeter fencing; hedgerow improvements; ecological enhancements; above and/or below	Registered with PINS Scoping Report submitted April 2023, Scoping Opinion May 2023. Preliminary Environmental Information Report available on developer's website for statutory consultation Q1 2024.	Main site (512ha): The detailed ALC assessment carried out by Wardell Armstrong found the Site is: Grade 2 = 14.34ha (2.8 %) Grade 3a = 228.35ha (c. 44.6%) Cable route corridor (903ha): Grade 1 = 141.91ha Grade 2= 373.41ha Grade 3a = 19.86ha[17] Access route (125.4ha):	Main site (512ha): Grade 3b = 253ha (c. 49.5%) Non-agricultural land = 66ha Cable route corridor (903ha) Grade 3b = 19.86ha[17]

[16] Relevant documentation reviewed at North Kesteven District Council's planning portal (https://planningonline.n-kesteven.gov.uk/online-applications/), Lincolnshire County Council's planning portal [redacted]) or the Nationally Significant Infrastructure Project website (https://www.gov.uk/government/organisations/planning-inspectorate).
17 Total Grade 3 land = 39.72ha, as per assumptions split between Grade 3a and Grade 3b.

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
			Grade 3 = 125.4ha **Total BMV = 903.27ha**	
Fosse Green Energy (EN010154)	The scheme comprises the installation of solar photovoltaic panels, associated electrical equipment, cabling and on-site energy storage facilities together with grid connection infrastructure. At this early stage, the connection to the national grid is being explored. The generating capacity of the FGE Scheme will exceed 50MW. and its capacity is anticipated to be approximately 320MW.	Registered with PINS Scoping Report submitted June 2023, Scoping Opinion provided July 2023.	ALC survey to be undertaken. The ALC mapping published by Natural England indicates that the Solar and Energy Storage Park comprises of predominantly Grade 3 agricultural land, with some Grade 2 agricultural land. The Solar and Energy Storage Park equates to approximately 1,003ha in total. The grid connection route has not been confirmed. Based on available ALC mapping, assumption made that ¾ of site is Grade 3, ¼ site is Grade 2. Of the Grade 3, split between subgrade 3a and 3b. Grade 2 = 250.75ha Grade 3a = 376.13ha **Total BMV (estimate) = 626.88ha**	
Heckington Fen Solar Park (EN010123)	The Proposed development will comprise the construction, operation and decommissioning of a solar photovoltaic	DCO application submitted, at Examination.	Main site (524ha): Grade 1 = 58ha	Main site (524ha): Grade 3b = 265ha

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
	electricity generating facility exceeding 50 MW. output capacity, together with associated energy storage. The installed capacity of the solar generation is expected to be in the order of 500MW.	ES available.	Grade 2 = 39ha Grade 3a = 160ha Cable corridor values not specified. **Total BMV = 257ha**	Non-agricultural = 2ha
Mareham Lane Solar (23/1419/FUL)	Installation of a solar farm comprising ground mounted solar PV panels with a generating capacity of up to 49.99MW (AC), including mounting framework, inverters, underground cabling, stock proof fence, CCTV, internal tracks and associated infrastructure, landscaping and ecological works for a temporary period of 50 years.	TCPA Full planning application submitted November 2023	None recorded. Cable corridor not specified. **Total BMV = 0ha**	Grade 3b = 77ha
Tillbridge Solar Project (EN010142)	Tillbridge Solar Project is a proposed scheme located approximately five kilometres to the east of Gainsborough and approximately thirteen kilometres to the north of Lincoln. The solar farm will cover an area of approximately 1,400ha.	DCO application submitted and accepted May 2024, project at pre-examination. ES available.	Main site (1,350.1ha) Grade 2 = 9.2ha Grade 3a= 51.1ha Soils data for the Grid Connection Route will be obtained post consent as	Main site (1,350.1ha) Grade 3b = 1,152ha Non-agricultural = 137.8ha

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
			a requirement of the DCO. **Total BMV = 60.3ha**	
Cottam Solar Project (EN010133)	The proposals involve a series of four site areas, referred to as Cottam 1, 2, 3a and 3b, which will host solar arrays, grid connection infrastructure and energy storage facilities. The proposals also involve cable route corridors, accesses and environmental mitigation and enhancement measures. The sites are located approximately 6.5km south east and 4km north east of Gainsborough.	Examination period closed March 2024, DCO consent granted 5 September 2024.	Main site (1179.7ha) Grade 2 = 6.1ha Grade 3a = 42ha Cable corridors not specified. **Total BMV = 48.1ha**	Main site (1179.7ha) Grade 3b = 1118.3ha Not surveyed = 13.3ha
West Burton Solar Project (EN010132)	The West Burton Solar Project is named after its grid connection point at the existing National Grid substation at the West Burton Power Station. The proposals comprise a number of land parcels (the 'Site' or 'Sites') described as West Burton 1, 2, and 3 for the solar arrays, grid connection infrastructure and energy storage; and the Cable Route	Examination period closed May 2024, decision due November 2024.	Study area (757.8ha): Grade 1 = 17.6ha Grade 2 = 9.5ha Grade 3a = 172.4ha Soils data for the Grid Connection Route will be obtained post consent as	Study area (757.8ha): Grade 3b = 557ha Non-agricultural = 1.3ha

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
	Corridors. The Sites are located approximately 7.4km to the south and up to 14.6km southeast of Gainsborough.		a requirement of the DCO. **Total BMV = 199.5ha**	
Gate Burton Energy Park (EN010131)	Gate Burton Energy Park would be built on agricultural land wholly contained within the boundary of one site comprising approximately 684 hectares. Gate Burton Energy Park would comprise the installation of solar photovoltaic (PV) panels and an on-site energy storage facility, plus infrastructure to connect the scheme into the national grid at Cottam substation.	DCO granted consent 12 July 2024	Main site (652ha) Grade 3a = 73.6ha Estimated BMV = 6.8ha Grid connection (172ha) Estimated BMV = 74.8ha ALC surveys completed for majority of main site, grid connection from desk based analysis of mapping. **Total BMV = 155.2ha**	Main site (652ha) Grade 3b = 548.9ha Non-agricultural = 18.2ha Estimated Grade 3b = 4.5ha (not surveyed) Grid connection (172ha): Estimated Grade 3b = 58.4ha Non-agricultural = 38.8ha
Mallard Pass Solar Project (EN010127)	Mallard Pass Solar Project is proposed to be located on agricultural land either side of the East Coast Main Line near Essendine, partly situated in South	DCO granted consent 12 July 2024	Order Limits (852ha): Grade 2 = 100ha Grade 3b = 260ha	Order Limits (852ha): Grade 3b = 439ha

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
	Kesteven, Lincolnshire, and partly in Rutland.		**Total BMV = 360ha**	Grade 4 = 18ha Urban = 3ha Not surveyed = 32ha
Temple Oaks Renewable Energy Park (EN010126)	Development of a renewable energy park, consisting of a solar farm and a Battery Energy Storage System (BESS), on the former RAF Folkingham airfield and surrounding land in Lincolnshire.	PINS Scoping Opinion issued August 2022	None **Total BMV = 0ha**	The land within the proposed development boundary has been identified as Grade 3b with some Non-Agricultural land.
Fiskerton West Solar	Development of a solar farm on land at the former Fiskerton Airfield, off Reepham Road. It is anticipated that Fiskerton West Solar Farm will extend to approximately 76ha of land, generating up to approximately 49.9MW of electricity directly from sunlight.	Approved, under development	Original planning documentation cannot be located, therefore assumption made using provisional ALC mapping. Main site = 76ha. Entire site is Grade 3, therefore split between subgrade 3a and 3b.	

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
			Total BMV (estimate) = 38ha	
Steeple Renewables Project (EN010163)	Proposals consist of up to 400MW of solar energy generation and 200MW of battery storage, in Nottinghamshire	Registered on PINS website. Early consultation Oct-Dec 2023, Scoping Report submitted April 2024, Scoping Opinion provided Jun 2024.	The majority of the Site (943.4ha) is located within Grade 3 agricultural land with the eastern boundary of the Site located within Grade 4 agricultural land. ALC surveys have not been undertaken. Assume ½ of site is Grade 3a. **Total BMV = 471.7ha**	
One Earth Solar Farm (EN010159)	Proposed solar farm (>50MW) with associated battery storage and infrastructure, located on the Lincolnshire/ Nottinghamshire border.	Registered on PINS website, Scoping Opinion issued December 2023. Preliminary Environmental	Main site is approximately 1,500ha, with 1,263ha subject to ALC survey to date. Estimates using % provided:	Grade 3b = 566ha (44.8%)

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
		Information Report available, statutory consultation Q2 2024	Grade 2 = 242ha (19.2%) Grade 3a = 455ha (36%) Not surveyed = 237ha. Assume ½ could be BMV = 118.5ha. **Total BMV = 815.5ha**	
Great North Road Solar Park (EN010162)	Great North Road Solar Park would be located on approximately 2,800 hectares (6,920 acres) of land to the northwest of Newark and would connect by underground cables into the existing national grid substation at Staythorpe.	Registered on PINS website. Scoping Report submitted November 2023, stage 1 consultation Jan-Feb 2024.	An ALC survey has not been undertaken. Therefore, assumption made for this assessment using provisional ALC mapping. The Order Limits as currently proposed occupy approximately 2,900 hectares (ha) of land. Entire site is Grade 3, therefore split between subgrade 3a and 3b. **Total BMV (estimate) = 1,450ha**	
Little Crow Solar Park (EN010101)	Renewable led energy scheme on land to the east of Steel Works site at Scunthorpe, North Lincolnshire; ground mounted solar park with a maximum design capacity of up to 150 megawatts	DCO granted April 2022.	Main site (224.7ha) Grade 3a = 36.6ha **Total BMV = 36.6ha**	Main site (224.7ha) Grade 3b = 173.5ha Non-agricultural = 13.3ha

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
	peak and up to 90 Megawatts of battery-based electricity storage facility. There will also be electrical connection infrastructure and the point of connection into the local electricity grid is directly to the 132KV electricity overhead pylon which already runs through the development site.			Not surveyed = 1.3ha
Tween Bridge Solar Farm (EN010148)	Tween Bridge Solar Farm comprises a solar farm capable of generating over up to 600MW (AC) electricity with a co-located 400MW BESS. The site area is approximately 1500ha located on the boundary between Doncaster and North Lincolnshire.	Registered on PINS website Scoping Report submitted; Scoping Opinion provided March 2023. Preliminary Environmental Information Report produced October 2023, statutory consultation Q4 2023.	ALC surveys not complete and therefore not included in the Preliminary Environmental Information Report. The early indications are that the land within the Order Limits (c.1,500ha) will classify as a mixture of grades, but mostly grades 2, 3a and 3b. Assume entire site is BMV **Total BMV = 1,500ha**	

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
Meridian Solar Farm (EN010169)	Meridian Solar Farm is a proposed solar farm south of Spalding and Holbeach which would supply around 750MW of electricity. The proposal also includes associated infrastructure such as co-located battery storage, and an approximate 12km Grid Connection to National Grid's planned Weston Marsh substation east of Spalding.	Registered on PINS website. Scoping Report submitted April 2024; Scoping Opinion provided June 2024.	ALC survey has not been undertaken. The main site is c.1,000ha. Provisional ALC mapping shows the Site to be mainly Grade 2 quality with Grade 1 mapped in the east and north. Part of the area has already been surveyed in detail to Post-1988 MAFF ALC Guidelines: Grade 1 = c4.6ha Grade 2 = c31.1ha Grade 3a = c122ha Assume entire site is BMV. **Total BMV = 1,000ha**	Unlikely

Scheme[16]	Scheme description and location	Status	BMV agricultural land (Grades 1, 2 & 3a)	Other grades
TOTAL BMV (cumulative solar developments):			**7,922.05ha**	
The Proposed Development (Springwell Solar Farm)			**525.4ha (entire Order Limits)** Grade 1 = 6.0ha Grade 2 = 80.1ha Grade 3° = 439.3ha	

16.8.7. In England, agricultural land across England represents between 69-70% of the total land within the country. Natural England estimates that around 42% of agricultural land within England is of BMV quality (with a roughly even split of 21% as Grades 1 and 2 and 21% Grade 3a) with the proportion of BMV in Lincolnshire rising to 71.2%, which is significantly above the national average. Therefore, in the context of the county, BMV land is abundant.

16.8.8. The 'county scale' BMV soils maps available are the Provisional ALC maps which do not differentiate between Grade 3a and Grade 3b. Therefore accurately estimating the BMV for Lincolnshire is difficult. As such, a review of the available maps and the other cumulative solar DCOs progressing within Lincolnshire has been undertaken to provide a consistent number against which to assess; some refer to total agricultural land (e.g. Heckington Fen Solar Park) whilst others provide an estimate of BMV from the mapping available (e.g. Beacon Fen Energy Park).

16.8.9. The area of BMV agricultural land within Lincolnshire is therefore estimated to be over 410,000ha.

16.8.10. In this context, the Proposed Development alone occupies c.0.13% of the BMV land in Lincolnshire. With the development of all the solar farms identified in **Table 16.1** alongside the Proposed Development, approximately 2% of the county BMV land resource will be temporarily used. This is a precautionary figure, based on assumptions around BMV for those solar developments which do not have ALC survey data (as identified in **Table 16.12**), and noting that One Earth Solar Farm straddles the Nottinghamshire border, and Great North Road Solar Park is entirely in Nottinghamshire (removing these schemes brings the BMV use to 1.5%).

16.8.11. In accordance with IEMA land and soils guidance **[Ref 16-20]** a permanent land loss of over 20ha is considered a high magnitude of change from the baseline. However, the majority of land used within solar projects is for the PV areas, and these are considered temporary works without permanent loss which can be returned to agricultural use at the end of the operational period for the Proposed Development. Therefore, inter-project cumulative effects are considered minimal in the context of the remaining BMV available at a county level.

16.8.12. During design and scheme development process for the solar developments considered in this assessment, it is typical that infrastructure such as the BESS and substations that require more intrusive foundations, and therefore have a greater impact on soils, are sited on poorer quality soils avoiding Best and Most Versatile land, where possible. The Proposed Development has undertaken this as documented in **ES Volume 1, Chapter 4: Reasonable Alternatives Considered [EN010149/APP/6.1]**, and soils will be managed in accordance with the

Outline Soil Management Plan (oSMP) [EN010149/APP/7.11] to prevent damage to soil structure, as well as potential damage to field drains (and subsequent effects on drainage of agricultural land). The level of information available for each of the cumulative solar DCOs is subject to the planning stage the development is at, however there is either a commitment to follow these similar principles, or similar alternative chapters and outline soil management plans submitted as part of the applications.

16.8.13. Although the decommissioning phase will not adversely affect soils if the **oSMP [EN010149/APP/7.11]** is followed, it is worth noting that a reduction in soil quality can be reversed, preventing medium or long-term effects to the availability of BMV across the county.

16.8.14. Additionally, cable and grid connection works involve the temporary disruption to agricultural land during construction, with restoration thereafter, which again will be managed in accordance with the **oSMP [EN010149/APP/7.11]**.

16.9. Assessment of cumulative population effects

Employment, Skills, Spending and Gross Value Added (GVA)

16.9.1. During the construction phase of the Proposed Development, cumulative effects related to the labour market may arise in-combination with solar projects (including NSIPs) in the region likely to share similar construction skillsets. During the operational phase, there is likely to be a combined, long-term addition to the energy sector for solar-specific jobs.

16.9.2. The solar projects identified in Lincolnshire and neighbouring areas (at **Table 16.12**) have the potential to generate cumulative economic effects in terms of opportunity for long-term, skilled and transferable employment for the region, and demand for employment and skills in the regional construction labour market and local economy (as the result of creation of employment opportunities and sustainable careers, skills and training benefits).

16.9.3. It is not possible to accurately predict the extent to which the projects listed at **Table 16.12** would generate construction or operational employment - in some cases information is not in the public domain about the quantity or spatial scale of employment generated, and in some cases it is not clear where there is potential for spatial (i.e. labour market) or temporal overlap between these projects.

16.9.4. However, for consistency it is assumed that the cumulative projects may support similar ratios of construction and operational employment per hectare of land to be developed for the purpose of generating energy

using photovoltaic cells, due to the similarity in likely construction techniques, labour and skills demand and technology.

16.9.5. On this basis, it is estimated that the cumulative projects would support (gross):

- Around 14,124 construction years of employment, in addition to the 1,600 construction years of employment supported by the Proposed Development. If delivered over 10 years, this would result in an average of 1,572 temporary FTE jobs per year across the construction labour market area. It is accepted that there are several variables and that little is known about the construction duration and potential for peaks within this hypothetical period.
- Around 236 operational FTEs (permanent) in roles related to operation and maintenance of the solar projects.

16.9.6. On this basis (and applying the same additionality assumptions as pe the Proposed Development in **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]**, the cumulative projects inclusive of the Proposed Development would temporarily create demand equivalent to 0.4% of existing resident construction workers in the construction labour market area today, and the operational projects would support the equivalent of 27% of FTE employment in Lincolnshire's energy sector.

16.9.7. Given the scale of the labour market, the characteristics of the construction labour market, and in the context of the anticipated growth rates as reported in the future baseline section of **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]**, the cumulative employment supported is likely to result in a low magnitude effect on a medium sensitivity receptor resulting in a temporary, minor beneficial effect (not significant).

16.9.8. The operational phase of the cumulative projects would result in a **medium** magnitude effect on a **medium** sensitivity receptor, resulting in a permanent, **moderate beneficial** effect (**significant**).

16.9.9. While the employment, skills and opportunity provided by the cumulative developments reflect a positive contribution to the economic and social policy objectives of local, regional and national policy reported in **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]**, and therefore present the potential for a beneficial (though not significant) effect, the Applicant is cognisant that stakeholders may be concerned about the ability for the labour market to deliver the number of skilled construction workers without causing shortages in supply, and the policy responsibility for the Applicant to promote employment, skills and supply chain benefits within the local area.

16.9.10. As such, the Applicant has committed to the **Outline Skills, Employment and Supply Chain Plan [EN010149/APP/7.20]** which is secured as a Requirement of the draft DCO, which intends to:

- Promote opportunities for people who are employed, unemployed and economically active and young people who are Not in Education, Employment or Training (NEET) to access opportunities for employment, skills development and re-skilling;
- Open up opportunities for businesses to win work in the supply chain of the Proposed Development;
- Clearly define the workforce, skills and supply chain requirements of the Proposed Development and articulate these in a clear and timely way to regional stakeholders involved in access to employment, skills development and business engagement;
- Harness the motivational potential of the Proposed Development to inspire the next generation of talent, particularly, to confidently invest their careers and futures in Lincolnshire, benefiting all employers; and
- Contribute to a Regional evidence base to support the planning and delivery of education and skills curricula and training capable of delivering the workforce and skills needed across the Region, at the right time, to support the business competitiveness of all energy and construction projects.

16.9.11. A key tenet of this approach is collaboration. It is further anticipated that each individual NSIP would also produce similar strategies to enhance and promote local employment, skills and supply chain opportunities and as set out above the Applicant is keen to collaborate with developers, sectors and public and voluntary and community stakeholders in this regard.

16.9.12. Based on standard GVA per worker rates and daily spending set out within **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]**, this may result in a cumulative contribution to GVA of around £97m per year and spending of £4.4m per year during the construction phases of the cumulative projects, and a cumulative contribution to GVA of around £36m per year and spending of £600,000 per year during the operational phases.

16.9.13. Given the scale of construction and energy sector GVA within Lincolnshire and the construction labour market area, the cumulative projects including the Proposed Development are anticipated to contribute around 0.6% of the current construction GVA in the construction labour market area during construction, and 33% of the current energy sector GVA in Lincolnshire during operation.

16.9.14. The cumulative GVA/spend supported during construction is likely to result in a **low** magnitude effect on a **medium** sensitivity receptor resulting in a **temporary, minor beneficial** effect (**not significant**).

16.9.15. The cumulative GVA/spend supported during the operational phase of the cumulative projects would result in a **medium** magnitude effect on a **medium** sensitivity receptor resulting in a **permanent, moderate beneficial** effect (**significant**).

The agricultural economy

16.9.16. As set out in **Table 16.12**, there are several solar projects likely to be constructed and operated within Lincolnshire and surrounding areas that are either currently in planning or under development, which are likely to lead to a reduction in the indicative employment capacity of agricultural land.

16.9.17. It is important to note that any cumulative assessment of the potential impact on the agricultural economy is hypothetical and does not consider individual landowner agreements which - for example in the case of the Proposed Development - could safeguard the employment supported by landholdings by moving the employment and or productivity to a nearby site.

16.9.18. While information relating to the amount and type of agricultural land within the Order Limits of cumulative schemes is available, it is also not known whether agricultural activity could be on-going during construction or operational phases (for example in the form of agrivoltaics) or whether it is anticipated that all of the agricultural land within the Order Limits would be taken out of agricultural use.

16.9.19. Furthermore, any project developing on agricultural land would be subject to a consideration of statutory compensation relating to the operation of resident agricultural operations which would be addressed outside of the planning system and could offset the economic effect on a landholder/operator.

16.9.20. Nonetheless, it is possible to apply broad assumptions set out within **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]** to consider the potential effect of agricultural land and activity being changed to solar energy generation in terms of an average and indicative employment per hectare ratio.

16.9.21. The cumulative solar projects comprise approx. 15,111 hectares of agricultural land across a range of grades (in addition to the c. 1,705 hectares of agricultural land within the Proposed Development's Order Limits). Applying an average employment rate per hectare in Lincolnshire

using DEFRA data identifies that this land has the potential cumulative indicative employment capacity for 267 FTE jobs. As set out in set out within **ES Volume 1, Chapter 13: Population [EN0101/APP/6.1]**, Lincolnshire currently has approx. 8,653 FTE jobs in agriculture. The cumulative developments therefore account for 3.1% of the indicative agricultural employment capacity in agriculture in Lincolnshire.

16.9.22. The agricultural economy at the Lincolnshire scale is considered to be a **medium** sensitivity receptor due to its capacity to experience annual and seasonal change, and ability to absorb or respond to this change without substantial socio-economic effect. The magnitude of the change upon the receptor is considered to be **low** (representing only 3.1% of employment capacity). As such, the cumulative effect on the agricultural economy (in terms of indicative employment capacity) is considered to be **temporary, long-term** and **minor adverse** (**not significant**).

16.9.23. It is noted however that the Proposed Development - while temporarily reducing employment capacity - is not likely to actually result in a loss of employment as jobs supported by the operator would be moved to another landholding, and therefore is not likely to contribute to an actual cumulative reduction in employment supported in the agricultural economy.

Occupancy rates as a result of increased visitors to the area

16.9.24. The approach to the assessment of inter-project cumulative effects of increased occupancy rates resulting from the Proposed Development and other solar NSIPs is based on the approach outlined in **ES Volume 1, Chapter 13: Population [EN010149/APP/6.1]**. The assessment therefore considers other solar NSIP developments that are within a 20km radius of the Proposed Development Order Limits.

16.9.25. During the construction phase of the Proposed Development, cumulative effects on occupancy rates of temporary accommodation as a result of the ingress of construction staff may arise in-combination with other solar NSIPs in the region. The ZoI for occupancy rates is 20km from the Order Limits boundary, **Table 16.13** shows the NSIPs included within the cumulative assessment of occupancy rates.

16.9.26. There are four other solar NSIPs located within 20km of the Proposed Development as detailed in see **Table 16.13** below. The anticipated construction phase timings suggest that there is potential for the Proposed Development's construction phase to overlap with all of the four identified NSIPs and therefore they have all been assessed with regards to the potential for cumulative effects on occupancy.

16.9.27. This cumulative assessment is based on the anticipated peak number of construction staff working on the construction phase of each NSIP in order to address the potential worst case scenario. However, it is unlikely that the peak number of construction staff are anticipated on site for all of the NSIPs at one time due to differing project programmes and the phasing of construction works. In particular, the overlap of construction timings with Fosse Green Energy are anticipated to be minimal, as the Proposed Development will be nearing completion at the time that construction works are anticipated to begin for Fosse Green Energy.

16.9.28. The NSIPs included in this assessment are at different stages of the DCO application process and therefore the anticipated peak number of construction workers is not available for some of the applications. Therefore, this assessment is based on data that is publicly available as of October 2024.

16.9.29. Where the average number of construction workers is available but the peak number is not, it has been assumed that the peak number of construction workers (i.e. the maximum number) is approximately 61.5%more than the listed average, which is in line with the proportions anticipated for the Proposed Development.

16.9.30. As of October 2024, there is no information available for the anticipated number of construction workers (average or peak) for One Earth Solar Farm. In order to be able to consider the potential cumulative effects from that development, it has been assumed that the maximum number of construction workers is an average of the maximum number of construction workers anticipated for the other four NSIPs included within this cumulative assessment.

16.9.31. Where a number has been assumed, it is highlighted in red in **Table 16.13**.

Table 16.13 Peak number of construction staff anticipated for other NSIP developments within the study area

Scheme	Scheme location	Status	Construction timings	Maximum number of construction staff
The Proposed Development (Springwell Solar Farm)			Construction is anticipated to commence in 2027 and be split into two phases over a 48-month period.	650
Beacon Fen Energy Park (EN010151)	Located approximately 9.8km south east of the Proposed Development	Registered with PINS. Scoping Report submitted April 2023. Preliminary Environmental Information Report available on developer's website.	Construction is anticipated to commence 2026/27 and last for a duration of approximately 24 to 36 months.	522
Heckington Fen Solar Park (EN010123)	Located approximately 15.7km south east of the Proposed Development.	DCO application submitted, at Examination. ES available.	Construction is anticipated to commence at the earliest Spring 2025 and last for a duration of approximately 30 months.	400 workers on site during peak periods.

Scheme	Scheme location	Status	Construction timings	Maximum number of construction staff
Fosse Green Energy (EN010154)	Located approximately 6.8km north west of the Proposed Development	Registered with PINS. Scoping Report submitted June 2023,Scoping Opinion provided July 2023.	Construction is anticipated to commence in 2031 and last for approximately 24 months.	Maximum of 600 construction workers on site per day.
One Earth Solar Farm (EN010159)	Located approximately 20km north west of the Proposed Development.	Registered on PINS website, Scoping Opinion issued December 2023. Preliminary Environmental Information Report available, statutory consultation May-July 2024.	Construction is anticipated to commence in 2027 and last approximately 18 months.	Maximum of 543 construction workers on site per day[18]

[18] Due to the stage of the application, this information is not available on the PINS website. This number has been selected as an average of the maximum construction workers anticipated on site from the other NSIPs included in this cumulative assessment.

Scheme	Scheme location	Status	Construction timings	Maximum number of construction staff
Cumulative maximum number of construction workers				**2,715**

16.9.32. The maximum number of construction workers expected within the study area as a result of the construction phases of the five NSIP's is 2,715.

16.9.33. Research undertaken by Construction Industry Training Board in 2023, highlighted that around 6% of construction workers are stay in temporary accommodation whilst working on site [**Ref 16-21**]. Therefore, for this cumulative assessment it is assumed that 6% of the total maximum number of construction workers will require temporary accommodation. Therefore, approximately 140 construction workers will require temporary accommodation in Serviced and Non- Serviced accommodation at one time.

16.9.34. **Table 16.14** shows the number of available bedspaces from serviced and non-serviced accommodation in North Kesteven **[Ref 16-22]**. Data published by VisitEngland, shows the average occupancy rates of temporary accommodation within the East Midlands **[Ref 16-23]**.

16.9.35. Assuming 136 construction workers use temporary accommodation when considered against the average number of bedspaces used generally, accommodation rates within the region will not hit capacity during any months of the year. This demonstrates that it is likely that temporary accommodation providers will be able to cater for the tourist population as well as any temporary construction staff during the construction periods of all five NSIP's, whilst still having capacity remaining to accommodate additional people should it be necessary.

16.9.36. It should be noted that whilst the anticipated project programmes of the NSIPs included in this cumulative assessment overlap, different project phasing and programmes suggest that it is unlikely that the maximum number of staff will be on site all at one time for all five projects. Therefore, it is likely that the number of staff requiring temporary accommodation will be lower than 140.

16.9.37. The significance of cumulative construction phase accommodation demand effect is assessed using the significance criteria stated in **ES Volume 1, ES Chapter 13: Population [EN010149/APP/6.1]**.

The receptors for occupancy rates are business owners that offer accommodation within the study area. Their sensitivity to changed occupancy rates as a result of increased visitor numbers to the area is **medium** and the magnitude of impact following additional mitigation is **minor**. Therefore, there is likely to be a temporary adverse slight residual impact on occupancy rates as a result of increased visitor numbers to the area, which is considered to be **not significant**.

Table 16.14 Number of serviced and non-serviced accommodation bedspaces available in North Kesteven before and inclusive of the cumulative number of construction workers

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Serviced and Non-serviced accommodation bedspaces	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679
Average occupancy rate (%)	64	73	75	74	75	78	79	75	80	77	76	65
Actual number of bedspaces occupied	2,355	2,686	2,759	2,722	2,759	2,870	2,906	2,759	2,943	2,833	2,796	2,389
Construction workers requiring accommodation	136	136	136	136	136	136	136	136	136	136	136	136
Number of bedspaces occupied inclusive of construction workers	2,491	2,822	2,895	2,858	2,895	3,006	3,041	2,895	3,079	2,969	2,932	2,525

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Available bedspaces following housing of construction workers	1,188	857	784	821	784	673	638	784	600	710	747	1,154

16.10. Difficulties and uncertainties

16.10.1. The assessment of inter-project cumulative effects has been limited to publicly available information obtained from the relevant planning applications on the planning portals of North Kesteven District Council, Lincolnshire County Council and the Planning Inspectorate. For some of the short-listed other existing developments and/or approved developments, relevant information to inform this assessment has not been available. As a result, some assessment considerations have been based upon assumptions and professional judgement and some statements made would rely on the review of mitigation measures proposed at the other existing developments and/or approved developments.

16.10.2. It has not been possible to collect data reflecting the number of bedspaces within the occupancy study area of a 20km radius from the centre of the Site. The data collected reflects the area of North Kesteven District Council which is similar in total area to that of the study area. Therefore, it is expected that this data can be representative of the study area as a whole and therefore used as a basis for the conclusions given.

16.11. References

- **Ref. 16-1**: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online: https://www.legislation.gov.uk/uksi/2017/572/contents/made
- **Ref. 16-2**: National Policy Statement for Energy (EN-1) (2023). Available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1.
- **Ref. 16-3**: National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3.
- **Ref. 16-4**: National Policy Statement for Electricity Networks Infrastructure (EN-5) (2023). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5
- **Ref. 16-5**: Ministry of Housing, Communities and Local Government (2023). National Planning Policy Framework. Available online: https://www.gov.uk/government/publications/national-planning-policy-framework--2.
- **Ref. 16-6**: North Kesteven District Council (2018), Central Lincolnshire Local Plan (2018 – 2040). Available online: https://www.n-kesteven.gov.uk/planning-building/planning/planning-policy/central-lincolnshire-local-plan-2018-2040
- **Ref. 16-7:** Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available online: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment.
- **Ref. 16-8**: IEMA (2011) The State of Environmental Impact Assessment in the UK. Available online: [redacted]
- **Ref. 16-9**: Lincolnshire County Council (2024) Lincolnshire Minerals and Waste Local Plan: Preferred Approach for Updating the Plan – Regulation 18 Consultation, Site Assessment Report. Available online: https://www.letstalk.lincolnshire.gov.uk/minerals-and-waste-local-plan
- **Ref. 16-10**: Institute of Air Quality Management (2024) Guidance of the Assessment of Dust from Demolition and Construction (Version 2.2). Available online: [redacted]
- **Ref. 16-11**: British Standards Institution (2014) British Standard 5228-1:2009+A1:2014, Code of practice for noise and vibration control on

construction and open sites (Part 1: Noise). London: British Standards Institution.

- **Ref. 16-12**: British Standards Institution (2014) British Standard 5228-2:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites (Part 2: Vibration). London: British Standards Institution.
- **Ref. 16-13**: Standards for Highways (2020) DMRB LA 111 - Noise and Vibration. Available online: [redacted]
- **Ref. 16-14**: British Standards Institution (2019) British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.
- **Ref. 16-15**: Waste Electrical and Electronic Equipment Regulations 2013. Available online: https://www.legislation.gov.uk/uksi/2013/3113/contents/made.
- **Ref. 16-16**: National Grid Navenby Substation. Available online: [redacted]
- **Ref. 16-17**: National Grid Factsheet: Substation construction/refurbishment (undated). Available online: [redacted].
- **Ref. 16-18**: National Grid (undated) The Horlock Rules. Available online: [redacted]
- **Ref. 16-19**: Environmental Protection UK and Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality. Available online: [redacted]
- **Ref. 16-20**: Institute of Environmental Management & Assessment (IEMA) (2022) A New Perspective on Land and Soil in Environmental Impact Assessment. Available online: [redacted]
- **Ref. 16-21:** citb.co.uk (2023). Workforce Mobility and Skills in the Construction Sector 2022. UK-wide Report- May 2023. Available online: [redacted]

- **Ref. 16-22:** Visit Lincolnshire Business (2021). North Kesteven Final STEAM 2009-2020. Available online: [redacted]
- **Ref. 16-23:** Visit England (2023) England Hotel Occupancy 2023. Available online: [redacted]

Springwell
Solar Farm

springwellsolarfarm.co.uk

Application Document Ref: EN010149/APP/6.1
Planning Inspectorate Scheme Ref EN010149