Tween Bridge Solar Farm

Environmental Statement
Chapter 6: Landscape and Visual

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(a)

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6 Landscape and Visual

6.1. Introduction

6.1.1. This Chapter assesses the likely significant landscape and visual impacts of the Scheme during construction, operation and decommissioning periods. It describes the methods used to assess these effects and determines the baseline conditions currently existing within the Order Limits.

6.1.2. This Chapter considers the preliminary effects on:

- Landscape Features;
- Landscape Designations;
- Landscape Character; and
- Visual Amenity.

6.1.3. This Chapter also considers the potential landscape and visual mitigation measures that will be implemented to prevent, reduce and offset the identified landscape and visual effects, where appropriate. For the purposes of reporting, parcels have been created to divide up areas of the Order Limits and the Scheme in order to assist the reader and the navigation of the Scheme. Refer to **ES Figure 1.2 - Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]** for a plan of these areas.

6.1.4. This Chapter is supported by the following figures:

- **ES Figure 6.1 - Site Context [~~Document Reference 6.4.6.1~~APP-145]**
- **ES Figure 6.2 - Landscape Character Areas [~~Document Reference 6.4.6.2~~APP-146]**
- **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]**
- **ES Figure 6.4 - Landscape and Visual Mitigation Strategy, (Landscape Masterplan). [~~Document Reference 6.4.6.4~~APP-148]**
- **ES Figure 6.5 - Residential Properties [~~Document Reference 6.4.6.5~~APP-149]**

- **ES Figure 6.6 – Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]**

6.1.5. This Chapter is supported by the following appendices: -

- **ES Appendix 6.1 - LVIA Assessment Criteria [~~Document Reference 6.3.6.1~~APP-061]**
- **ES Appendix 6.2 - Residential Visual Amenity Assessment (RVAA) [APP-062~~Document Reference 6.3.6.2~~]**
- **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**
- **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**
- **ES Appendix 6.5 - Viewpoint Assessment [~~Document Reference 6.3.6.5~~APP-069]**
- **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**
- **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]**

6.2. Consultation

6.2.1. Consultation responses to date and the Scoping Opinion issued by the Planning Inspectorate on 13 March 2023 (Refer to **ES Appendix 1.1 – Planning Inspectorate EIA Scoping Opinion [**APP-057~~Document Reference 6.3.1.1~~**]**) have been taken into account during the preparation of this Chapter and this is discussed in detail below. It is also noted that a working draft of the Preliminary Environmental Information Report (PEIR) was consulted upon as part of the non-statutory consultation undertaken in October/November 2023, the final PIER was consulted upon in March 2025 as part of the statutory consultation.

6.2.2. The proposed scope of work including the approach to the landscape and visual assessment and preliminary viewpoint selection, were submitted for comments as part of the Applicant's Environmental Impact Assessment Scoping Report (see **ES**

Appendix 1.2 - Applicant EIA Scoping Report [APP-058~~Document Reference 6.3.1.2~~**]**). A summary of the relevant matters raised by the Scoping Opinion (see **ES Appendix 1.1 – Planning Inspectorate EIA Scoping Opinion [**APP-057~~Document Reference 6.3.1.1~~**]**) is included in **Table 6-3** below.

6.2.3. Subsequent consultation with the Canal and River Trust has resulted in further viewpoints being added to the assessment. An email was sent to the Canal and River Trust to inform them of the additional viewpoints and that detailed consideration of users of the canal would be considered in this Chapter of the Environmental Statement. The correspondence also discussed early stage design and planting mitigation and that these elements would be considered further as the Scheme developed. This has been given further consideration during the formulation of the Landscape masterplan and mitigation proposals as illustrated on **ES Figure 6.4 - Landscape and Visual Mitigation Strategy [**~~Document Reference 6.4.6.4~~APP-148**]**.

6.2.4. A summary of non-statutory and statutory consultation responses received and actioned to date is provided in **Table 6-1** and **Table 6-2** below.

Table 6-1: Summary of Consultation - Non-Statutory Consultation

Consultee	Summary of Consultee Response	How response has been addressed by Applicant
Canal & River Trust	A request was made for detailed assessment of the canal corridor to be provided.	Additional viewpoints along canal corridor added to **ES Appendix 6.3 – Viewpoint Photographs [**~~Document Reference 6.3.6.3~~APP-064 - APP-066**]**. Further, more detailed survey of the canal corridor was undertaken to feed into the development of the Scheme and landscape masterplan/mitigation proposals **ES Figure 6.4 - Landscape and Visual**

		Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]. In addition, **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]** has also been prepared to provide further assessment of the canal corridor.
North Lincolnshire Council (Meeting with Andrew Law Development Management Specialist & Andrew Taylor, Natural Environment Policy Specialist 1.12 23)	Note context of Doncaster Biosphere and Humberhead Levels partnership. Can water levels be raised in context of protection of peatlands. Consideration of visual effects from transport routes. Doncaster and N. Lincs seeking to appoint landscape specialist for consultation.	Relayed to design team for consideration during project design team meetings. Biosphere matters considered in formulation of **ES Figure 6.4 - Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]**. Experience along transport routes considered in terms of layout and mitigation proposals (as above).
Natural England	No further L&V specific responses received.	Ecology and L&V teams have been working closely to formulate landscape proposals informed by Ecological consultations to date.

6.2.5. **Table 6-2** below identifies the landscape and visual comments provided in the Planning Inspectorate Scoping Opinion (see **ES Appendix 1.1 – Planning Inspectorate EIA Scoping Opinion [**APP-057~~Document Reference 6.3.1.1~~**]**), together with the Applicant's response and explanation in respect of how those comments have been addressed.

Table 6-2: Summary of Consultation - Scoping Opinion

ID	Ref	Matter	Planning Inspectorate Comments	Applicant Response
3.5.1	*n/a*	***n/a***	*No matters have been proposed to be scoped out of this assessment.*	Noted.
3.5.2	*Para 4.29*	***Sensitive receptors***	*Paragraph 4.29 of the Scoping Report identifies "recreational" users as a receptor type. For the avoidance of doubt the Inspectorate agrees with comments from the Canal and River Trust (Appendix 2 of this Opinion) that this should include boaters, walkers and cyclists.*	Agreed. This is noted in the Assessment Criteria under identifying the sensitivity of receptors which forms **ES Appendix 6.1 – Landscape and Visual Impact Assessment Criteria [~~Document Reference 6.3.6.1~~APP-061]**.
3.5.3	*Para 4.31*	***Impacts***	*Paragraph 4.31 of the Scoping Report states that: "The SZTV [Screened Zone of Theoretical Visibility, shown on Appendix 4.1 of the Scoping Report] has been run at an average height of 3m across the site for the elements which form the Scheme".*	Noted. The Applicant has produced **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document~~**

			However, the Inspectorate notes that the anticipated height of the BESS, which is likely to be a prominent feature of the Scheme, has not been provided in the Scoping Report. *If during the design evolution of the Scheme it is determined that the maximum parameters of any element will exceed 3m in height, the Applicant should re-run the SZTV and review the Study Area and identified receptors accordingly.* *This assessment of impacts to landscape and visual amenity (including the SZTV, Study Area and visualisations) should be based on the relevant worst-case having regard to any parameters applicable to the Scheme, including all proposed*	~~Reference 6.4.6.3~~APP-147] based on the final Scheme parameters. The Applicant has also considered during the design process if elements could be re-sited as part of the primary embedded mitigation and has revised the layout of the Scheme where appropriate.

			structures such as the BESS.	
3.5.4	*Paras 4.35 and 4.36*	***Viewpoints and visualisations***	*Paragraph 4.35 of the Scoping Report lists 26 proposed viewpoints for assessment, while paragraph 4.36 identifies seven of those viewpoints for which visualisations are proposed to be produced.* *The number and location of viewpoints and visualisations should be justified in the ES and effort should be made to agree these details with relevant consultation bodies, including local planning authorities, Historic England and the Canal and River Trust.* *A figure to illustrate the proposed viewpoint locations has not been provided in the Scoping Report*	Agreed. Comments on numbers and locations noted. In particular, this is flagged by the Canal and River Trust at Appendix 2 of the scoping response, (requiring viewpoints to include views southwards towards Clay Bank Farm). The Applicant has added in further viewpoints along the canal corridor in order to illustrate a sequential analysis of the experience of users along the section of canal within the Study Area. The viewpoint locations appear to have been turned off in the revision of the drawing included with the scoping report. **ES Figure 6.3 – Screened Zone of Theoretical Visibility with**

			(paragraph 4.35 erroneously states *that these are illustrated on Appendix 4.1 of the Scoping Report). The ES should include appropriate figure/s which clearly illustrate the viewpoint locations.*	**Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** now clearly shows the viewpoint locations. Viewpoint 5 covers Clay Bank Farm noted above.
3.5.5	*Paras 4.38* *and 4.39*	***Mitigation planting***	*The ES should clearly present any assumptions made with regards to the height that the proposed mitigation planting would have reached by this assessment years, for the purposes of generating photomontages and reaching this assessment conclusions.*	Noted. The Applicant has plant growth data that has been used to support the production of visual material which accompanies the Chapter.
3.5.6	*n/a*	***Impacts***	*Impacts on landscape and visual amenity resulting from the introduction of lighting during construction, operation and decommissioning which are likely to result in significant*	Noted. There is no lighting proposed during construction, operation or decommissioning that would be of such a nature that would give

			effects should be assessed in the ES. *Any proposed mitigation measures should be described and appropriately secured.* *This assessment should cross refer to other relevant aspect assessments and sensitive receptors* *(such as ecology and cultural heritage).*	rise to potential significant landscape or visual effects. Mitigation measures are set out subsequently in this Chapter and would be appropriately secured. The production of this Chapter has included close collaboration with the wider EIA team including the heritage and ecological consultants to ensure a co-ordinated response. In particular, this related to the development of **ES Figure 6.4 – Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]**.

6.2.6. This **Table 6-3** identifies landscape and visual comments provided as part of the statutory consultation, where the PEIR was consulted upon.

Table 6-3: Summary of Consultation - Statutory Consultation

Consultee	Summary of Consultee Response	How response has been addressed by Applicant
Lincolnshire County Council (LCC)	LCC welcomes the inclusion of a Residential Visual Amenity Assessment, consideration of the	A Residential Visual Amenity Assessment is included at **ES Appendix 6.2 – Residential Visual Amenity Assessment**

	Cumulative Impacts, detailed design parameters of the scheme and a further linear study along the canal.	[~~Document Reference 6.3.6.2~~APP-062] of this Chapter. The Cumulative Impacts are considered in **ES Chapter 17 - Cumulative Impacts** [APP-054~~Document Reference 6.2.17~~]. Detailed design parameters are set out in **Design Approach Document** [APP-032~~Document reference 5.6~~]. A further linear study of the canal is provided at **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study** [~~Document Reference 6.3.6.7~~APP-071]
North Lincolnshire Council (NCL)	A landscape consultant has been appointed to provide consultations from North Lincolnshire Council's perspective. These will follow separately.	No feedback received to date (July 2025). No action able to have been undertaken.
City of Doncaster Council (CDC)	Doncaster Council intend to appoint a landscape consultant for advice on Landscape & Visual Matters CDC would welcome the opportunity to agree the methodology and assessment in accordance with GLVIA3 to ensure a robust exercise and appropriate mitigation can	No feedback received to date (July 2025). No action able to have been undertaken.

	be embedded throughout the design.	
City of Doncaster Council	No assessment has been undertaken from within Thorne Moors (Humberhead Peatlands National Nature Reserve) which is Access Land.	The **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that there is limited visibility from Humberhead Peatlands National Nature Reserve due to extensive woodland vegetation and therefore no detailed consideration was deemed necessary for this assessment.
City of Doncaster Council	A permissive path links the end of footpath No.15 with Thorne Moors/Open Access Land. The path has been provided by Natural England over land in their ownership, providing a route to the moors.	This has been considered as part of the assessment of visual receptors.
Canal & River Trust	Notably, we note that woodland planting to the north of the canal is shown. However, there is little proposed planting to the south, and we do have reservations that the amount of screening indicated is likely to be insufficient due to this. Additional screening to the	The Canal Corridor Study **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]** provides further detail on the context of the canal and the detailed mitigation proposed. The mitigation proposals include a combination of existing vegetation, offsets off

	south may therefore be required.	elements of the Scheme and proposed planting.
Canal & River Trust	Little detail is available at this stage on the hedgerow planting proposed alongside the Scheme. The provision of additional planting specifications and a detailed plan showing the location of planting could assist in allowing decision-making authorities and statutory consultees to gauge the effectiveness of this part of the proposed mitigation strategy.	A comprehensive landscape Masterplan is provided at **ES Figure 6.4 - Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** further detail of the proposed species rich native hedgerows, trees and woodland species are set out in the **Outline Landscape and Ecological Management Plan [~~Document Reference 7.6~~APP-181]** which are reflective of the species recorded in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**
Canal & River Trust	The Trust note that the perimeter fencing is proposed. Parts of this could be highly visible from the canal, and we request that the final design should be green or black in colour (not galvanised aluminium), which would help to reduce its visual prominence alongside existing (and proposed) vegetation. We are unsure as to the proposed design of the perimeter fencing proposed, and would welcome further clarity at an early stage of the	As set out in **Design Approach Document [~~Document Reference 5.6~~APP-032] Work No.3** - Fencing. The maximum height of perimeter security fencing will be 2m wire mesh or deer fencing to include small mammal gates. This galvanised wire fencing is a standard agricultural product and would not be at odds with the landscape setting of the Scheme. As set out in **Work No. 4** - Security fencing around the substations will be 2.4m height palisade fencing. It is unlikely however that this element of the Scheme will be

	examination. The use of a mesh style fence would be recommended, as it would have less visual prominence than a palisade fence	visible from any locations within the canal corridor.
Forestry Commission Yorkshire and North East Area	There are several issues to be considered when proposing significant planting schemes. Of particular note that; '*Planting contributes to a 'resilient treescape' by maximising connectivity across the landscape.*'	A comprehensive landscape Masterplan is provided at **ES Figure 6.4 Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** further detail of the proposed species rich native hedgerows, trees and woodland species are set out in the **Outline Landscape and Ecological Management Plan [~~Document Reference 7.6~~APP-181].** The Scheme has been designed to be responsive to the local landscape pattern and connect into the existing vegetation recorded in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**

6.3. Assessment Approach

6.3.1. It is acknowledged from the outset that, in common with almost all commercial solar energy development proposals, some landscape and visual effects would occur as a result of the proposals.

6.3.2. A key principle of the European Landscape Convention **[Ref 6-17]** is that all landscapes matter and should be managed appropriately. It is also acknowledged that landscapes provide the surroundings for people's daily lives and often contribute positively to the quality of life and economic performance of an area.

6.3.3. Therefore, an assessment of LVIA has been undertaken and the finding reported in this ES Chapter. This assessment has been undertaken by Chartered Landscape Architects at Pegasus Group who are experienced in this assessment of landscape and visual effects of solar energy developments and are familiar with the local landscape.

6.3.4. The baseline landscape resource and visual receptors were identified in part through a desk-based study of published landscape character studies, relevant planning policy guidance, aerial photography and Ordnance Survey mapping. In addition, site visits were conducted during April and May 2023 when the viewpoint photographs were taken. A set of winter photography has also been collected in February 2024 as well as a set of detailed photography along the canal corridor collected in January 2024, which forms part of the canal corridor study **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]**.

6.3.5. Landscape effects are related to the character of the Order Limits and surrounding area and are concerned with landscape elements, landscapes of regional or local distinctiveness and special interest areas including landscape designations. Visual effects are experienced by people through changes in available views. These separate but related issues form the basis of Landscape and Visual Impact Assessment (LVIA) undertaken within this LVIA Chapter of the Environmental Statement (ES). The following elements within the Scheme have been identified as having the potential for adverse landscape and visual effects (for further detail refer and supporting figures refer to **Design Approach Document [~~Document Reference 5.6~~APP-032]**:

- The construction phase of the Scheme. (It is envisaged that the construction period would start Summer 2028 and would be completed Winter 2032, up to a 54 month period). Decommissioning would be over a period of approximately 24 months).
- **Work No.1** (refer to the **Works Plans [~~Document Reference 2.3~~APP-009]** for the illustrative details of the spatial parameters for the works packages) - Solar panels fitted to mounting structures. (Fixed array maximum height 3.6m Tracking array maximum height 3.6m). Inverters will be located a minimum of 300m from existing residential receptors.

- **Work No.2** - Electrical Cabling; Trenching tunnelling boring and Drilling works; Fencing, gates, boundary treatments; Security equipment; Access tracks; Lighting; and Permissive paths. Electrical cabling will generally be located in trenches with maximum working widths of 15m for 33 kV cables and 30m for 132 & 400kV cables. Cable ploughing will be used for installation where ground conditions allow, where this is not possible open cut trenching or horizontal directional drilling (HDD) will be used and located in existing gaps in hedgerows where reasonably practicable, with any hedgerows removed being replaced. Launch pits for HDD crossings will be a maximum of 7m by 3m and 1.5m depth. Maximum dimensions of access gates will be 2m high by 10m wide. The maximum height of perimeter security fencing will be 2m and will be either wire mesh or deer fence and will include small mammal gates. The maximum height of the poles for the mounting of security cameras will be 3m, the cameras will pointed directly within the Order Limits. Access tracks will be constructed of permeable materials and will be 4m wide bar those leading to onsite substations which will have a maximum width of 4.5m. On-site lighting will be sensor triggered infrared security lighting to be located around key electrical infrastructure and will not be continuous. Width of permissive paths to be between 2m and 5m.

- **Work No.3** - create, enhance and maintain Green Infrastructure. This includes fencing. The maximum height of perimeter security fencing will be 2m wire mesh or deer fencing to include small mammal gates.

- **Work No.4** - 132kV on site substations. There will be seven on-site substations. The footprints will be a maximum of 110m by 60m. The highest electrical equipment will be 7m. The communications tower will have a maximum height of 15m. Control buildings or containers housing offices will have a maximum height of 4m. Security fencing will be 2.4m height palisade enclosed by a 1.2m stock fence.

- **Work No.4** -RWE on-site 400kV Substation. The maximum footprint will be 156m by 220m. The highest electrical equipment will be 13m. The lightening conductor tower will have a maximum height of 15m. Control buildings or containers housing offices will have a maximum height of 6.3m. Security fencing will be 2.4m height palisade with and electrical fence backing of 3m from ground level.

- **Work No.5** - Battery Energy Storage System (BESS). The BESS will be located into up to 4 compound areas with a storage capacity of 100 MW. BESS will be raised to mitigate against fluvial flood risk. The BESS will require heating, ventilation and cooling systems which will be integrated within the individual containers. The BESS units will be raised on concrete pads or plinths sat above a gravel base. Containers will be light grey, white, dark green or similar in colour.

6.3.6. This LVIA ES Chapter 6 considers the Scheme in terms of its maximum parameters: the extent and height of the solar modules, substations, Battery Energy Storage Systems and fencing, as listed above and detailed **Design Approach Document [~~Document Reference 5.6~~APP-032]**. All assessment work in the LVIA has also been cognisant of the potential requirement for equipment within the Scheme to be raised to accommodate the 1 in 1000 flood levels as shown in **Figure 2.6 – Indicative Layouts and Cross Section Plans [~~Document Reference 6.4.2.6~~APP-139]**.

6.3.7. It is noted there are two options in terms of proposed panel types presented for the Scheme, Option 1 is Fixed and Tracker Panels (see **ES Figure 2.2b – Indicative Operational Layout Plan (Fixed and Tracker Solar Panel) [~~Document Reference 6.4.2.2~~APP-135]**), Option 2 is all Fixed Panels (see **ES Figure 2.2a – Indicative Operational Layout Plan (Fixed Solar Panel) [~~Document Reference 6.4.2.2~~APP-136]**). In landscape and visual terms, the two options having the same height parameters present minimal perceived differences, therefore in the following assessment no difference is drawn between the two with the same assessment conclusions applying to either option.

6.3.8. The current permission for the existing turbines at the Tween Bridge Wind Farm is until 2036/37 at which point they will be removed. The assessment includes references to the current baseline in which the turbines are located, but the presence or absence of the turbines will not notably affect the judgements and therefore there would be no difference in effects between these two scenarios, either with or without the turbines in situ. There are also no other notable changes to the future baseline which are anticipated across the lifetime of the Scheme that would lead to any difference in the assessments set out.

Methodology

6.3.9. The main objectives of the LVIA are as follows:

- To identify, evaluate and describe the current landscape character of the site and its surroundings and also any notable individual or groups of landscape features within the site;
- To determine the sensitivity of the landscape to the type of development proposed;
- To identify potential visual receptors (i.e. people that would be able to see the Scheme) and evaluate their sensitivity to the type of changes proposed;
- To identify and describe any impacts of the Scheme in so far as they affect the landscape and/or views of it and evaluate the magnitude of change due to these impacts;
- To identify and assess any cumulative landscape and visual effects;
- To identify and describe mitigation measures that have been adopted to avoid, reduce and compensate for landscape and visual effects; and
- To evaluate the level of residual landscape and visual effects.

Published LVIA Guidance

6.3.10. This assessment has been undertaken in accordance with the principles of best practice, as outlined in published guidance documents, notably the third edition of the Guidelines for Landscape and Visual Assessment (GLVIA3), (Landscape Institute and the Institute for Environmental Management and Assessment, 2013) **[Ref 6-1]**.

6.3.11. The methodology and assessment criteria for this assessment has been developed in accordance with the principles established in this best practice document. It should be acknowledged that GLVIA3 **[Ref 6-1]** establishes guidelines, not a specific methodology. The preface to GLVIA3 states:

> **'This edition concentrates on principles and processes. It does not provide a detailed or formulaic 'recipe' that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand.'**

6.3.12. The approach has therefore been developed specifically for this assessment to ensure that the methodology is fit for purpose.

Distinction between Landscape and Visual Effects

6.3.13. In accordance with the published guidance, landscape and visual effects are assessed separately, although the procedure for assessing each of these is closely linked. A clear distinction has been drawn between landscape and visual effects as described below:

- Landscape effects relate to the effects of the proposals on the physical and perceptual characteristics of the landscape and its resulting character and quality; and
- Visual effects relate to the effects on specific views experienced by visual receptors and on visual amenity more generally.
- The Landscape and Visual methodology for the LVIA assessment is set out in **ES Appendix 6.1 - Landscape and Visual Impact Assessment Criteria [~~Document Reference 6.3.6.1~~APP-061]**

Residential Visual Amenity Assessment

6.3.14. A detailed consideration with regard to the visual amenity of the nearest residential properties to the Scheme is included within the LVIA at **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]** (RVAA). The RVAA has been prepared in line with the principles set out in best practice guidance 'Residential Visual Amenity Assessment (RVAA) -Technical Guidance Note 02/19, Landscape Institute (2019).

6.3.15. The Residential and Visual Amenity methodology for the LVIA assessment is set out in **ES Appendix 6.2 - RVAA Assessment Criteria [~~Document Reference 6.3.6.2~~APP-062]** and follows a sequential approach to the assessment of properties within 0.5km of the Scheme, the distance which was confirmed through the EIA Scoping process.

Assessment of Significance

6.3.16. The level (relative significance) of landscape and visual effects is determined by combining judgements regarding the sensitivity of the landscape or view,

magnitude of change, duration of effect and the reversibility of the effect. In determining the level of residual effects, all mitigation measures are taken into account.

6.3.17. The relative level of effect is described as major, moderate/major, moderate, moderate/minor, minor or minor/no effect. No effect may also be recorded as appropriate where the effect is so negligible it is not even noteworthy. Those effects described as major, major/moderate and in some cases moderate, may be regarded as significant effects as required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 **[Ref 6-18]**, however the final conclusions are drawn as a result of professional judgement.

6.3.18. This LVIA takes a precautionary approach that all effects, unless stated otherwise, are assessed as adverse. The criteria used as guidance in assessing the significance of the effects of the development are outlined in **Appendix 6.1 - LVIA Assessment Criteria [~~Document Reference 6.3.6.1~~APP-061]**.

Assessment of Cumulative Impacts

6.3.19. The Cumulative Impacts are considered in **ES Chapter 17 - Cumulative Impacts [~~Document Reference 6.2.17~~APP-054]**.

Legislative and Policy Framework

6.3.20. A full review of all planning policy has been undertaken as part of the Planning Statement. The legislative and policy context is set out in **ES Chapter 5 - Policy and Legislative Context [APP-042~~Document Reference 6.1.5~~]** of the ES. Those policies of relevance to this landscape and visual ES Chapter are set out below.

National Policy Statements

6.3.21. Landscape and visual effects are referenced generally within the National Policy Statement (NPS) Overarching National Policy Statement for Energy (EN-1), January 2024, **[Ref 6-2]** however existing NPS (EN-1) does not specifically mention the landscape and visual issues with regard to solar schemes. The existing NPS (EN-1) references impacts to both landscape and visual receptors and that these are to be considered within an ES. This assessment should consider all development stages of the Scheme and consider mitigation and siting within a Scheme.

6.3.22. The existing National Policy Statement for Renewable Energy Infrastructure (EN-3), updated January 2024 **[Ref 6-3]** considers solar photovoltaic infrastructure.

6.3.23. The Overarching National Policy Statement for EN-1, January 2024 **[Ref 6-2]** refers to careful siting to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate. The importance of LVIA in an ES and consideration of cumulative effects should be considered. Consideration of design and effects at all stages of the Scheme need to be considered. The principles set out in Section 5.10 Landscape and Visual, set the overarching parameters to work to and these will be considered through the design and assessment stages of the Scheme.

6.3.24. The National Policy Statement for Renewable Energy Infrastructure EN-3, January 2024 **[Ref 6-3]** considers solar photovoltaic generation impacts on landscape, visual and residential amenity, setting out the requirements for a landscape and visual assessment within an ES, including visualisations, good design, future maintenance and mitigation.

6.3.25. Consideration during the design stages has been undertaken with regard to public rights of way. It is envisaged that these will remain accessible during all stages of the Scheme. The layout and mitigation have been considered to minimise potential landscape and visual impacts on these routes. Paragraphs set out in the Landscape, visual and residential amenity section of the Statement **[Ref 6-3]** has been adhered to when designing and assessing the Scheme and in relation to principles set out in the Mitigation and Enhancement Section 6.6 of this Chapter.

National Planning Policy Framework

6.3.26. The government revised the National Planning Policy Framework (NPPF) in February 2025. **[Ref 6-5]** This document sets out a general presumption in favour of sustainable development (paragraph 11) and guides the Local Planning Authorities in the production of Local Plans and in decision making.

6.3.27. Paragraph 135 of the NPPF **[Ref 6-5]** states:

> **'Planning policies and decisions should ensure that developments:**
>
> **a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;**

b) are visually attractive as a result of goof architecture, layout and appropriate and effective landscaping **c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change…'**
Paragraph 165 of the NPPF [Ref 6-5] states: **'To help increase the use and supply of renewable and low carbon energy and heat, plans should:** **a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts)…'**

6.3.28. Paragraph 187 of the NPPF **[Ref 6-5]** within section 15, conserving and enhancing the natural environment, states:

'Planning policies and decisions should contribute to and enhance the natural and local environment by: **a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);** **b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland…'**

The Development Plan

Doncaster Council

6.3.29. The Doncaster Local Plan 2015-2035 (adopted September 2021) **[Ref 6-6]** sets out the current planning policy for Doncaster Council. Land Parcels A and D are located wholly within the Doncaster Council administrative area, in addition to

most of Land Parcel C and a small part of Land Parcel E. The relevant areas of the Scheme are located within the Countryside Policy Area, with Policy 25 of the local plan in relation to development of new non-residential development stating the following:

> **'Proposals for non-residential developments will be supported in the Countryside Policy Area provided that:**
>
> **A) the rural location of the enterprise is justifiable to support a prosperous rural economy in accordance with national policy in the NPPF;**
>
> **B) the location of the enterprise would not have a significant adverse effect on neighbouring uses or on highway safety;**
>
> **C) the development is of a size (including floorspace) and scale commensurate with an existing use, or that reasonably required for a new use, and with the rural character of the location; and**
>
> **D) the scale and design of the proposal would not have a significant adverse impact on the landscape.'**

6.3.30. 6. Policy 58 of the Local Plan **[Ref 6-6]** in relation to Low Carbon and Renewable Energy, states:

> **'In all cases, low carbon and renewable energy proposals will be supported where they…**
>
> **…5. have no unacceptable adverse impacts, including cumulative impacts, on the built and natural environment (including landscape character, and historic and nature conservation assets, such as Thorne and Hatfield Moors)…'**

6.3.31. Other policies of relevance to the Scheme from an LVIA perspective include:

- Policy 18: Development Affecting Public Rights of Way;
- Policy 26: Green Infrastructure;
- Policy 32: Woodlands, Trees and Hedgerows;

- Policy 33: Landscape;
- Policy 43: Views, Gateways and Taller Buildings; and
- Policy 48: Landscaping of New Developments.

North Lincolnshire Council

6.3.32. The North Lincolnshire Local Development Framework **[Ref 6-7]** sets out the current planning policy for North Lincolnshire Council, with the Core Strategy (adopted June 2011) setting out the long-term vision for the Council's Area and the Housing and Employment Land Allocations Development Plan Document (adopted March 2016) setting out future housing and employment allocations. Land Parcels B and F are located wholly within the North Lincolnshire Council administrative area, in addition to most of Land Parcel E and a small part of Land Parcel C.

6.3.33. A number of saved policies from the North Lincolnshire Local Plan (adopted May 2003) **[Ref 6-13]** were retained in September 2007, which remain relevant planning policy in addition to those set out in North Lincolnshire Local Development Framework **[Ref 6-7]**. Saved policy LC7 of the local plan in relation to landscape protection states:

> **'Where development is permitted within rural settlements or within the open countryside, special attention will be given to the protection of the scenic quality and distinctive local character of the landscape. Development which does not respect the character of the local landscape will not be permitted.'**

6.3.34. The south eastern extents of the Scheme lie partly within an Area of Special Historic Landscape Interest, with saved policy LC14 of the North Lincolnshire Local Plan **[Ref 6-13]** stating:

> **'The Isle of Axholme is designated as an area of Special Historic Landscape Interest.**
>
> **Within this area, development will not be permitted which would destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features…**

> **…A high standard of design and siting in new development will be required reflecting the traditional character of buildings in the area and the character of the historic landscape, and using materials sympathetic to the locality.**
>
> **Schemes to improve, restore or manage the historic landscape will be sought in connection with, and commensurate with the scale of, any new development affecting the area of Special Historic Landscape Interest.'**

6.3.35. North Lincolnshire Council adopted the Planning for Renewable Energy Development Supplementary Planning Document (SPD) in November 2011 **[Ref 6-14]**. Policy 2 of the SPD in relation to landscape, states:

> **'Developers should consider the landscape impacts of their proposal for renewable energy development. Consideration should be given at the earliest stage in the design process to the character and quality of the landscape, the extent of the physical change involved, and the ability of the landscape to accommodate the change.**
>
> **Proposals in areas of high landscape value or which affect their setting will be rigorously assessed in relation to their impacts on these important landscapes. If adverse impacts are identified these should be avoided or mitigated. Should this prove impossible the proposal will be refused.**
>
> **A Landscape and Visual Impact Assessment (LVIA), which must be agreed with the council, should be prepared and submitted alongside any planning application. Developers should also consult the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary.'**

6.3.36. Policy 3 of the SPD in relation to visual effects, states:

> **'The impact on visual amenity is a key consideration for developers in preparing schemes for renewable energy development. The size and appearance of the development should be taken into account from the earliest stage in the design process.**

> **A Landscape and Visual Impact Assessment (LVIA), which must be agreed with the council, should be prepared and submitted alongside any planning application. Developers should consult the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary.**
>
> **Where unacceptable negative impacts on visual amenity are identified, developers should ensure that they are satisfactorily addressed. If this cannot be done, the development will be refused.'**

6.3.37. North Lincolnshire Council adopted the Planning for Solar Photovoltaic (PV) Development SPD in January 2016 **[Ref 6-15]**. Policy D of the SPD in relation to landscape and visual impact, states:

> **'Developers must consider the landscape impacts of their proposal for solar PV arrays at the earliest stage in the design process. They should examine the character and quality of the landscape, the extent of the physical change involved, and the ability of the landscape to accommodate the change.**
>
> **All proposals will be rigorously assessed in relation to their impacts on the areas' landscapes. Proposals should be sensitively located in order to minimise impacts landscape and visual amenity as well as surrounding communities. If adverse impacts are identified, these should be avoided or mitigated. Should this prove impossible the proposal will be refused.**
>
> **A Landscape and Visual Impact Assessment (LVIA), which must be agreed with the council, should be prepared and submitted alongside any planning application. Developers should also consult the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary, alongside relevant landscape and conservation policies in the adopted Core Strategy DPD (June 2011) and the adopted North Lincolnshire Local Plan (Saved Policies) (May 2003).'**

Thorne & Moorends Neighbourhood Development Plan

6.3.38. North-western parts of the Order Limits, including all of Land Parcel A and most of Land Parcel C, are located within the boundaries of the draft Thorne and Moorends

Neighbourhood Development Plan, **[Ref 6-8]** although, despite undergoing consultation in 2016, is not yet adopted. Policy RE1 of the neighbourhood plan in relation to Solar Power Energy Schemes states:

> **In all cases, large scale ground-mounted solar photovoltaic farms will be supported where they:**
>
> **Avoid the best and most versatile agricultural land and allow for continued agricultural use wherever possible;**
>
> **Preserve the inherent openness of designated countryside areas and do not conflict with the purposes for which such areas have been designated;**
>
> **Avoid undulating landscapes where the scope for effective mitigation measures may be reduced;**
>
> **Have no significant adverse impacts on built or natural heritage assets, including on any views important to the setting of such assets;**
>
> **Do not create or aggravate local amenity problems;**
>
> **Are not visually detrimental by reason of siting, materials or design, particularly in respect of the effects of glint and glare on neighbouring uses, and including as a result of security measures such as lighting and fencing;**
>
> **Are subject to landscape and visual mitigation measures, such as screening with native hedges, with the aim of completing negating any adverse visual influence.**

Limitations to this assessment

6.3.39. Access during site visits was restricted to publicly accessible locations and within the land controlled by the Applicant. In general, no access was possible to private properties, which were assessed from the nearest available publicly accessible vantage point unless we had been invited to the properties as part of the consultation process or preparation of the **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**. Therefore, some

assumptions have been made regarding views from private properties. These assumptions have been based on professional experience and interpretation of available desktop data as well as land use and vegetation present at the time of the site visits. The Residential Visual Amenity Assessment considers all residential properties within 500m of the Scheme using a sequential approach and is included at **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**.

6.3.40. The photomontage visualisations were produced in accordance with Landscape Institutes Visual Representation of Development Proposals Technical Guidance Note **[Ref 6-16]**. However, there are inherent limitations to any photomontage visualisations included as part of Landscape and Visual Impact Assessments, which are well known and understood, some of which are set out in the guidance **[Ref 6-16]**. However, whilst they form a useful guide to assist with the LVIA process, none of the assessments set out in this report are reliant on any visual material and instead are based on professional judgement of the landscape architect undertaking this assessment.

6.3.41. The assessed development is based on the Scheme's drawings that accompany the ES and is assessed on the assumption that the Scheme is delivered in line with the design parameters, as set in **Design Approach Document [~~Document Reference 5.6~~APP-032]**.

6.3.42. The Environmental Statement assumes that construction of the Scheme is built out over up to, a 54 month-period (2028- 2032) in either a single phased approach (development of Land Parcels completed one after another with the potential for breaks between development of Land Parcels) or through multiple phases (development of Land Parcels concurrently). For the multiple phase construction option, no more than two land parcels (within Land Parcels A-E) would be built out at the same time. The LVIA assumes that the multiple phase construction option represents a worst case scenario from a landscape and visual perspective. The current connection date for the Scheme, within the NESO Connection Agreement is 2029. As with all electricity generation projects, this date is under review by NESO as part of the ongoing connections reform process.

6.3.43. If the NESO Connection Agreement remains with the connection date of 2029, it would be possible to operate a phased start to operational generation. This phased approach would connect each Land Parcel to the RWE on-site 400kV substation

when construction of that Land Parcel was completed. In this operational scenario there would be partial Scheme operation from 2029-2032 (3 years). From 2032 onwards the full Scheme would be generating at full operational capacity. The full Scheme would operate for 40 years until 2072. If the NESO Grid Connection date varies, which is not within the Applicants direct control, the timeframe where there could be partial operation of the Scheme could reduce or fail to materialise. In this situation the full operational Scheme would operate for 40 years from its new grid connection date. In either connection scenario there will be full operational generation for 40 years, which would be the worst-case scenario operational time period for the Scheme. The LVIA assesses Year 1 and Year 15 from the start of the fully operational Scheme.

6.3.44. Following 40 years of a fully operational Scheme, it is proposed that the Scheme will be decommissioned. This decommissioning with take approximately 24 months and will be in a phased approach.

6.3.45. The final construction programme will depend on the detailed layout, design and potential environmental constraints on the timing of construction activities. An indicative overview of the final construction programme will be set out in the Construction Environmental Management Plan(s) for information.

Study Area

6.3.46. This assessment of the likely significant effects of the Scheme on the landscape and visual resource has taken account of all the attributes of the local landscape and helped in defining the Study Area. This was informed by a review of published documents including landscape character assessments and initial field surveys (April and May 2023).

6.3.47. Following preliminary desktop research and field work, the Study Area for the LVIA (used to understand the wider context of the Scheme's location) was taken to be 3km from the outer extents of the Order Limits. Any views of the Scheme beyond this distance would be negligible and unlikely to give rise to any effects greater than minor.

6.4. Baseline Conditions

Scheme Description and Context

6.4.1. The Scheme broadly lies between the settlements of Thorne and Crowle, occupying a series of separate parcels of land within a relatively flat agricultural landscape predominantly in arable use for the cultivation of cereal crops with some areas of modified grassland and short rotation coppice. Many of the field boundaries are subdivided into rectilinear parcels by long linear drainage ditches, some with partial or sporadic hedgerows. The Scheme's Land Parcels are dissected by several major roads and routes, including the M180 motorway, the A18, the South Humberside Main Line railway route and the Stainforth & Keadby Canal.

6.4.2. Numerous other minor roads cross the landscape connecting scattered residential properties and farmsteads, many of which lie adjacent or in proximity to the Scheme. Tween Bridge Wind Farm lies in the northern-western part of the Scheme within Land Parcel A, however, all turbines are not located within the Order Limits. Overhead power lines and lattice pylons run across the northern part of the Scheme which creates other vertical elements within the landscape. There are also wooden pole lines and masts within the Scheme.

6.4.3. Bar the two areas of significant woodland to the north and south of the Scheme associated with former peat extraction at Hatfield Moors and Thorn Moors, the landscape contains relatively limited areas of vegetation, largely limited to field boundaries in the form of hedgerows, many of which are often incomplete and gappy. There are occasional scattered trees or groups of trees and some small woodland copses.

6.4.4. Public Rights of Way (PRoW) located within or close to the Scheme are shown on **ES Figure 3.1 Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**. PRoW FP19 (Thorne) lies in the central northern part of the Scheme within Land Parcel A. PRoW FP15 (Thorne) lies just beyond the most north-western boundary of Land Parcel A. A further permissive path links the end of PRoW FP15 with Thorne Moors/Open Access Land. Within Land Parcel B, a Byway Open to All Traffic (BOAT) crosses the Order Limits, following the Crook o'Moor Road in a north-east to south-west orientation. In the north-eastern part of the Scheme PRoW Bridleway 17 lies beyond the Order Limits of Land Parcel B, forming a continuation of the north-east/south-west BOAT, to the north-east of Land Parcel B. PRoW Bridleway 18 runs from the BOAT south-eastwards into the western side of Crowle. Parts of PRoW Footpaths 21 and 25 are located close to south-eastern parts of Land Parcel E with part of PRoW Footpath 21 following the River Torne. The Isle Greenway passes through limited parts of Land Parcels A and C and

adjacent or close to Land Parcels A, B and C. The Peatlands Way Long Distance Walk passes close to parts of the Scheme including Land Parcels B and E. The towpath along the Stainforth & Keadby Canal is also publicly accessible, which passes through part of Land Parcel A and close to Land Parcels A, B and C. **ES Figure 3.1 Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]** also illustrates the PRoW in the wider 3km Study Area.

Baseline Survey Information

Overview

6.4.5. This section provides a description of the landscape features within the Order Limits and their context within the surrounding Study Area. The landscape context of the Scheme and immediate surrounding area are shown in **ES Figure 6.1 Site Context [~~Document Reference 6.4.6.1~~APP-145]**.

Landform and Topography

6.4.6. Landform within the Order Limits is predominantly flat, low-lying and open in nature. The Order Limits is traversed by a network of watercourses and drainage ditches of varying scales and depths. Ditches rather than hedges frequently define the local field patten and the field boundaries.

6.4.7. The Stainforth and Keadby Canal corridor passes through part of Land Parcel A and is located close to Land Parcels A, B and C, providing opportunities for recreation for walkers, cyclists and boat users.

6.4.8. The landscape is visually contained in part by distance of view and low elevation across the area of the Order Limits. There is limited visibility to the north of Order Limits due to large scale woodland and vegetation which borders the northern boundaries of the Order Limits.

6.4.9. The topography of the wider Study Area is generally low lying and displays similar characteristics to that found within the Order Limits. There are a number of drainage ditches and waterbodies located throughout the Study Areas as well as the wetland areas of the Humberhead Peatlands National Nature Reserve, located to the north and south of the Order Limits.

Land use, Buildings and Infrastructure

6.4.10. The land within the Order Limits is predominantly used for arable farming, which creates a varied, low level patchwork appearance within the landscape. The land is generally made up of large-scale agricultural fields often separated by drainage ditches of varying scales and depths. Some of the drainage ditches contain reed beds and associated generally sporadic field boundary vegetation.

6.4.11. Occasional hedgerows and woodlands define field boundaries or surround local farmsteads. In the northern part the Order Limits, at Parcel A, (see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]**) there is woodland which separates the Scheme and the Humberhead Peatlands National Nature Reserve at Thorne Moors. There are also occasional isolated trees along field boundaries throughout the Order Limits.

6.4.12. Tween Bridge Wind Farm and an overhead powerline and lattice pylons are located within the northern part of the Order Limits, in Land Parcel A. Both these features create tall vertical structures that contrast with the surrounding low-lying landscape.

6.4.13. The Stainforth and Keadby Canal crosses through part of the Order Limits, at Land Parcel A, with both the northern and southern part of the Order Limits running along the edge of the canal, at Land Parcels A, B and C, see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]**.

6.4.14. The M180 motorway and the A18 cross the landscape in a predominantly north westerly to south easterly direction. The Order Limits run in part alongside these major routes and also a network of minor roads and tracks which provide local access between settlements and to individual properties and farmsteads. These minor roads and tracks are described in further detail in **Section 6.5**.

6.4.15. The South Humberside Main Line Railway line runs through the northern part of the Scheme, often contiguous with the Stainforth and Keadby Canal corridor and in part adjacent to the Order Limits.

6.4.16. Urban development within the Study Area is largely limited to the settlements of Thorne and Crowle, with other residential areas predominantly consisting of isolated properties and farmsteads. There are some areas of industrial development located in proximity to the M180 motorway and the nearby Sandtoft Airfield.

6.4.17. In the northern part of the Study Area, to the north of the Order Limits, at Land Parcel A and to the east of the housing area of Moorends at Thorne is an existing solar farm on part of the former Thorne Colliery.

6.4.18. Within the Study Area there are two national nature reserves, the Humberhead Peatlands National Nature Reserve at Thorne Moors, north of the Order Limits and to the south of the Order Limits, Hatfield Moors National Nature Reserve. Both areas comprise large areas of wetland and wooded areas and in part provide Open Access Land.

Landscape Character

6.4.19. Published Landscape Character Assessments that cover the Order Limits have been reviewed and are detailed below, see also **Figure 6.2 - Landscape Character Areas [~~Document Reference 6.4.6.2~~APP-146]**.

National Landscape Character (NCA)

6.4.20. The Order Limits fall wholly within NCA 39: Humberhead Levels **[Ref 6-9]**. Key characteristics presented in the Landscape Character are description are as follows:

- A low-lying, predominantly flat landscape, with large, regular and geometric arable fields without hedges but divided by ditches and dykes, many of which form important habitats and key corridors for species movement;
- Much of the land is at or below mean high-water mark and maintained by drainage, with fertile soils giving rise to one of the most productive areas for root crops and cereals;
- Variations in underlying deposits create differences within the overall flat farmed landscape, including lowland raised mires and lowland heathland, many of which are of international ecological and historical importance;
- Sandy deposits give rise to lowland heath, which in places supports remnant birch and oak woodlands, with some conifer plantations;
- Heavier soils around Fishlake and Sykehouse result in a smaller scale pastoral landscape, with small, thickly hedged fields, ditches and ponds, and a network of small lanes;

- Important historic landscapes include the Isle of Axholme, with evidence of mediaeval open fields, the warps (land enriched by regular silting) near Goole and cables (long thin strip fields) around Thorne;
- Widespread evidence of drainage history, in particular the extensive drainage from the 17th century, revealed through canalised rivers, dykes, old river courses, canals, bridges and pumping stations;
- Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent;
- Floodplains, washlands and traditionally grazed alluvial flood meadows (or ings) associated with the major rivers and canals that cross the Levels give rise to important wetland habitats, supporting large numbers of wetland birds and wildfowl, especially over winter;
- The waterlogged soils hold internationally important archaeological and palaeo-archaeological deposits; and
- Despite settlements, motorways and main roads, there is still a sense of remoteness to be experienced on the Levels, in particular on Thorne and Hatfield Moors and along the Lower Derwent Valley.

6.4.21. Whilst this national scale assessment is useful in providing a broad contextual overview of landscape character, it is not intended to be applicable at a site-specific level and therefore it would be unlikely if the landscape within which the Scheme sits displayed all the above characteristics. However, the Scheme is situated in a low lying, predominantly flat landscape with fields divided by ditches and dykes. Tall vertical structures of the wind turbines are also prominent features within the Order Limits. These elements are typical of the landscape character and context in which the Scheme is located.

Local Landscape Character (LCA)

The Doncaster Landscape Character Assessment

6.4.22. The Landscape Character & Capacity Assessment of Doncaster Borough (March 2007) **[Ref 6-10]** defines landscape character within the administrative boundary of Doncaster Council at a local scale.

6.4.23. The western part of the Scheme and the Order Limits, which includes Land Parcels A, C, D, see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]** lies within the Peat Moorlands Landscape Character Type (LCT), which have then been further subdivided into landscape character areas (LCA). The western part of Scheme and the Order Limits, including Land Parcels A, C and D also fall within LCA G2 – Thorne and Hatfield Peat Moorlands landscape character area. LCT and LCA locations are shown in **ES Figure 6.2 - Landscape Character Areas [~~Document Reference 6.4.6.2~~APP-146]**.

6.4.24. The key characteristics of LCA G2 of relevance to the proposals are set out below:

- Large scale, open flat and low-lying;
- Areas of dark peat exposed on Thorne and Hatfield Moors where there has been former peat extraction along with regenerating heathland;
- Empty and remote feeling landscape on Moors;
- Limited access with no roads and few public footpaths on the Moors;
- Areas beyond the Moors are mainly arable farming with turf grown as a crop in some fields and occasional pasture;
- Large geometric fields in a regular grid pattern bound by straight ditches and occasional hedges and mature trees;
- Scattered farmsteads surrounded by large sheds and shelterbelt trees;
- Single built up area in the north west of the LCA at Thorne and Moorends; and
- Intrusive motorways, straight roads and a railway line on elevated embankments and a canal cut across the landscape beyond the Moors.

6.4.25. Within the Landscape Character & Capacity Assessment of Doncaster Borough **[Ref 6-10]**, it states overall that LCA G2 Thorne and Hatfield Peat Moorlands is rated as high-quality landscape. The report describes the Thorne and Hartfield Moors has having a sense of remoteness and tranquillity although the surrounding LCA is disturbed in the vicinity of the major transport corridors. Overall, this LCA is considered to be of high value, however it is noted that this value is linked particularly to the nature conservation sites to the north and south of the Order

Limits and the Area of Special Landscape Value to the north west of Thorne and the M18 with which there is no intervisibility with the Scheme. The section of the character area noted as being disturbed by major transport corridors is most reflective of the site area. The document states the landscape strategy for LCA G2 is to conserve.

6.4.26. Western parts of the Scheme lie in proximity to other LCTs, as shown on **ES Figure 6.2 - Landscape Character Areas [~~Document Reference 6.4.6.2~~APP-146]**, which include LCT H- Sandland Heaths and Farmland Landscape Character Type, which is further subdivided into LCA H2 – Blaxton to Stainforth Sandland Heaths and Farmland. LCA H2 lies to the south-west of the Scheme and Order Limits, close to Land Parcel D. is LCT E – River Carrlands Landscape Character Type lies to the west of the Scheme and the Order Limits, which is further subdivided into LCA E3 – East Don and Dun River Carrlands.

6.4.27. The key characteristics of these LCA's of relevance to the Scheme are set out below:

LCA H2 – Blaxton to Stainforth Sandland Heaths and Farmland

- Flat low lying floodplain with Sherwood sandstone overlain by gravel and sand;
- Medium to large scale intensive arable farmland with rectangular fields and fragmented and missing hedge boundaries and frequently lined with bracken;
- Scattered farms with diversifying and recreational land uses;
- Network of larger drains and smaller wet ditches;
- Numerous sand and gravel extraction sites including restored areas;
- Occasional mixed deciduous and coniferous woodlands;
- Occasional heathland and small remnants of roadside heath land vegetation including both bracken and gorse;
- Small rural settlements scattered in the east and large former mining settlements in the west; and
- Major transport routes including motorway and railway.

6.4.28. Within the Landscape Character & Capacity Assessment of Doncaster Borough, it states overall that LCA H2 Blaxton to Stainforth Sandland Heaths and Farmland is rated as a moderate quality landscape. The landscape is moderately tranquil and remote in areas, with the landscape value considered as moderate. It states the landscape strategy for LCA H2 is to create and strengthen.

LCA E3 – East Don and Dun River Carrlands

- Flat floodplain with sand gravel deposits associated with the Rivers Don and Dun Navigation;
- Medium scale mainly arable geometric fields in an irregular pattern with pockets of pasture;
- Fragmented field boundary hedges, interspersed with mature trees;
- Network of water-filled drains forming geometric field boundaries;
- Infrequent small deciduous woodlands, trees alongside rivers and within golf courses;
- Bordered by several settlements just outside of LCA;
- A diverse range of land uses including recreational uses, landfill, motorway services and strategic employment sites;
- Major transport corridors including the confluence of two motorways, railways, a limited number of minor roads and River Dun Navigation;
- Good access via many public rights of way; and
- Former collieries and spoil heaps.

6.4.29. Within the Landscape Character & Capacity Assessment of Doncaster Borough, it states that LCA E3 East Don and Dun River Carrlands is not highly distinctive due the diverse range of land uses and intrusive elements set out in the key characteristics above. It considers the landscape value to be moderate due the lack of tranquillity and remoteness. The landscape strategy for LCA E3 is to create and strengthen.

The North Lincolnshire Landscape Character Assessment (September 1999)

6.4.30. The North Lincolnshire Landscape Character Assessment (September 1999) **[Ref 6-11]** defines landscape character within the administrative boundary of North Lincolnshire Council at a local scale. Whilst noting the age of the Landscape Character Assessment it was found that the characteristics are still generally accurate and relevant to this assessment.

6.4.31. The eastern portion of the Scheme and the Order Limits, including Land Parcels B and E are identified as being within the Trent Levels LCA. This character area is then further subdivided into landscape types.

6.4.32. The north-eastern parts of the Scheme and Order Limits, at Land Parcel B are located within the Flat Open Remote Farmland (Crowle Common, Dirtness Levels, Eastoft Carr) landscape character type (LCT). Most of south-eastern parts of the Scheme and Order Limits, at Land Parcel E, see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]** are located within the Flat Drained Treed Farmland (Carrhouse, Eastoft, Sandoft, Westwoodside) LCT. In the most south-eastern part of the Scheme Order Limits, part of Land Parcel E is located within the Flat Wooded Farmland (Mosswood Grange).

6.4.33. The key characteristics of these LCT's of relevance to the proposals are set out below:

Flat Open Remote Farmland (Crowle Common, Dirtness Levels, Eastoft Carr) (LCT FORF)

- An area of mostly large arable fields, offering expansive views across a low-lying level landscape with tree and hedge cover almost completely absent over much of the landscape;
- The woodland of Crowle Waste or Moors turbary landscape to the west and the settlement of Crowle in the south east offer some enclosure to views in these directions;
- The landscape has a distinct feeling of remoteness. Only in the peripheral areas of Crowle does the landscape begin to become more enclosed and intimate;
- Areas of the medieval strip farming system, forming part of the Moorland Allotments (known as the Crowle Ribbons) can be seen in areas surrounding Crowle and Crowle Common. This farming system in which areas of former peat extraction were converted to strip farming is associated with the edge of

raised mires (in this case Crowle Waste or Moors) and results in a characteristic landscape;

- Elsewhere the landscape has been subject to early and recent enclosure, but has suffered of hedgerow removal, mainly due to the intensification of agricultural practice with the result that fields lack boundary definition;
- In the south of the local landscape type tree cover is limited to small fragmented copses with associated unmanaged hedgerows and intermittent tree cover;
- Characteristic well-maintained drainage ditches follow the line of roads and form intricate networks throughout the fields, but do not have a strong visual presence;
- There are very few roads crossing the area, adding to the remote character, only a few tracks cross the open fields offering limited access;
- A water treatment works and large prefabricated agro-industrial barns are found in the areas surrounding Crowle. Some tree planting (often pine) has been used to screen these structures, however they still combine with the backdrop of the predominantly modern settlement to create visually intrusive features; and
- Telegraph poles and farmsteads with associated tree planting, add height to the low-lying landscape in which horizontal elements tend to dominate.

6.4.34. In Part 2 of the North Lincolnshire Landscape Character Assessment & Guidelines, the document notes that new hedgerow planting should look to reinstate historic field boundaries, in areas where hedgerow removal is still in evidence.

Flat Drained Treed Farmland (Carrhouse, Eastoft, Sandoft, Westwoodside) (LCT FDTF)

- Level, open and expansive arable landscape, largely the product of recent enclosure;
- Views are generally open with localised enclosure around settlement and farmstead areas. The gently rising land in the east gives a sense of distant enclosure;

- Large regular field structure with little hedgerow planting but relatively frequent boundary and field trees and woodland copses. Small pockets of early enclosed land and turbary landscape;
- Occasional small woodland blocks, predominantly of deciduous species. The wooded area of Hatfield Moor to the west of the area lends a strong influence locally;
- Distinctive long straight roads, slightly elevated, with drainage ditches running parallel, often on both sides of the road;
- Field boundaries generally indistinct or defined by ditches, occasionally more visibly defined by unmanaged gapped hedgerows, field boundary trees and raised berms associated with drainage dikes;
- A limited number of farmsteads are scattered throughout the area, often combined with large agro-industrial buildings of a prefabricated design;
- Some aggregate extraction sites, often well screened by tree and shrub cover; and
- A small area of heathland is present at the southern end of the area. In this area there is a distinct change in tree species with silver birch becoming dominant.

6.4.35. In Part 2 of the North Lincolnshire Landscape Character Assessment & Guidelines, the document notes that enhancement and conservation of existing landscape features such as hedgerows, small areas of woodland cover, field drainage ditches could be undertaken without damaging the loosely open character. The document notes that hedgerow planting is not a dominant structural element of this landscape, however where present should be protected and in many cases strengthened.

Flat Wooded Farmland (Mosswood Grange) (LCT FWF)

- Enclosed farmland area dominated by small, linear pockets of predominantly deciduous woodland;
- Medium sized arable fields with little hedgerow planting; where occurring hedges have a tendency to be tightly clipped and patchy, or overgrown and unmanaged with intermittent tree cover;

- Tree lined avenues are a distinctive feature of the area, flanking roads, major drainage channels and former railway corridors;
- Areas of parkland at Hirst Priory and Temple Bellwood lend a strong influence to this local landscape type. In such areas tree cover includes a wider variety of species; and
- Pine and birch planting on motorway embankments to the south of the area is inconsistent with the landscape character.

6.4.36. In Part 2 of the North Lincolnshire Landscape Character Assessment & Guidelines, the document notes enhancement of existing structure of farmland through the replacement of lost hedgerow planting and the management and reinforcement of existing tree and hedgerow cover.

6.4.37. A very small part of the Order Limits is located within the Flat Drained Farmland (Althorpe, Amcotts, East and West Butterwick, Owston Ferry) LCT, with some visibility of the Scheme within the LCT, as shown on **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]**. The key characteristics of this LCT are set out below:

Flat Drained Farmland (Althorpe, Amcotts, East and West Butterwick, Owston Ferry) (LCT FDF)

- Expansive, open and level, low-lying farmland. Raised levees flank the River Trent. Intensively farmed arable crops dominate most of the area.
- Very few boundary hedgerows, where hedgerows occur, they have a tendency to be tightly clipped and fragmented. Frequent dikes and drain, dividing fields.
- Pockets of strip farming survive on the Trent levees to the west of the river, characteristically open as these areas have never been hedged.
- Tree cover is very limited with small enclosures and shelterbelts surrounding farmsteads and settlements. Occasional field trees have a large impact, breaking the expansive views across the landscape.
- Away from the banks of the River Trent, settlements are mostly well treed; from a distance it is the tree cover that is that marks the presence of settlements within the open landscape, rather than the buildings themselves

- A small number of large farmsteads puncture the open views across the heart of the floodplain.
- The area is bisected by the M180 offering distant enclosure with its raised embankments.
- Transmission lines are a dominant feature of the floodplains, particularly where several runs converge on the Power Station at Keadby. Areas of industrial and wharfeside development lend an influence to the landscape.

6.4.38. In Part 2 of the North Lincolnshire Landscape Character Assessment & Guidelines, the document notes enhancement of remaining landscape structure.

6.4.39. There are a number of other landscape character types and areas that fall within the 3km Study Area but these have not been included within this assessment as **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** does not extend to these character areas and types and therefore will not form part of this assessment.

Landscape Character of the Order Limits

6.4.40. The Scheme is located within a landscape that is characterised by open, generally low-lying fields that are often bound by drainage ditches and vary in size from collections of small strip fields through to larger consolidated areas, the shapes of which reference the pattern of earlier groups of rectangular fields. Much of the land is characterised by arable farmland. In addition, there are woodlands and woodland blocks of varying sizes within the Study Area which assist in the containment of visibility particularly to the north and south of the Scheme and Order Limits. There are scattered trees and the occasional hedgerows which are often gappy and incomplete. The Humberhead Peatlands National Nature Reserves to the north and south of the Scheme provide ecological habitats for birds and animals and public access for recreation. Both areas are bound by woodland and include water bodies.

6.4.41. There is the prominence of tall vertical features within the landscape of the Scheme which include wind turbines associated with the Tween Bridge Wind Farm. The turbines are located within the north-western part of the Order Limits, within Land Parcel A and exert a visual influence across much of the remainder of the

Scheme. In addition, a significant network of overhead power lines, are present with their associated lattice pylons and other more local power lines, which cross parts of Land Parcels A and B.

6.4.42. The transport corridors of the M180 and A18 dissect the Scheme and run on a generally west to east axis. There are also a network of A and B minor roads which run through or close to the Order Limits. The Stainforth and Keadby Canal cuts through the northern part of the Order Limits, within Land Parcel A. The canal towpath provides opportunity for recreational users as well as the channel for boat users. South Humberside Main Line Railway line is situated north of the Stainforth and Keadby Canal and also runs on a west to east orientation dissecting through the Scheme.

Landscape Designations

6.4.43. The landscape of the Order Limits is not covered by any designation at a national, regional or local level that recognises it as having specific landscape importance.

6.4.44. An Area of Historic Landscape Interest, (The Isle of Axholme) is located to the south-west and is in part within the extent of the Order Limits (part of Land Parcel E). (Refer to **ES Chapter 8 Cultural Heritage and Archaeology [~~Document Reference 6.2.8~~APP-045]** of the ES for more detail on The Isle of Axholme Area of Historic Landscape Interest).

Registered Common Land

6.4.45. An area of Registered Common Land, identified as Thorne Moors or Thorne Waste, lies directly adjacent to the northern boundary of Land Parcel A and partly within a limited area of the Order Limits. Another small area of Registered Common Land is located to the south-east of the Order Limits, close to Land Parcel E, identified as Low Closes Turbary. An area of Registered Common Land is also located to the south of Land Parcel D, within the area identified as Hatfield Moors. For locations of Registered Common Land, see **ES Figure 3.1 - Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**.

Listed Buildings, Scheduled Monuments, Conservation Areas and other Historical Features

6.4.46. There are no Listed Buildings or Scheduled Monuments within the Order Limits. There are a number of Listed Buildings and Scheduled Monuments within 3km of

the Scheme boundary, as shown on **ES Figure 3.1 - Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**.

6.4.47. There are no Registered Parks and Gardens within 3km of the Order Limits. Thorne Memorial Park is a park of Local Historical Interest which lies to the west of the Scheme in Thorne, approximately 1.4km of the Order Limits.

6.4.48. Thorne Conservation Area covers the historic core of the town and includes fourteen listed buildings and the scheduled Peel Hill Motte and Bailey. Crowle Conservation Area covers the historic core of the settlement and includes fourteen listed buildings as shown on **ES Figure 3.1 - Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**. Heritage assets and effects upon them are discussed in the **ES Chapter 8 Cultural Heritage and Archaeology [~~Document Reference 6.2.8~~APP-045]** of the ES.

Baseline Visual Receptors

Extent of Visibility

6.4.49. In general, the Scheme lies within generally low-lying land which is largely open in nature. Woodland to the north of the Order Limits, at Land Parcel A, limits visibility from locations within the landscape to the north. Furthermore, the settlements of Thorne, to the west and Crowle, to the east limit the extent to which the development can be seen beyond these settlements.

6.4.50. A Screened Zone of Theoretical Visibility (ZTV) plan **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** has been produced which illustrates the theoretical extent of where the Scheme could be visible from, which incorporates the screening effect from vegetation and buildings. Indicative woodland and building heights are modelled at 15m and 8m respectively.

6.4.51. The screened ZTV is a tool to help illustrate locations where views of the proposed scheme may be possible, to guide the focus of the baseline studies on those locations where views are most likely to be available. Following desktop research and site visits, it is evident that the core area of actual visibility of the Scheme extends approximately 1km from the extents of the Order Limits.

General views and screening elements

6.4.52. To the northern edge of the Order Limits, at Land Parcel A the Scheme is largely screened by woodland which forms part of the Humberhead Peatlands National Nature Reserve on Thorne Moors. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that there is potential for more open views to the north-east of the Scheme between this nature reserve and the built form of Crowle where there is limited large scale vegetation to provide screening or little built development.

6.4.53. To the east of the Scheme the built form and associated vegetation of the settlement of Crowle limits views beyond to the east. There is a section of potential open visibility in the eastern section between Ealand and the Lincolnshire Golf Course to the south, where the Stainforth to Keadby Canal dissects through, as illustrated on **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]**.

6.4.54. There would be open views from the Stainforth and Keadby Canal at various points, where there are open sections due to limited vegetation along the canal corridor. However, even small scale local reedy vegetation within adjacent ditches limits local views. There are sections where the canal runs alongside the Order Limits or is within the Order Limits, at Land Parcels A, B, and C. The Scoping Opinion suggested that further consideration of the Canal and users of the Canal should be undertaken. Therefore, additional viewpoints along the canal have been added and a detailed linear study prepared to inform potential effects on these receptors using this route, see **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]**.

6.4.55. To the south of the Scheme, the woodland planting of Humberhead Peatlands National Nature Reserve on Hatfield Moors limits visibility beyond this area to the south. However, the **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates to the south-east between this National Nature Reserve and the settlement of Sandtoft there is potential for visibility towards the Scheme, due to limited substantial woodland screening or built development. However, it has been noted during fieldwork that there are intervening layers of hedgerows and trees which would limit the extent the Scheme is visible within the wider Study Area.

6.4.56. To the south-west of the Scheme, **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates between the built form of Hatfield Woodhouse and Humberhead Peatlands National Nature Reserve, at Hatfields Moor there is limited substantial woodland or built from to provide screening to limit the potential extent of the visibility of the Scheme. There are however, intervening hedgerows and tree planting within the landscape which limits the extent to which the Scheme would be visible.

6.4.57. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that to the west of the Scheme the extent of the visibility is broadly contained by the settlements of Thorne, Hatfield Woodhouse and other built development. The M18 Motorway bunding and associated highway vegetation also limits visibility westwards. Large industrial buildings along the M18 Motorway also provide some containment. There is intervening hedgerow and tree vegetation within the Study Area beyond the Order Limits which assists in limiting the extent to which the Scheme would be visible in the wider landscape.

6.4.58. The most available potential views are from features and routes within the Order Limits which provide public access into the extent of the Order Limits, including the Stainforth to Keadby Canal, PROWs and a BOAT. There are further PRoW and a permissive route that have potential from which to gain visibility of the Scheme. There are a number of transport corridors, including that of the M180 and the A18, that dissect across the Study Area that also have potential visibility towards the Scheme. There are a number of local roads within the Order Limits and within the Study Area that have potential visibility of the Scheme. The South Humberside Main Line Railway line is situated north of the Stainforth and Keadby Canal and runs in a west to east direction through the Order Limits. There will be varying degrees of potential visibility which will be further assessed in this Chapter.

6.4.59. There are a number of individual or small groups of residential properties that are situated within or close to the Scheme with those closest shown on **ES Figure 6.5 – Residential Properties [~~Document Reference 6.4.6.5~~APP-149]**. The settlement of Thorne lies approximately 260m to the west and Crowle, approximately 630m to the east of the of the Scheme. There are likely to be varying degrees of views from these individual and groups of properties and the extent in which the Scheme

is visible, these are considered further in **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**.

6.4.60. Much of the existing vegetation within and around the Order Limits consists of hedgerows, individual trees and woodland blocks which have formed part of the landscape fabric for a substantial amount of time and would most likely continue to remain well into the future. The removal of existing woodland and other associated vegetation is unlikely as it does not form a part of an area of commercial forestry. The hedgerows and remnant hedgerows generally form field boundaries as long-term elements of the landscape and are unlikely to be removed. In fact, it was noted during the fieldwork that many hedgerows within this landscape are being actively restored and supplemented with new planting. It is therefore considered that the existing vegetation is most likely to remain and can contribute long term as screening elements within and out of the Order Limits.

Visual Receptors

6.4.61. As outlined above, a number of potential visual receptors exist within the wider landscape. Those that formed the initial basis of field work study were identified through analysis of **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** and desk-based study in advance of the site visits.

6.4.62. The following thirty-three viewpoint locations are considered to provide representative views towards and in some cases from within the Order Limits from the surrounding landscape, as illustrated on **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** and presented in Viewpoint Photographs in **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.4.63. The Viewpoint Assessment at **ES Appendix 6.5 - Viewpoint Assessment [~~Document Reference 6.3.6.5~~APP-069]** includes the detailed description of the viewpoints, their baseline views and sensitivity of associated visual receptors.

6.4.64. Seven of the viewpoints have also been used as the basis for the production photomontage visualisations, presented in **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**. These viewpoints were selected as it was considered that they represent an appropriate

selection of the most relevant locations to illustrate the Scheme from different directions.

6.4.65. The viewpoint locations where photomontages are included in this Chapter are set out below:

- Viewpoint 1: View from Public Right of Way (Thorne No.15), looking south-east and south across the Scheme;
- Viewpoint 3: View from Public Right of Way (Thorne No.19), looking north-east and south-east across the Scheme;
- Viewpoint 5: View from Stainforth and Keadby Canal towpath, looking in all directions across the Scheme;
- Viewpoint 15: View from Crow Tree Bank Bridge over M180, looking north-west and south-west across the Scheme;
- Viewpoint 21: View from Moor Road/Peatlands Way, looking south-east and south-west across the Scheme;
- Viewpoint 23: View from Idle Bank on bridge over M180, looking north-west and north-east across the Scheme; and
- Viewpoint 26: View from Public Right of Way (No.21), looking south-west and north-west across the Scheme.

6.4.66. The photomontages show the scale and massing of the Scheme in the landscape context from key locations in the surrounding locality and provide a useful tool to aid the judgements made in the LVIA process. **Table 6-4** lists the viewpoints and photomontage locations, which is set out below.

Table 6-4: Viewpoints and Photomontage Locations

Viewpoint Number	Viewpoint Name	Photomontage Undertaken
1	Public right of way (Thorne No. 15)	Yes

2	Public right of way (Thorne No. 15)	No
3	Public right of way (Thorne No. 19)	Yes
4	Public right of way (Thorne No. 19)	No
5	Stainforth and Keadby Canal towpath	Yes
6	Stainforth and Keadby Canal towpath	No
7	Clay Bank Road	No
8	High Levels Bank (A18) at Double Bridges Road	No
9	Tudworth Road (A18)	No
10	Sandtoft Road	No
11	Bull Moor Road / Public right of way (Hatfield No. 39)	No
12	Stainforth Moor Road	No
13	High Levels Bank (A18) adjacent to Tithe Farm	No
14	Crow Tree Bank	No
15	Crow Tree Bank on bridge over M180	Yes
16	High Levels Bank (A18) looking north	No
17	High Levels Bank (A18) looking south	No
18	Low Levels Bank	No
19	Jaque's Bank near Groves Cottage	No

20	Crook o'Moor Road (BOAT)	No
21	Moor Road / Peatlands Way	Yes
22	Bridleway No.18 nr. Crowle	No
23	Idle Bank on bridge over M180	Yes
24	Minor Road adjacent to North Engine Drain looking south-east	No
25	Minor Road adjacent to North Engine Drain looking south-west	No
26	Public right of way No. 21	Yes
27	Stainforth and Keadby Canal Footpath	No
28	Stainforth and Keadby Canal Footpath towards Clay Bank Farm	No
29	Stainforth and Keadby Canal Footpath	No
30	Stainforth and Keadby Canal Footpath	No
31	Stainforth and Keadby Canal Towpath, south of Orchard Farm	No
32	Moor Road and junction of PROW 18 (Crowle)	No
33	Public right of way No.18 (Crowle)	No

Residential Receptors

6.4.67. In terms of local settlements, the Scheme is located between the Market Towns of Thorne and Crowle. Thorne is located to the west of the Scheme; being approximately 260m at its nearest point. Crowle lies to the east of the Scheme, at

approximately 630m at its closest point. Moorends, forming a part of the north of Thorne is located to the north-west of the Scheme at a distance of approximately 220m. The hamlet of Sandtoft lies to the south of the Scheme at approximately 678m.

6.4.68. Hatfield Woodhouse is a small village situated approximately 1km to the south-west of the Scheme, beyond which lies the larger Hatfield town, also to the south-west of the Scheme at a distance of approximately 1.6km.

6.4.69. Within the 3km wider Study Area from the Order Limits there are a number of small clusters of properties and well as individual properties located throughout. **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]** has been undertaken that considers individual properties within 500m of the Scheme. **ES Figure 6.5 - Residential Properties [~~Document Reference 6.4.6.5~~APP-149]** illustrates the properties that fall within up to 500m of the Scheme.

Users of publicly accessible bridleways and footpaths

6.4.70. Footpath provision is relatively limited in the Study Area beyond the following routes, several of which have very limited connection with the wider network. PRoW and other routes within the Study Area are shown on **ES Figure 3.1 – Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**.

6.4.71. The Peatlands Way, a 71km long circular route, passes close to the Order Limits in a number of locations.

6.4.72. Within the Order Limits, FP19 (Thorne) lies to the east of Thorne situated within in the north-western part of the Scheme, within Land Parcel A and forms an out and back route from the west resulting in a dead end within the Tween Bridge Wind Farm site. In the north-eastern part of the Scheme, at Land Parcel B, BOAT 21 (Crowle) is also located within the Order Limits.

6.4.73. FP15 (Thorne) runs just north of the boundary of the most north-western part of the Order Limits at Land Parcel A. This route runs within a corridor furnished by intermittent vegetation. The footpath terminates to the east where a permissive path provides a route to Thorne Moors/Open Access Land. The path has been provided by Natural England over land in their ownership, providing a route to the moors. FP12 (Thorne) lies to the west of the Order Limits and connects Moor Road

to the settlement of Thorne. FP21, adjacent to Folly Drain and FP22, Common Lane (Track) run close to the eastern boundary of the Order Limits most south-eastern Land Parcel E, and in part north of the M180. Footpaths 17 and 18 run to the east of the most north-eastern part of the Order Limits. Footpath 20, is located to the east of the Order Limits, to the north of the A18 between Godnow Bridge on the Stainforth and Keadby Canal to the north and Poplars and Smaque Farm to the south.

6.4.74. A number of PRoW run in proximity to the most south-western part of the Order Limits, these include (Hatfield), FP40 (Hatfield) and FP41 (Hatfield).

6.4.75. Within the wider 3km Study Area there are a number of public rights of way to the west of the Order Limits, concentrated around the settlements of Thorne and Hatfield and also to the east of the Order Limits to the east of Crowle and around the settlement of Belton. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that a large majority of these footpaths would not have visibility of the Scheme.

6.4.76. The Isle Greenway (Thorne-Crowle-Ealand-Keadby-Scunthorpe), (see E**S Figure 3.1 – Environmental Designations Plan [~~Document Reference 6.4.3.1~~APP-149]**) is a greenway walking route that connects Thorne in the western part of the Study Area, to Scunthorpe to the east (which is out of the Study Area). The Isle Greenway runs along the southern edge of the Stainforth and Keadby Canal towpath in the eastern part of the Study Area. The Isle Greenway as it approaches the central part of the Study Area, diverts southwards away from the Stainforth and Keadby Canal running down Green Bank, a minor road and then heading north-west following Clay Bank Road. The route then crosses over the canal to the south of Thorne and meanders through Thorne and re-joins the canal to the west of the town. The Isle Greenway runs directly to the northern edge of part of Land Parcel C.

6.4.77. The Stainforth and Keadby Canal passes to the south of Crowle and Thorne, with the towpath being publicly accessible. A small section of the Stainforth and Keadby Canal is included with the Order Limits. Sections of the canal lies close to the Order Limits, resulting in elements of the Scheme being situated both north and south of the canal.

Users of the transport network

6.4.78. The Scheme is dissected by two major roads which include the M180 motorway and the A18, both routes run in an east west direction. The A18 forms the northern boundary of Land Parcels D and E, see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]** in the southern section of the Scheme. The M180 is located further south and in part forms the southern extent of Land Parcel E and runs through Land Parcel D.

6.4.79. The A161 lies to the east of the Study Area, providing a connection between Crowle to the north and Belton to the south, (crossing the Stainforth and Keadby Canal, the A18 and the M180, and lies adjacent to Land Parcel E at its closest point. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that there would be limited or no view of the Scheme from this road. The intervening vegetation alongside the road and in the surrounding landscape restricts visibility towards the Scheme and therefore, the road is not considered further in this assessment.

6.4.80. There are a number of minor roads within Order Limits and within the 3km Study Area. Moor Edges Road is located to the north-west of the Order Limits, close to Land Parcel A. High Bridge Road runs to the west of Land Parcel A, the southern edge of Land Parcel A and northern edge of the Stainforth and Keadby Canal. Green Bank Road runs south from High Bridge Road. Green Bank Road passes through part of the Order Limits through Land Parcel D before it connects with the A18 further south within the Study Area.

6.4.81. Moor Edges Road runs within the western part of the Study Area, directly on the western boundary of the Order Limits of Land Parcel A. It runs in a north to south direction connecting with the A18 in the south. Clay Bank Road runs along the southern edge of part of Land Parcel C, to the south of the Stainforth and Keadby Canal. Clay Bank Road runs in a north westerly to a south easterly direction connecting Moor Road and Green Bank.

6.4.82. Green Bank and Clay Bank Road provide the route of the Isle Greenway which connects Thorne with Scunthorpe. More detail is provided above.

6.4.83. Crow Tree Bank connects the A18 with Low Levels Bank and Moor Lane in the southern part of the Scheme. Crow Tree Bank crosses over the M180 via an overbridge, providing greater visibility over the surrounding landscape.

6.4.84. Sandtoft Road and Low Levels Bank run to the most southern edge of the Scheme. Low Levels Bank runs through the Order Limits of Land Parcel D, both roads run in a predominantly west to east direction.

6.4.85. In the eastern part of the Study Area is High Levels Bank which connects the A18 to the settlement of Sandtoft. The road then continues as Idle Bank. Both roads run in a predominantly southerly direction. High Levels Bank runs through part of the Order Limits, Land Parcel E. An unnamed road, to the east of High Levels Bank runs to the north of the Order Limits and to the south and parallel to the A18.

6.4.86. Jaques Bank is situated within the mid-section of the Scheme, which connects the A18 to Medge Hall. The road runs in a north easterly to south westerly direction. At its nearest point the road lies adjacent to Land Parcel C. Chapel Road connects with Jaque's Bank. Chapel Road runs in a south easterly to a north westerly direction, running parallel with the Stainforth and Keadby Canal. At the closest point, Chapel Road lies within 130m of Land Parcel B.

6.4.87. Godnow Road runs to the eastern extent of the Scheme, connecting Chapel Road with the A161 in Crowle. At the closest point the road runs adjacent to the Order Limits, Land Parcel B.

6.4.88. Moor Road and Dole Road run to the north-eastern part of the Scheme and connect to Crowle. The roads run in a north westerly to a south easterly direction. At the closest point, the roads run 500m from the edge of Land Parcel B.

6.4.89. Rainsbutt Road runs in a north to south direction, connecting Moor Road with Northmoor Road. At the closest point the road is located 720m Land Parcel B.

6.4.90. Northmoor Road runs in west to east direction connecting Rainsbutt Road and Brewery Road. At its closest point the road is located 1.3km to the northeast Land Parcel B.

6.4.91. Brewery Road runs in a north to south direction connecting with Northmoor Road and Crowle. At its closest point the road is located 1.5km to the east of the Order Limits, Land Parcel B.

6.4.92. An unnamed road, north of Northmoor Road provides a loop that connects with Brewery Road. At its closest point, the road runs 1.9km from the Order Limits, Land Parcel B. It has been noted during the site work that some of these local routes

also form local recreation routes, most likely in the absence generally of a strong local footpath network.

Railways

6.4.93. South Humberside Main Line Railway line is situated north of the Stainforth and Keadby Canal and runs in a west to east direction dissecting through the Order Limits. There is a station to the west within Thorne and to the east to the south of Crowle. The route is generally contiguous with the canal over much of its length with some small deviations, with a small section of the line lying within the Order Limits. The line forms much the southern boundary of Land Parcels A and B and also lies close to Land Parcel C. The route carries both freight and passenger trains.

Users of Recreational Sites

6.4.94. The former Lincolnshire Golf Course lies to the eastern boundary of Land Parcel E, see **ES Figure 1.2 Land Parcel Plan [~~Document Reference 6.4.1.2~~APP-130]**. The golf course forms part of Hirst Priory and is enclosed on all boundaries with mature blocks of trees, in particular along the north-eastern edge of Land Parcel E and the western edge of the golf course, which provides dense screening. There are some gaps within the boundary trees along this edge which may allow filtered views towards the Scheme, particularly during the winter months.

6.4.95. 7 Lakes Country Park, to the west of Ealand would not have visibility of the Scheme as illustrated by the **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]**. Extensive woodland vegetation surrounds the country park and provides strong screening and will therefore not be assessed further.

6.4.96. Humberhead Peatlands National Nature Reserve forms two parts, Thorne Waste or Moors lies to the north of Land Parcels A and B. Humberhead Peatlands National Nature Reserve on Hatfield Moors lies to the south of the Order Limits, Land Parcel D. Both these nature reserves contain Open Access Land and provide areas of recreation for walkers and people interested in the ecology of these nature reserves. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates that there is limited visibility from either of the nature reserves due to extensive woodland vegetation and therefore both areas are not considered further in this assessment. **ES Chapter 7 - Ecology and Nature Conservation [~~Document~~**

~~Reference 6.2.7~~AS-012] assesses the ecological constraints of these nature reserves.

6.4.97. A Historical Garden of Local Interest lies to the west of the Order Limits at Thorne Memorial Park which lies approximately 1.4km to the west of the Order Limits. Due to built form on the edge of the settlement of Thorne, there is no visibility of the Scheme and therefore it is not considered further in this Chapter.

Users of the Canal

6.4.98. Boat users travel along the Stainforth and Keadby Canal which cuts through Land Parcel A, running in a west to east direction. The route of the canal passes close to parts of Land Parcels A, B, and C, lying to both the north and south of some sections between Thorne and Crowle. Consideration of boat users and boat moorings are made in **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [**APP-071~~Document Reference 6.4.6.7~~**]**. It is also acknowledged that the canal corridor and towpath is also used by bike riders, horse riders and walkers in addition to boaters.

6.5. Assessment of Likely Significant Landscape and Visual Effects

6.5.1. The section describes the likely effects at the construction, operation (including maintenance) at both Year 1 and Year 15 of the fully operational Scheme, and decommissioning stages of the Scheme on the landscape and visual amenity.

6.5.2. The assessment of effects firstly assesses the sensitivity of the landscape resource on the visual receptor. An assessment is then made as to the magnitude of change, in terms of its scale and size. The assessment of sensitivity of the receptor and magnitude of change area then combined with the duration of effect and the reversibility of the effect, to assist in determining the relative level of effect on each landscape feature, character area or visual amenity.

6.5.3. The assessment is based on the assumption that the mitigation measures set out in **Mitigation and Enhancement Section 6.6** are embedded mitigation which would be implemented as part of the Scheme. It is therefore not considered appropriate or necessary to identify the effects which would occur without this mitigation in place (this is a bespoke approach for this Chapter).

6.5.4. **Table 6-6**, included at the end of this Chapter, outlines the potential landscape and visual effects identified.

Description of the Development

6.5.5. The **Design Approach Document [~~Document Reference 5.6~~APP-032]** is a detailed description of the elements of the Scheme. This is summarised with the key parameters as follows:

- Ground-mounted solar PV generating station and associated mounting structures,
- On-site supporting equipment including inverters, transformers and switchgear,
- A BESS including batteries and associated enclosures, monitoring systems, air conditioning, electrical cable and fire safety infrastructure. The BESS is indicatively split into four separate 100MW compounds. Each 100MW compound would be located next to and connected to one of the seven on-site 132kV Substations,
- Seven on-site 132kV Substation compounds, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment,
- Low voltage and 33kV interconnecting cabling to connect and transmit electricity from the solar PV modules and BESS to one of the seven on-site 132kV Substations,
- RWE on-site 400kV Substation,
- Underground 132kV interconnecting cabling to connect the seven on-site 132kV Substations to RWE on-site 400kV Substation,
- Underground 400kV interconnecting cabling from the RWE on-site 400kV substation to edge of Order Limits
- Associated infrastructure including access tracks, parking, CCTV, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, culverts, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development,

- Horizontal Directional Drilling for selected cable works where trenching or culvert is not possible or appropriate, including the canal, railway and the M180,
- Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays,
- Environmental mitigation and enhancement measures, including landscaping, habitat management and biodiversity enhancement,
- Permissive pathways and bird viewing gallery, and
- Temporary development during the construction phase of the Scheme including construction compounds, parking, temporary diversions of Public Rights of Way, and temporary access roadways to facilitate access to all parts of the Order Limits.

Construction

Effects on Landscape Features within the Proposed Scheme

6.5.6. In terms of ground cover, the construction of the Scheme would result in notable short term impacts from the movement of vehicles and plant, the construction of temporary compounds and the construction of the built elements of the Scheme itself. However, with regard to the trees, woodland and hedgerows within the Order Limits, all vegetation is to be retained bar limited removals of sections of hedgerows to facilitate access tracks, with existing gaps utilised for access where possible. Further details on the impacts to trees and hedgerows at the Order Limits is set out in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**.

6.5.7. The remainder of the ground cover is currently largely arable or pastoral farmland, which is a less sensitive landscape feature, with a medium sensitivity. Effects on this farmland during the construction period are likely to be of a high magnitude and major-moderate **(significant)** nature, but as discussed subsequently in relation to the operational phase effects, these effects would reduce once

construction is completed and species rich neutral is introduced across the majority of the Order Limits.

6.5.8. With regard to the topography of the land within the Order Limits, which is generally very level, whilst some very local ground levelling may be required, in particular in relation to all of the Substations and BESS, the overall level character of the local topography during construction would **not be significantly** affected. Similarly, the wetland features/ditches are predicted to be **not significantly** affected during construction.

6.5.9. Effects on ground cover, topography, drainage and water features and vegetation are considered in more detail below.

Vegetation and Ground Cover

Woodland, Tree Groups and Individual Trees

6.5.10. There are nine areas of existing woodland within the Order Limits, further details of which are set out in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]** and also within the **ES Chapter 7 - Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**. In all cases this woodland is to be retained as part of the Scheme, with an appropriate standoff to respect root protection areas also applied during the construction period to ensure no magnitude of change and no potential for any effects to these high sensitivity landscape features.

6.5.11. There are a number of existing hedgerows identified within the Order Limits, further details of which are set out in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]** and also within the **ES Chapter 7 Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**. In order to facilitate the network of access tracks included with the Scheme, including the necessary visibility splays and swept path requirements for delivery vehicles, along with the required cabling, some hedgerow removal will be required. Wherever possible, the access tracks and cable routes have sought to use existing field access points and gaps in the hedgerows to minimise the need for hedgerow removal. A combined length of 49 linear meters of hedgerow removal is required across the Order Limits as a whole during the construction phase. This would represent a very low magnitude of change on these high sensitivity features, resulting in a moderate minor effect **(not significant)**.

6.5.12. There are several individual trees and over 200 tree groups identified within the Order Limits, further details of which are set out in **Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]** and also within the **ES Chapter 7 Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**. Wherever possible, the Scheme has been designed to avoid the removal of trees to accommodate the proposal. A total of 4 trees all grade C2 (considered of low value in arboricultural terms) require removal across the Order Limits as a whole during the construction phase. This would represent a very low magnitude of change on these high sensitivity features, resulting in no more than moderate minor effect **(not significant)**.

6.5.13. The remainder of the ground cover is currently arable or pastoral farmland, which is a less sensitive landscape feature, with a medium sensitivity. Effects on this farmland during the construction period would be of a high magnitude and major/moderate effect, **(significant)**, reflecting the disturbance to the ground required for the construction of the development and the movement of vehicles, plant and construction workers over the Order Limits.

Topography

6.5.14. The Scheme would be constructed almost entirely at grade with the existing topography of the landscape, with only very minor earthworks associated with the construction of the Substations. As set out in the **Design Approach Document [~~Document Reference 5.6~~APP-032]**, Work No.5 states that all of the BESS will be raised to mitigate against fluvial flood risk, however, this would have limited and localised effects upon the topography of the Order Limits. The magnitude of change to the topography of the Order Limits on the whole would be very low, which combined with the medium sensitivity would result in no greater than minor effects **(not significant)** on the area covered by all of the Substations and BESS, with no greater than minor effects **(not significant)** on the remainder of the site.

Drainage and Water Features

6.5.15. The drainage and water features within the Order Limits are discussed in detail in **Chapter 10 - Water Resources [APP-047~~Document Reference 6.2.10~~]**. Standoffs from these features have been built into the Scheme. As such, during the construction period there would be no substantive impacts to the drainage and water features as elements of the landscape. There would be no greater than a very low magnitude of change to these medium sensitivity landscape features

from the minor works in the vicinity of the drainage features such as installing crossing points and negligible effects **(not significant)**.

Effects on Landscape Character

National Landscape Character Area NCA 39 Humberhead Levels

6.5.16. At construction stage the proposal would cause some limited, very local adverse effects, but such effects would be **not significant** given the geographical extent of NCA 39, its characteristics and the temporary nature of the construction phase. A more detailed assessment is provided below.

6.5.17. The extent of NCA 39 is such that it covers a large swathe of the landscape within which energy infrastructure, in the form of wind farm and their associated electricity distribution infrastructure, has been an established characteristic for many years. The Order Limits does not lie within an especially sensitive part of the NCA, nor is the NCA itself an especially sensitive one in the context of the wider landscape of England as a whole.

6.5.18. The construction works associated with the Scheme would give rise to short term effects which would extend across only a very limited proportion of the NCA as a whole. In this context the magnitude of change to the landscape character of NCA 39 as a whole during the construction phase, would be no greater than low, which in combination with a medium sensitivity would result in moderate to minor effects, which are **(non-significant)**.

The Landscape Character & Capacity Assessment of Doncaster Borough

Peat Moorlands Landscape Character Type and Thorne and Hatfield Peat Moorlands Landscape Character Area (LCA G2)

6.5.19. The construction phase would cause notable, but temporary and highly localised effects upon the 'Thorne and Hatfield Peat Moorlands Landscape Character Area' (LCA G2) of the Peat Moorlands Landscape Character Type due to the extent and size of the Scheme.

6.5.20. LCA G2 covers the western section of the Order Limits. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of LCA G2 which lies within the Study Area and therefore

also provides an indication of the extent of visibility of the construction works. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3- Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.21. The construction phase impacts would only occur across a relatively limited proportion of LCA G2, with the vast majority of the LCA having no visibility of the construction phase works as shown by **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]**. There would be a low to medium magnitude of change during the construction period, which in combination with a medium sensitivity would result in a moderate effect **(not significant)**.

North Lincolnshire Landscape Character Assessment

Flat Open Remote Farmland Landscape Character Type

6.5.22. The construction phase would cause notable, but temporary and highly localised effects upon the Flat Open Remote Farmland Landscape Character Type due to the extent and size of the Scheme.

6.5.23. The Flat Open Remote Farmland LCT covers the northern extent of the central section of the Site. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which lies within the Study Area and therefore also provides an indication of the extent of visibility of the construction works. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.24. The construction phase impacts would only occur across a relatively limited proportion of the Flat Open Remote Farmland LCT, with the vast majority of the LCT having no visibility of the construction phase works as shown on **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and**

Viewpoints [~~Document Reference 6.4.6.6~~APP-150]. There would be a low to medium magnitude of change during the construction period, which in combination with a medium sensitivity would result in a moderate effect **(not significant)**.

Flat Wooded Farmland Landscape Character Type

6.5.25. The construction phase would cause notable, but temporary and highly localised effects upon the Flat Wooded Farmland Landscape Character Type due to the extent and size of the Scheme.

6.5.26. The Flat Wooded Farmland LCT covers part of the eastern section of the Site. Only a very small part of the Scheme would be located within the LCT. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which lies within the Study Area and therefore also provides an indication of the extent of visibility of the construction works. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.27. The construction phase impacts would only occur across a relatively limited proportion of the Flat Wooded Farmland LCT, with the vast majority of the LCT having no visibility of the construction phase works. There would be a low to medium magnitude of change during the construction period, which in combination with a medium sensitivity would result in a moderate effect **(not significant)**.

Flat Drained Treed Farmland Landscape Character Type

6.5.28. The construction phase would cause notable, but temporary and highly localised effects upon the Flat Drained Treed Farmland LCT due to the extent and size of the Scheme.

6.5.29. The Flat Drained Treed Farmland LCT covers the southern extent of the central section of the Site. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which

lies within the Study Area and therefore also provides an indication of the extent of visibility of the construction works. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.30. The construction phase impacts would only occur across a relatively limited proportion of the Flat Drained Treed Farmland LCT, with the vast majority of the LCT having no visibility of the construction phase works. There would be a low to medium magnitude of change during the construction period, which in combination with a medium sensitivity would result in a moderate effect **(not significant)**.

Flat Drained Farmland Landscape Character Type

6.5.31. The construction phase would cause very limited, indirect and temporary effects upon the Flat Drained Farmland LCT due to the distance from the Scheme, with no elements of the Scheme within the LCT.

6.5.32. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility covering the LCT within the Study Area and therefore also provides an indication of the extent of visibility of the construction works. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**. Northern parts of the LCT are also located within Crowle, with buildings limiting visibility towards the Scheme.

6.5.33. The construction phase impacts would only occur across a very limited part of the Flat Drained Farmland LCT, with most of the LCT having no visibility of the construction phase works. There would be a very low magnitude of change during the construction period, which in combination with a medium sensitivity would result in a minor effect **(not significant)**.

Effects on Landscape Character of the Development Site and Immediate Surroundings

6.5.34. The construction phase would cause notable, but temporary effects upon the Landscape Character of the Order Limits, due to the extent and size of the Scheme, albeit that the majority of the important landscape features at the Order Limits, such as the areas of woodland, trees and the majority of the hedgerow network, would not be directly impacted by the construction works.

6.5.35. The character of the Order Limits is currently that of an agricultural landscape, influenced in part by the nearby energy generation infrastructure at the Tween Bridge Wind farm and the associated overhead electricity lines and pylons, as well as the nearby M180 and A18 roads. During the construction phase the character of the Order Limits itself would be changed to that of a construction site for a solar farm. The sensitivity of the Order Limits is medium and the magnitude of change would be high during construction. This would result in a localised moderate to major effect **(significant)** on the landscape character of the Order Limits itself.

Effects on Visual Receptors

6.5.36. During the construction phase there would be potential for some additional visual effects on visual receptors (residential properties, public rights of way, canal users and road users) beyond those identified for the operational phase below. These would be primarily associated with the movement of plant and workforce within the Order Limits.

6.5.37. The Scheme has provided offsets from visual receptors where necessary, which included areas of new planting to aid in minimising visual effects, albeit any such new planting would not yet have matured during the construction period. It is however acknowledged that as a worst-case scenario, there may be the potential for some short term significant visual effects as a result of the construction of the Scheme upon nearby visual receptors during the construction phase. These effects would however be no greater than those which are set out for Year 1 of the Operational Phase, discussed subsequently.

6.5.38. It is acknowledged that temporary diversion of a sections of PRoWs Thorne 19 and BOAT 21, which traverse the site, may be required during the construction period in order to separate and keep apart members of the public from the construction vehicles and machinery. If a PRoW needs to be closed temporarily during

construction, it is proposed that an alternative path will be provided, with temporary diversions ending following construction of the relevant works. Therefore, levels of effect would be no greater than those set out for Year 1 of the Operational Phase below.

Operation

Effects on Landscape Features

6.5.39. Once construction is completed there would be no further adverse effects on the landscape features of the Order Limits. Indeed, the Scheme provides notable planting of new trees, woodland and hedgerows, as well as species rich neutral grassland across the majority of the Order Limits, as described further in **Section 6.6 Mitigation and Enhancement**.

6.5.40. The magnitude of change of these effects would be low at Year 1, resulting in some beneficial effects, which would increase by Year 15 as the planting develops. Effects upon specific landscape features are as considered in further detail below.

Vegetation and Ground Cover

6.5.41. There are nine areas of existing woodland within the Order Limits, further details of which are set out in **Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]** and also within the **ES Chapter 7 Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**. In all cases the woodland areas are to be retained as part of the Scheme, with an appropriate offset also provided from any built elements, including the fences and access tracks to be used during the operational period, to ensure no potential for any adverse effects to these high sensitivity landscape features. In addition, **ES Figure 6.4 – Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** includes for several small areas of new woodland planting or woodland strips, which equate to over 4 hectares. This would represent a low and beneficial magnitude of change upon woodland at Year 1, resulting in a minor beneficial effect **(not significant)**, rising to a beneficial medium magnitude of change at Year 15, resulting in a moderate beneficial effect **(not significant)**.

6.5.42. There are a number of existing hedgerows at the Order Limits, further details of which are set out in **Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**. No additional hedgerow removal would

be required during the operational phase, beyond that already assessed during the construction phase, with an appropriate offset also applied from any built elements, including the fences and access tracks to be used during the operational period, to ensure no potential for any effects to these high sensitivity landscape features. In addition, **ES Figure 6.4 – Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** includes for numerous additional new and enhanced hedgerows across the Order Limits, alongside allowing the existing hedgerow network to grow out to increase its biodiversity potential and to assist with screening of the built elements of the Scheme. Further details on the benefits to biodiversity of allowing the hedgerows to grow out are set out in the **ES Chapter 7 - Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**. In total over 65km of new hedgerow is proposed across the Order Limits. When combined with a high sensitivity, this would represent a medium beneficial magnitude of change upon hedgerows at Year 1, resulting in a major/moderate beneficial effect **(significant)**, rising to a high magnitude of positive change at Year 15, resulting in a major beneficial effect **(significant)**.

6.5.43. There are also several individual trees and over 200 tree groups located within the Order Limits, further details of which are set out in **Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070]**. All trees are to be retained as part of the Scheme bar four grade C2 trees, with an appropriate standoff also applied from any built elements, including the fences and access tracks to be used during the operational period, to ensure no potential for any effects to these high sensitivity landscape features. In addition, **ES Figure 6.4 – Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** includes for numerous additional trees across the Order Limits, primarily planted within the hedgerow network. In total over 450 new trees are proposed across the Order Limits. When combined with a high sensitivity, this would represent a low beneficial magnitude of change at Year 1 upon trees, resulting in a minor beneficial effect **(not significant)**, rising to a medium beneficial magnitude of change at Year 15, resulting in a moderate beneficial effect **(not significant)**.

6.5.44. The remainder of the ground cover is currently arable or pastoral farmland, which is a less sensitive landscape feature, with a medium sensitivity. There would be no further negative effects on this farmland during the operational period beyond those already discussed in relation to the construction phase. In addition, **ES Figure 6.4 – Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** provides for the planting of new neutral species rich grassland

across most of the Order Limits, to help maximise its biodiversity potential, with limited areas left as arable land. Further details on the benefits to biodiversity of the proposed grassland are set out in the **ES Chapter 7 - Ecology and Nature Conservation [~~Document Reference 6.2.~~AS-012~~7~~]**. With the combined medium sensitivity, this planting would represent a low beneficial magnitude of change at Year 1, resulting in a minor beneficial effect **(not significant)**, rising to a medium magnitude of positive change at Year 15, resulting in a moderate beneficial effect **(not significant)** to the ground cover of the Order Limits.

Topography

6.5.45. The Scheme would be constructed almost entirely at grade with the existing topography of the landscape, with only very minor earthworks associated with the construction of the development of the RWE on-site 400kV Substation and raising of the BESS to mitigate against fluvial flood risk. There would be **no effects** on the topography of the Order Limits during the operational phase beyond those discussed in relation to the construction phase.

Drainage and Water Features

6.5.46. The drainage and water features at the Order Limits are discussed in detail in **Chapter 10 - Water Resources [~~Document Reference 6.2.10~~APP-047]**. Standoffs from these features have been built into the Scheme. As such, there would continue to be **no effects** to the drainage and water features as elements of the landscape during the operational phase.

Effects on Landscape Character

National Character Area 39 Humberhead Levels

6.5.47. The Scheme would influence the character of the NCA 39 Humberhead Levels to a limited degree. The extent of NCA 39 is such that it covers a large swathe of the landscape within which energy infrastructure, in the form of wind farm and their associated electricity distribution infrastructure, has been an established characteristic for many years. The Order Limits does not lie within an especially sensitive part of the NCA, nor is the NCA itself an especially sensitive one in the context of the wider landscape of England as a whole.

6.5.48. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates the

extent of theoretical visibility within NCA 39 which lies within the Study Area. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of NCA 39, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 – Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**. The Scheme would therefore give rise to effects which would extend across only a very limited proportion of the NCA as a whole, with the much of the impact located in an area immediately adjacent to the existing Tween Bridge Wind Farm, where the local landscape character is influenced to a notable degree by the existing energy development.

6.5.49. In this context the magnitude of change to the landscape character of NCA 39 as a whole, would be no greater than low at both Year 1 and Year 15, resulting in moderate to minor effect **(not significant)**.

The Landscape Character & Capacity Assessment of Doncaster Borough

Peat Moorlands Landscape Character Type and Thorne and Hatfield Peat Moorlands Landscape Character Area (LCA G2)

6.5.50. The operational phase would cause notable, but highly localised effects upon the 'Thorne and Hatfield Peat Moorlands Landscape Character Area' (LCA G2) of the Peat Moorlands Landscape Character Type due to the extent and size of the Scheme. Such effects would be significant at both Year 1 and Year 15 for those parts of the LCA in which the Order Limits is located, as discussed further subsequently, however for the LCAs as a whole the effects would not be significant. More detailed assessment is provided in the paragraphs below.

6.5.51. LCA G2 covers the western section of the Order Limits. **ES Figure 6.3 - Screened Zone of Theoretical Visibility with Viewpoints and Photomontage Locations [~~Document Reference 6.4.6.3~~APP-147]** illustrates the extent of theoretical visibility within that part of LCA G2 which lies within the Study Area. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 – Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**. The majority of the Tween Bridge Wind Farm is located within LCA G2, which, along with its associated electricity distribution infrastructure, has been an established characteristic of

views from that part of the character area in which the Order Limits is located for several years. This in part helps to limit the potential for effects on landscape character to this part of the character area.

6.5.52. However, it is recognised that the Scheme would cover a greater proportion of LCA G2 than it would of NCA 39. In this context, the magnitude of change to the landscape character of LCA G2, would be greater than that to NCA 39. However, the effects would still only occur across a relatively limited proportion of LCA G2, with the vast majority of the LCA having no visibility of the Scheme, as shown on **ES Figure 6.6 – Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]**. When combined with a medium sensitivity, there would be a low to medium magnitude of change at Year 1, resulting in a moderate adverse effect **(not significant)**. By Year 15, the landscape mitigation proposals would have begun to mature and would provide additional benefits to landscape character which would serve to reduce the adverse effects of the introduction of the built infrastructure as well as serving to limit the visibility of the Scheme from across the character area. The magnitude of change would reduce to low, resulting in moderate to minor effect **(not significant)**.

North Lincolnshire Landscape Character Assessment

Flat Open Remote Farmland Landscape Character Type

6.5.53. The operational phase would cause notable, but highly localised effects upon the Flat Open Remote Farmland Landscape Character Type (LCT), due to the extent and size of the Scheme. Such effects would be significant at both Year 1 and Year 15 for those parts of the LCT in which the Order Limits is located, as discussed further subsequently, however for the LCT as a whole the effects would not be significant. More detailed assessment is provided in the paragraphs below.

6.5.54. The Flat Open Remote Farmland LCT covers the northern extent of the central section of the Order Limits. **ES Figure 6.6 – Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which lies within the Study Area. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with reference to the

Viewpoints in **ES Appendix 6.3 – Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**. The easternmost part of the Tween Bridge Wind Farm is located within the LCT, which, along with its associated electricity distribution infrastructure, has been an established characteristic of views from that part of the character type in which the Order Limits is located for several years. This in part helps to limit the potential for effects on landscape character to this part of the character area.

6.5.55. However, it is recognised that the Scheme would cover a greater proportion of the Flat Open Remote Farmland LCT than it would of NCA 39. In this context, the magnitude of change to the landscape character of the Flat Open Remote Farmland LCT, would be greater than that to NCA 39. However, the impacts would still only occur across a relatively limited proportion of the LCT, with the vast majority of the LCT having no visibility of the Scheme. There would be a low to medium magnitude of change at Year 1, and when combined with a medium sensitivity, this would result in a moderate effect **(not significant)**. By Year 15, the landscape mitigation proposals would have begun to mature and would provide additional benefits to landscape character which would serve to reduce the adverse effects of the introduction of the built infrastructure as well as serving to limit the visibility of the Scheme from across the LCT. The magnitude of change would reduce to low, resulting in moderate to minor effect **(non-significant).**

Flat Wooded Farmland Landscape Character Type

6.5.56. The operational phase would cause some highly localised effects upon the Flat Wooded Farmland LCT, due to the extent and size of the Scheme. Such effects would be significant at both Year 1 and Year 15 for those parts of the LCT in which the Order Limits is located, as discussed further subsequently, however for the LCT as a whole the effects would be **not significant**. More detailed assessment is provided in the paragraphs below.

6.5.57. The Flat Wooded Farmland LCT covers part of the eastern section of the Order Limits. Only a very small part of the Scheme would be located within the LCT. **ES Figure 6.6 – Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which lies within the Study Area. It should however be noted that the figure does not take into account any screening by hedgerows, which would, limit the potential for visibility of the Scheme to a far smaller extent of the character area, as is demonstrated with

reference to the Viewpoints in **ES Appendix 6.3 – Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.58. Any effects would only occur across a very limited proportion of the LCT, with the vast majority of the LCT having no visibility of the Scheme. There would be a low magnitude of change at Year 1, which when combined with a medium sensitivity, would result in a moderate to minor effect **(not significant)**. By Year 15, the landscape mitigation proposals would have begun to mature and would provide additional benefits to landscape character which would serve to reduce the adverse effects of the introduction of the built infrastructure as well as serving to limit the visibility of the Scheme from across the character area. The magnitude of change would be very low, resulting in minor effect **(not significant)**.

Flat Drained Treed Farmland Landscape Character Type

6.5.59. The operational phase would cause notable, but highly localised effects upon the Flat Drained Treed Farmland Landscape Character Type (LCT), due to the extent and size of the Scheme. Such effects would be significant at both Year 1 and Year 15 for those parts of the LCT in which the Order Limits is located, as discussed further subsequently, however for the LCT as a whole the effects would not be significant. More detailed assessment is provided in the paragraphs below.

6.5.60. The Flat Drained Treed Farmland Landscape LCT covers the southern extent of the central section of the Order Limits. **ES Figure 6.6 – Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility within that part of the LCT which lies within the Study Area. It should however be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the LCT, as is demonstrated with reference to the Viewpoints in **ES Appendix 6.3 – Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.61. However, it is recognised that the Scheme would cover a greater proportion of the Flat Drained Treed Farmland LCT than it would of NCA 39. In this context, the magnitude of change to the landscape character of the Flat Drained Treed Farmland LCT, would be greater than that to NCA 39. However, the impacts would still only occur across a relatively limited proportion of the LCT, with the vast majority of the LCT having no visibility of the Scheme. There would be a low to

medium magnitude of change at Year 1, which when combined with a medium sensitivity, would result in a moderate effect **(not significant)**. By Year 15, the landscape mitigation proposals would have begun to mature and would provide additional benefits to landscape character which would serve to reduce the adverse effects of the introduction of the built infrastructure as well as serving to limit the visibility of the Scheme from across the character area. The magnitude of change would reduce to low, resulting in moderate to minor effect **(non-significant)**.

Flat Drained Farmland Landscape Character Type

6.5.62. The operational phase would cause some very limited and localised effects upon the Flat Drained Farmland LCT, due to the distance from the Scheme, with no elements of the Scheme within the LCT.

6.5.63. **ES Figure 6.6 - Screened Zone of Theoretical Visibility with Landscape Character Areas and Viewpoints [~~Document Reference 6.4.6.6~~APP-150]** illustrates the extent of theoretical visibility covering the LCT within the Study Area, however, it should be noted that the figure does not take into account any screening by hedgerows, which would in reality serve to limit the potential for visibility of the Scheme to a far smaller extent of the LCT.

6.5.64. There would be a very low magnitude of change at Year 1, which in combination with a medium sensitivity would result in a minor effect **(not significant)**. This effect would continue at Year 15, resulting in no greater than a minor effect **(not significant)**.

Effects on Landscape Character of the Development Order Limits and Immediate Surroundings

6.5.65. The operational phase would cause notable effects upon the Landscape Character of the Order Limits, due to the extent and size of the Scheme, albeit that the majority of the important landscape features at the Order Limits, such as the areas of woodland, trees and the majority of the hedgerow network, would not be directly impacted by the Scheme. Such effects would be significant at Year 1 and Year 15. More detailed assessment is be provided in the paragraphs below.

6.5.66. The character of the Order Limits is currently that of an agricultural landscape, influenced in part by the nearby energy generation infrastructure at the Tween

Bridge Wind Farm and the associated overhead electricity lines and pylons, as well as the nearby M180 and A18 roads. During the operational phase the character of the Order Limits itself would be changed to that of a solar farm. The sensitivity of the Order Limits is medium and the magnitude of change would be High at Year 1, reducing to Medium-High at Year 15, once the landscape proposals have begun to mature. This would result in a localised moderate to major effect **(significant)** on the landscape character of the Order Limits itself at Year 1, reducing to a moderate effect **(significant)** at Year 15.

Effects on Visual Receptors

Residential Receptors - Settlements

6.5.67. The Study Area contains two main settlements, Thorne and Moorends to the west and Crowle to the east. Other small settlements and hamlets are located throughout the Study Area. The two main settlements are considered below. Where individual properties, particularly on the edges of the settlements may be subject to potential significant visual effects, an RVAA has been undertaken to consider those which lie within 500m of the Scheme. Further detail is included at **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**.

Thorne and Moorends

6.5.68. The Scheme is located to both the east and south-east of the town of Thorne and the associated settlement of Moorends. At the outset of the project, it was determined that an appropriate offset would be required within the Scheme from the eastern and south-eastern portions of the Thorne and Moorends. Most of the town lies over 500m from any proposed built infrastructure within the Scheme and no residential properties are located within 100m of any built infrastructure. As such, the potential for views of the solar PV panel areas of the Scheme from most of residential properties within Thorne and Moorends is highly limited.

6.5.69. Viewpoints located close to Thorne and Moorends include viewpoints 1, 3 and 27, viewpoints 1 and 3 are also presented as photomontages see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.70. Mitigation embedded within the design has included offsets from the Scheme and the associated fencing on the western edges of Land Parcels A & C and proposed hedgerow planting and hedgerow trees to screen the fence lines and partially break the views of the panels.

6.5.71. As a result, it is considered that there would be no potential for significant visual effects on most of residents at properties in the town at either Year 1 or Year 15. The sensitivity of the residential properties is high and the magnitude of impact as a worst-case would be low, resulting in moderate **(not significant)** effects.

6.5.72. Each of the properties on the peripheries of Thorne and Moorends which lie within 500m of any built infrastructure within the Scheme are discussed further in **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**.

Crowle

6.5.73. The Scheme is located to both the east and south and west of the town of Crowle. At the outset of the project, it was determined that an appropriate offset would be required within the scheme from the western portions of the town. The whole of the town lies over 500m from any proposed built infrastructure within the Scheme. As such, the potential for views of the solar PV panel areas of the Scheme from the majority of residential properties Crowle is highly limited.

6.5.74. Viewpoints located close to Crowle include viewpoints 21 and 22, viewpoint 21 is also presented as a photomontage see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.75. The Scheme has been designed to include offsets of the Scheme and the associated fencing on the eastern edges of Land Parcel B and proposed hedgerow planting and hedgerow trees to screen the fence lines and partially break the views of the panels.

6.5.76. As a result, it is considered that there would be no potential for significant visual effects on residents at properties in the town at either Year 1 or Year 15. The sensitivity of the residential properties is high and the magnitude of impact as a worst-case would be low, resulting in moderate, **(non-significant)**, effects.

6.5.77. Properties on the outer peripheries of Crowle which lie within 500m of any built infrastructure within the Scheme are discussed further in **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**.

Users of publicly accessible bridleways and footpaths

FP19 (Thorne) (Ref DR/Thorne/19)

6.5.78. FP19 (Thorne), lies to the east of Thorne within the Tween Bridge Wind Farm. The route is approximately 2650m long and follows an east west orientated gravel access track also known as Moor Owners Road into and through the wind farm. The route is generally level and very linear, following the adjacent field boundaries which kink slightly at a mid-point along the track. The route terminates to the east at a set of metal gates. There are currently no permissive routes from the eastern end of the track and whilst the open land of Thorne Moors is located almost immediately to the north-east the route is of an out (from the west) and back nature only.

6.5.79. For users of Public Right of Way, Footpath 19 (Thorne), there would be very close range and open views of the solar pV modules and infrastructure associated with the Scheme, see Viewpoints 3, 4 and Photomontage 3 at **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.80. Views from the footpath would become enclosed by the Scheme's infrastructure which include solar pV modules, fencing and CCTV poles. The distance between the fenced areas would vary widening to provide access to the existing turbines and for additional offsets to accommodate existing drainage ditches. There would also be visibility of the taller elements of the substation and BESS within Land Parcel A, above the intervening solar pV modules and in context of the existing turbines on the skyline.

6.5.81. Users of public rights of way are identified in the methodology as being of high sensitivity. The Scheme has been designed to include offsets of the Scheme and the associated fencing from the route and proposed hedgerow planting and hedgerow trees to screen the fence lines and partially break the views of the panels. The impacts at Year 1 would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence

on overall views, this would result in major **(significant)** effects. At Year 15 the hedgerows will have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Whilst these features would also screen out wider views, apart from those towards existing turbines, the route would be set within a green corridor with hedgerows on both sides. This would reduce the visual effects slightly at year 15 to medium resulting in a major/moderate **(significant)** effect on this route.

Stainforth and Keadby Canal

6.5.82. The Stainforth and Keadby Canal follows a fairly direct course from west to east, running for 14.9 miles from Bramwith Junction, in the west, where it meets the New Junction Canal and the River Don to Keadby Lock where it joins the River Trent. The Canal and Rivers Trust encourages the use of the canal and its associated towpath for leisure cruising, walking and fishing and also recognise the environmental value of the corridor. A corridor study has been undertaken of the route of the canal between Thorne and Crowle and is presented at **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]**.

6.5.83. There is a short, approximately 400m section of the Stainforth and Keadby Canal that is located within the Order Limits at Land Parcel A. Elsewhere, both Land Parcel A and C run adjacent to the canal corridor and then to the north of the railway (located to the north of the canal at Land Parcel B. The towpath is located on the south side of the waterway along the full course of the section between Thorne and Crowle. The waterway also forms part of The Isle of Axholme Greenway (Thorne-Crowle-Ealand-Keadby-Scunthorpe). The Isle of Axholme Greenway joins the canal between Mauds Bridge and Medge Hall before dropping onto Chapel Road and rejoining at Godnow Bridge to continue east.

6.5.84. **ES Appendix 6.7 - Stainforth & Keadby Canal - Thorne to Crowle Corridor Study [~~Document Reference 6.3.6.7~~APP-071]** sets out the existing context and landscape and visual baseline of the canal including the section of the greenway along the waterway. The appendix illustrates the extent of existing vegetation lining the canal route which is generally limited though it is noted the marginal vegetation along the canal also contributes to partially and filtering views from the towpath and waterway. Also noted are key views and landmarks visible along the route.

6.5.85. Viewpoints 5, 6, 27, 28, 29, 30 and 31 and photomontage 5 **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]** represent views from the canal.

6.5.86. The existing experience of walking through the canal corridor is generally tranquil, there is little foot, cycle, equestrian or boat traffic along the route particularly in the locations further away from the settlement. This overall tranquillity is regularly punctuated by both regular passenger and freight trains travelling along the adjacent rail line. Views are generally wide and open over the adjacent level farmland. To the north over Land Parcel A views are animated by the Tween Bridge Wind Farm turbines with wider views framed by the woodland on the edge of Thorne Moors. In the eastern section views to the north over Land Parcel B are generally more limited by intervening woodland in the proximity of Medge Hall. To the south over Land Parcel B, views again are over the intervening farmland.

6.5.87. In the westernmost section of the canal, to the east of Thorne, as represented by Viewpoints 27 and 31, views to the south towards the Scheme are disrupted by intermittent scrub vegetation. Walking eastwards the key elements of the view are of the waterway which appears slightly raised with layered vegetation in the landscape breaking the mid-range views and views of the Tween Bridge Wind Farm turbines becoming apparent. To the west are views of the water tower in Thorne.

6.5.88. Proceeding eastwards, as represented by Viewpoint 28, views towards the Order Limits are available both to the north and the south. To the north views are open over the adjacent fields with mature trees in the landscape collectively forming the mid ground with the Tween Bridge Wind Farm turbines rising above the canopy cover. To the south, vegetation immediately adjacent to the canal has become sparser and views more open to the horizon marked by woodland at Hatfield Moors. These wide-ranging views also include views of traffic moving on the A18 and the M180 beyond.

6.5.89. The section of the canal between Land Parcel A and C is represented by viewpoint 5 which is also a photomontage. To the immediate north the railway line runs adjacent to the canal in this section along which both passenger and freight trains regularly pass. The banks of the canal are furnished with notable stands of brambles in this section. Tween Bridge Wind Farm turbines are a clear component of the view as are the pylons that cross through the Scheme in the mid ground. To

the south intermittent scrubby vegetation is located between the canal and the adjacent ditch around Maud's Bridge restricting views over the arable fields. Where more open views are available, they include the banks of the adjacent ditches and layered view of vegetation in field boundaries.

6.5.90. Viewpoint 6 represents a section of the canal between Land Parcels A and C to the west and Land Parcel B to the north. To the north, views are notably restricted from the towpath by extensive areas of reeds growing on the northern flanks of the canal in this section. This is the case in both the summer and winter views. The railway and associated railway infrastructure lies immediately adjacent to the can and also running parallel at this point are local overhead lines and a row of pylon towers and wires. To the south the views over the fields are open and long broken only by the vegetation lining the A18.

6.5.91. Viewpoint 29 lies immediately to the south of Land Parcel B. To the north the railway continues to run adjacent to the canal. The woodland around Thorne Moors defines the horizon with the easternmost turbines of the Tween Bridge Wind Farm forming part of the view along with the rows of telegraph wires and pylons tracking north-east. Further areas of reeds on the canal banks contain the short-range views. Properties on the edge of Crowle start to become apparent in this view. To the south, vegetation between the towpath and the adjacent Chapel Road increases, limiting views to the south towards Land Parcel E, located beyond screening vegetation to the south of the A18.

6.5.92. Viewpoint 30 is located north of the eastern extents of Land Parcel E vegetation cover is much stronger in this section of the route and largely contains views within the canal corridor where there are gaps these have been recently planted with new establishing hedgerows.

6.5.93. Users of public rights of way are identified in the methodology as being of high sensitivity the canal corridor as a recreational route is also considered to be of high sensitivity. For all parts of the Scheme visible from the canal i.e. Land Parcels A, B and C, the Scheme has been offset and the associated fencing from the route and proposed hedgerow planting and hedgerow trees to screen the fence lines and partially break the views of the solar panel areas. To the south of Land Parcel A, the Scheme is offset and woodland strip planting provides additional mitigation for this most open section of the route. Where views of the Scheme are gained from the canal corridor, mid to long range views over the agricultural fields would be

replaced by solar panel areas, where these views would also include the upper sections of the 132kv substations and the BESS.

6.5.94. For canal users moving through the section of the canal and the Isle of Axholme Greenway between Land Parcel A and Land Parcel C the effects at Year 1 would represent a major change in the view from the route that would be highly prominent, which when combined with a high sensitivity, would have a strong influence on overall views, this would result in major **(significant)** effects. At Year 15 the woodland, hedgerows and associated planting will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar panel areas and the upper sections of the 132kv substations and BESS, closer range views would be of the established hedgerows, trees and woodland planting, this would reduce the visual effects at year 15 to medium, resulting in a major/moderate **(significant)** effect on users of this this section of the route.

6.5.95. For canal users moving through the section of the canal between Land Parcel B and Land Parcel E the effects at Year 1 would be medium. There would be some change in the views to the north along the route where the Scheme would be clearly notable in the view and form an easily identifiable component, which when combined with a high sensitivity, would result in major/moderate **(significant)** effects. At Year 15, the hedgerows and associated planting would have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Whilst the mid range views out over the agricultural landscape to the north west would be replaced by solar pV modules, closer range views would be of the established hedgerows, and trees, this would reduce the visual impact at year 15 to low, which when combined with a high sensitivity, would result in a moderate effect **(not significant)** on users of this section of the route including boat users and those on the towpath.

FP21 BOAT (Crowle) (Ref NI/Crowle/21)

6.5.96. FP21 BOAT (Crowle) passes through Land Parcel B along Crook o'Moor Road. The loose surfaced track connects Dole Road/ Moor Road to the north-west of Crowle to the railway and canal crossing at Medge Hall. Viewpoint 32 is located to the immediate east of Land Parcel B. Viewpoint 21 which is also a photomontage is located beyond the eastern extents of the route. Viewpoint 20 is located on the southern section of the route. **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 -**

Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068].

6.5.97. Whilst the route is passable by motor vehicles, it appears to be mostly used by very local traffic and as a leisure route particularly for cycling. There is very limited vegetation along the track and the surrounding fields are mostly divided by ditches. Views are open along the track over the surrounding fields particularly to the south, to the north and south-west they are partially contained by woodland surrounding Thorne Moors and Medge Hall. Other components of the view include telegraph wires on poles and pylons tracking across the landscape and individual mature trees on the edges of the fields which are generally edged by ditches.

6.5.98. Views from the BOAT would be replaced by solar panel areas. The mitigation proposals include offsets from the adjacent ditches and new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.99. For receptors using the track the effects at Year 1 would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, which when combined with a high sensitivity, would result in major **(significant)** effects. At Year 15 the hedgerows and associated planting would have matured and would be being maintained at 3m. Whilst the mid-range views out over the agricultural landscape would be replaced by solar panel areas closer range views would be of the established hedgerows and trees forming a green corridor, with planting on both sides to the north-east of the route. This would reduce the visual effects at Year 15 to medium, resulting in a major/moderate **(significant)** effect on this route.

FP21 (Ref NI/Bel/21)

6.5.100. PRoW FP21 is located close to Land Parcel E of the Scheme. The route runs from Sandtoft Road to the east of Sandtoft south of the M180 motorway to Little Hurst Cottage on the A161 south of the former Hurst Priory Golf Course. Viewpoint 26, which is also a photomontage is located at a midpoint along the route see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.101. The route follows the line of the River Torne and is located on the bank between the river and the adjacent drain running parallel to the east. The route forms two

parts, to the north and south of the M180 motorway. In the southern section the route passes between agricultural land to the east including market garden areas and Open Access land at Low Closes Turbary. To the west are extensive industrial areas and extensive storage areas associated with the former Sandtoft Airfield. To the north of the motorway the route passes through more agricultural land and just north of the M180 a motorcross track. There is a distinct change of character in the north-eastern section of the route where the path enters an area of woodland associated with the former golf course to the north and woodland lining the river and drain to the south.

6.5.102. Views in the northern part of the route close to Land Parcel E are represented by Viewpoint 26. Views from this section of the route looking north towards the Scheme are generally mid-range views over the fields between the River Torne and the A18. To the north and east long-range views are contained by planting to the south of the A18 and on the western boundary of the former Hurst Priory Golf Club.

6.5.103. Users of public rights of way are identified in the methodology as being of high sensitivity. The Scheme includes a notable offset from the boundary of the Order Limits, the River Torne and the route of the footpath. Views from the path over the agricultural fields would be replaced by solar panel areas. Views would also include the upper sections of the RWE on-site 400kV Substation (Work No.4). The mitigation proposals also include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.104. Views in the southern section of the route towards the Scheme are more limited and partially screened by vegetation along the M180. The most notable effects on users of this route would occur in the open section of the northern part of the route. For receptors using the northern path the impacts at Year 1 would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, this would result in major **(significant)** effects. At Year 15 the hedgerows and associated planting would have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Whilst the mid-range views out over the agricultural landscape would be replaced by solar panel areas closer range views would be of the established hedgerows and trees forming a green edge to the Scheme, this would reduce the visual effects at year 15 to medium, resulting in a major/moderate **(significant)** effect on this route.

Public Right of Way FP15 (Thorne) (Ref: DR/Thorne/15)

6.5.105. PRoW FP15 (Thorne) is located adjacent to the north of the most north-western part of the Order Limits at Land Parcel A. This route runs within a corridor furnished by intermittent vegetation. The footpath terminates to the east where a permissive path provides a continuation of the route to Thorne Moors/Open Access Land. See Viewpoints 1 and 2 and Photomontage 1 at **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**. The route is approximately 1600m long and is accessed from tracks to the rear of houses off Marshland Road between Moorends to the north and Thorne to the south. The route is one of a series of east west tracks that appear to have been previously associated with the peat extraction works on Thorne Moors. The ground is slightly elevated and contains scrubby vegetation along the full length of the route The path is located generally within the southern section of the corridor. Views to the north towards Moorends are generally screened by the relatively dens scrubby vegetation. To the south where breaks in the vegetation occur, as illustrated by Viewpoint 1 views can be gained over the adjacent fields which form part of the Scheme. Views include medium range views over to the Tween Bridge Wind Farm and long-range views to the woodland around Thorne Moors. Dairy Farm and the Coulman Industrial Estate on the edge of Thorne also from component parts of the view. The permissive path to Thorne Moors/Open Access Land turns north and north-west at the eastern end of the route views southwards are limited by the linear vegetation along FP15 (Thorne).

6.5.106. Users of public rights of way are identified in the methodology as being of high sensitivity. Most of the route runs adjacent to the northern edge of the Order Limits of Land Parcel A. The edge of the Scheme has been offset from the edge of the route of the track as part of the mitigation proposals. Views from the track over the adjacent agricultural fields would be replaced by solar panel areas. The mitigation proposals also include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.107. For receptors using the path where breaks in the vegetation occur the impacts at Year 1 would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, this would result in major **(significant)** effects. Effects on the permissive route are expected to be less due to orientation and intervening vegetation, on this route the impacts would be low, there would be some change in the view that is not

prominent but visible to some users of the path in some sections particularly where the route joins FP15 (Thorne) this would result in moderate effects **(not significant)** on users of the permissive route.

6.5.108. At Year 15 the hedgerows and associated planting would have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Whilst the mid-range views out over the agricultural landscape would be replaced by solar panel areas closer range views would be of the established hedgerows and trees forming a parallel green corridor, this would reduce the visual effects at year 15 to medium on users of FP15 (Thorne), resulting in a major/moderate **(significant)** effect on this path and to very low on users of the permissive route, resulting in a moderate/minor **(not significant)** effect on users of this section of the route.

Public Rights of Way Bridleway 17, 18 (Crowle) and a section of the Peatlands Way (Ref: NI/Crow/17 & 18)

6.5.109. Bridleways 17 and 18 (Crowle) and part of the Peatlands Way (long distance footpath) are located to the north-west of Crowle north-east of Land Parcel B (Part of Bridleway 18 is contiguous with the cable route into Crowle within the Order Limits). Viewpoint 21 which is also a photomontage is located on a crossing point of Bridleway 17 and the Peatlands Way which in this location runs along Dole Road and Moor Road between Thorne Moor and Crowle. Viewpoints 22 and 33 are located on bridleway 18 to the west Of Crowle, see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.110. These bridleways and footpath route are located on a combination of access tacks, roads and unsurfaced bridlepaths between the fields. Vegetation is limited and mainly comprises of mature trees located sporadically on the edges of fields. Views from these routes to the north-west of Crowle are over a wide open, level, agricultural landscape. The edge of the settlement of Crowle is largely screened by garden vegetation on the peripheries. The open views over the fields are punctuated by numerous poles and pylons and some notable individual trees. Views to the north-west are more contained by woodland at Thorne Moors. Several agricultural barns and individual properties are located along the routes and views are available of the town allotments and sewage works as well as the wind farms at

Tween Bridge and further to the north beyond Thorne Moors namely Goole Fields Wind Farms.

6.5.111. Users of public rights of way are identified in the methodology as being of high sensitivity. Medium range views from the routes closest to Land Parcel B over the intervening agricultural fields would be replaced by solar panel areas. The mitigation proposals include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.112. For receptors using the westernmost sections of these routes, (which would be the worst case scenario) the impacts on views at Year 1 would be medium, there would be some change in the view from the routes that would be clearly notable and would form an easily identifiable component in the view, this would result in a major/moderate **(significant)** effect on this portion of the routes, (effects would diminish with distance to the east). At Year 15 whilst the hedgerows and associated tree planting would have matured and would be being maintained at 3m. The longer-range views out over the agricultural landscape would still be replaced by solar panel areas albeit with the edges softened by the mature planting therefore visual effects at year 15 would remain at medium, resulting in a major/moderate **(significant)** effect on the western sections of these routes and diminishing further to the east.

Public Right of Way Bridleway 20 (Thorne) (Ref: NI/Crow/20)

6.5.113. PRoW Bridleway 20 is located to the south-west of Crowle and runs between Godnow Bridge which crosses the Staniforth and Keadby canal to the north-east and Smaque Farm adjacent to the A18 to the south-west. En route the path passes through Sand Hall Farm and past Poplar Farm. Land Parcel C of the Scheme is located to the west and Land Parcel E to the south and south-west.

6.5.114. The northern section of the bridleway follows a farm track to Sand Hall Farm and Poplars Farm. The northern section is accessed adjacent to an attractive hexagonal gatehouse and mature tree lined avenue. The mature trees line the drive to Sand Hall Farm, further south, the avenue planting continues with more recently planted trees leading to Sand Hall Farm. The southern section of the route continues on an unsurfaced path adjacent to the intervening fields. Views to the south-east towards Land Parcel E are strongly contained by vegetation along the A18. To the west, views are generally wide and open through the avenue trees with minimal

vegetation punctuating the skyline and forming part of the horizon. The Tween Bridge Wind Farm can be seen in longer views to the north-west.

6.5.115. Users of public rights of way are identified in the methodology as being of high sensitivity. Existing vegetation to the north of Land Parcel E screens out potential views of this portion of the Scheme. Views westwards to Land Parcel C, over the intervening agricultural fields and Poplars Farm are relatively long range and level. Some elements of the view towards the horizon would in part be replaced by solar panel areas. The mitigation proposals include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.116. For receptors using the southern sections of this route, (which would be the worst case scenario) the impacts on views at Year 1 would be low, there would be some change in the view from the route that would not be prominent but would be visible in particular past the intervening farm buildings and generally sparse vegetation this would result in moderate **(not significant)** effect on this portion of the route, (effects would diminish with distance to the north). At Year 15 whilst the hedgerows and associated tree planting would have matured and would be being maintained at 3m. The longer range views out over the agricultural landscape would still be replaced by solar pV modules albeit with the edges softened by the mature planting therefore visual effects at Year 15 would remain at low, resulting in a moderate **(not significant)** effect on the western sections of these routes and diminishing further to the east.

Public Rights of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40& 41)

6.5.117. Footpaths 39, 40 and 41 (Crowle) are located to the south of Sandtoft Road to the east of Hatfield Woodhouse and south-west of Land Parcel D. Viewpoint 10 is located at the northern end of Footpath 40 and Viewpoint 11 at the junction between Footpath 39 and 41, see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.118. These footpath routes are located partly on a gravelled track (Bull Moor Road) and unsurfaced paths between the fields. Bull Moor Road is relatively well furnished with vegetation including mature hedgerows and hedgerow trees these diminish slightly to the east and the southern side of the track. Partial views to the north towards Land Parcel D include views of mature hedgerow trees along the boundaries of the intervening fields. The northern section of Footpath 40 and Footpath 41 are more sparsely furnished with vegetation particularly as they

approach Sandtoft Road. Views from these locations are more open across the agricultural landscape and mainly include layers of trees forming the horizon.

6.5.119. Users of public rights of way are identified in the methodology as being of high sensitivity. Medium and short-range views from the sections of the routes closest to Land Parcel D over Sandtoft Road in the case of Footpath 41 and the intervening fields in the case of Footpath 40 would be replaced by solar panel areas. The mitigation proposals include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.120. For receptors using the northernmost sections of these routes, (which would be the worst-case scenario) the impacts on views at Year 1 would be medium on Footpath 40 and high on Footpath 41, this would result in a major and major/moderate **(significant)** effect respectively on users of the upper section of these (effects would diminish with distance to the south). For users of footpath 39 impacts would be low, this would result in moderate **not (significant)** effect. At Year 15 the hedgerows and associated tree planting would have matured and would be being maintained at 3m. The edges of the scheme would be softened by the mature planting therefore visual impacts at Year 15 would reduce to medium, resulting in a major/moderate **(significant)** effect on the northern section of Footpath 41 only with all remaining effects on Footpaths 41 and 39 being **not significant**.

Users of Transport Network

6.5.121. The following roads are located within or in relative proximity to the Order Limits, users of these routes are likely to be subject to potential significant visual effects. Other routes within the surrounding landscape which are screened by intervening vegetation or built form are not considered further in this part of the assessment.

Key East-West roads

A18 High Levels Bank and [Old A18] High Levels Bank

6.5.122. The A18/ High Levels Bank and the old A18 High Levels Bank run east west through the Study Area. The eastern section of the A18 has been diverted to the immediate north in the past leaving the former line to the immediate south adjacent to Woodcar Drain. The western section of the A18 passes between and through Land Parcels C and D and C and E. The eastern section of the A18 and the former line

adjacent to Woodcar Drain passes to the north of the eastern section of Land Parcel E. The A18 is a fast straight busy road and the former section to the east is now a quiet lane. Viewpoints 8, 13, 16 and 17 located along the A18. Viewpoints 24 and 25 are locate to the south of the A18 on the old line of the road., see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.123. Existing views along the original sections of the A18 to the west are generally partially contained by mature vegetation lining the route to the north or the south. Where sections are open views are gained over the surrounding generally level open farmland. The route is punctuated by various farmsteads, a cafe in a layby and a public house at the junction at crow tree Bank. The eastern section of the route is well furnished with roadside vegetation, particularly to the south where a bank of vegetation between the new and old roads completely screens out views to the south. The old section of High Levels to the south of the eastern section of the A18 is a quiet lane between two deep drains, to the north views are entirely screen out by the linear vegetation to the south of the A18. To the south the views are open and long distance over the adjacent fields.

6.5.124. Users of major roads are identified in the methodology as being of low sensitivity. Some close range views from the A18 over the adjacent agricultural fields would be replaced by solar pV modules and potential views of the RWE on-site 400kV Substation in Land Parcel E and other infrastructure associated with the Scheme. Users of minor roads not used primarily for recreational activities are identified as being of medium sensitivity in the methodology. Views over fields to the south over the majority of this part of the minor road would be replaced at close range with views of solar pV modules, views of the upper sections of the BESS and substations may also be available. The mitigation proposals for both routes include new hedgerows and hedgerow trees planted adjacent to the proposed fence lines.

6.5.125. The sections of the A18 that will gain the greatest visual impacts will be where the road passes adjacent to the northern sections of Land Parcels D and C and E. For receptors passing these sections of the route, (which would be the worst-case scenario) the impacts on views at Year 1 would be high, there would be a major change in the view in this section of the route that would be highly prominent and would form an easily identifiable component in the view. Based on the low sensitivity of receptors using this route this would result in a moderate **(significant)**

effect on this portion of the route. At Year 15 whilst the hedgerows and associated tree planting would have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. The longer-range views out over the agricultural landscape would still be replaced by solar panel areas albeit with the edges softened by the mature planting therefore visual effects at Year 15 would remain at medium, but would result in a moderate **(not significant)** effect on the sections of the route with greatest visibility of the Scheme.

6.5.126. The majority of the former line of the A18/High level banks would gain views over Land Parcel E for the full length of this section of the route. For receptors on the lane the impacts on views at Year 1 would be high, there would be a major change in the view along this route that would be highly prominent and would form an easily identifiable component in the view. Based on the medium sensitivity of receptors using this route this would result in a major/moderate **(significant)** effect on this route. At Year 15 the hedgerows and associated tree planting would have matured and would be being maintained at 3m within the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Whilst the longer range views out over the agricultural landscape would still be replaced by solar panel areas the edges would be softened by the mature planting therefore visual effects at Year 15 would reduce to medium, but result in a moderate **(significant)** effect on this route for users passing through and approaching the Scheme.

M180 Motorway

6.5.127. The M180 motorway runs in an east west direction through the Study Area. There is a short, approximately 300m section of the road that is located within the Order Limits at Land Parcels D and E. Elsewhere Land Parcel D is located to the north and south of the western section of the road between Thorne and Crowle and Land Parcels E and F are located to the north. Viewpoints 9, 15, 23, provide context views of the road and photomontages 15 and 23 provide projected views of the scheme see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.128. Existing views where available are generally wide and open over the adjacent level farmland. Much of the route is furnished with roadside vegetation which partially screens and provided intermittent views. To the north views are available of the

Tween Bridge Wind Farm turbines with wider views framed by the woodland on the edge of Thorne Moors. To the south the extensive car storage areas at the former Sandtoft airfield are a notable landmark. Wider views to the south are framed by the woodland at Hatfield Moors.

6.5.129. Users of major roads are identified in the methodology as being of low sensitivity. For all parts of the Scheme visible from the road i.e. Land Parcels D, E and F, mitigation includes proposed hedgerow planting to screen the fence lines and supplement the highways planting.

6.5.130. For road users traveling through this section of the landscape the impacts at Year 1 particularly when traveling through the western section of the scheme would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, this would result in moderate **(significant)** effects. At Year 15 the hedgerows will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar panel areas and the upper sections of the 132kv substations and BESS, closer range views would be of the established hedgerows, this would reduce the magnitude of change at year 15 to medium, resulting in a moderate/minor **(not significant)** effect on users of the road through this section of route passing through and approaching the Scheme.

Low Levels Bank & Sandtoft Road

6.5.131. Low Levels Bank & Sandtoft Road runs in an east west direction through the Study Area between Hatfield Wood House and Sandtoft. The road runs through the southern section of Land Parcel D just south of the M180 motorway. Viewpoints 10 and 18 provide context views of the road see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.132. Existing views are generally wide and open over the adjacent level farmland. Roadside vegetation is generally limited bar that occurring around the local farmsteads and adjacent to the motorway corridor and overbridges. To the north views are available of the Tween Bridge Wind Farm turbines with wider views framed by the woodland on the edge of Thorne Moors. To the south wider views to the south are framed by the woodland at Hatfield Moors and punctuated by individual trees around field edges.

6.5.133. Users of minor roads not used primarily for recreation are identified in the methodology as being of medium sensitivity. For all parts of the Scheme visible from the road i.e. primarily Land Parcel D mitigation includes proposed hedgerow planting and hedgerow trees.

6.5.134. For road users traveling through this section of the route the impacts at Year 1 would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, this would result in major/moderate **(significant)** effects. At Year 15 the hedgerows will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar panel areas, closer range views would be of the established hedgerows, this would reduce the magnitude of change at Year 15 to medium, resulting in a moderate **(significant)** effect on users of the road through this section of route approaching and passing through the scheme.

North South Connective roads with overbridges over the M180.

Crow Tree Bank - Moor Lane & High Levels Bank (north south)

6.5.135. There are two north south connective roads in the Study Area that have overbridges over the M180 motorway, these elevated features allow higher level views over the Scheme in an otherwise generally flat landscape.

6.5.136. To the west, Crow Tree Bank runs north south from the A18 from the Black Bull Inn to Low Levels Bank to the south and the junction with Moor Lane. The northern extent of the route lies adjacent to the Order Limits around Land Parcel B with the remainder of the route passing through Land Parcel D. Several properties are located adjacent to the northern section which include Crow Tree and Crow Tree Hall Farm. Viewpoints 14 and 15 provide context views of the road viewpoint 15 is also a photomontage see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]**.

6.5.137. To the east, High Levels Bank runs north south from the A18 from Dirtness Farm Bridge to the settlement of Sandtoft to the south. The northern portion of the route passes through Land Parcel E. Viewpoints 23 provide context views of the road and is also presented as a photomontage see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES**

Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068].

6.5.138. Existing views where available along both routes are generally wide and open over the adjacent level farmland. Both routes are furnished with some roadside vegetation which partially screens and provides intermittent views particularly in the southern sections. Both roads gain in elevation as they approach and cross the overbridges providing unusual, elevated viewpoints over the surrounding landscape.

6.5.139. Users of minor roads not used primarily for recreation are identified in the methodology as being of medium sensitivity. For all parts of the Scheme visible from the two roads i.e. primarily Land Parcel D for Crow Tree Bank and Land Parcel E for High levels bank mitigation includes growing existing hedgerows out to 3m height and proposed new hedgerow planting and hedgerow trees along the fences.

6.5.140. For road users traveling through this section of the landscape the impacts at Year 1 particularly when traveling through the adjacent section of the Scheme and over the overbridges over the M180 would be high, there would be a major change in the view from the routes that would be highly prominent and would have a strong influence on overall views, this would result in major/moderate **(significant)** effects. At Year 15 the hedgerows will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar pV modules the closer range views would be of the established hedgerows, this would reduce the magnitude of change at Year 15 to medium, resulting in a moderate **(significant)** effect on users of these two routes where views are closest and most open, effects would be reduced where views are more restricted or with distance.

North South orientated and connective roads

Moor Edges Road & High Bridge Road - Moor Road & Double Bridges - Clay Bank Road - Green Bank

6.5.141. There are two north south connective roads south of the canal in the western portion of the Study Area, Moor Road and Double Bridges Road and Green Bank both of these north south routes are connected by Moor Edges Road out of Thorne running to High Bridge Road and the more east west orientated Clay Bank Road. All four of these roads are narrow local routes to the east of Thorne edged by ditches

along field edges and provide access over the canal and railway via brides and level crossings, they also connect south to the A18 at Old Laith House and Rose House farm. Moor Edges Road and High Bridge Road run to the west of Land Parcel A and partially between Parcel C. Moor Road & Double Bridges are located to the west of Land Parcel C and Clay Bank Road and Green Bank are located immediately adjacent to the order limits of the western section of Land Parcel C. Viewpoint 7 is located on Clay Bank Road to the west of Buildings Farm and provide context views of the nature of this local road network see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.142. Existing views along all these routes are generally wide and open over the adjacent level farmland as the fields are generally divided by ditches and hedgerows are infrequent. Moor Edges Road and the northern sections of High Bridge Road are furnished with a higher level of vegetation associated with the numerous properties that line the eastern Order Limits of these two roads. These properties and the associated long thin fields to the east also provide a level of screening from much of Land Parcel A though the wind turbines within the Tween bridge Wind farm are apparent beyond. The layering effect of the Stainforth and Keadby canal to the south of High Bridge Road also provides a level of separation from the adjacent sections of Land Parcel C immediately to the south.

6.5.143. Users of minor roads not used primarily for recreation are identified in the methodology as being of medium sensitivity, (it is noted that some of these quiet lanes are also frequently used by walkers and cyclists). For all parts of the Scheme visible from these routes mitigation includes proposed new hedgerow planting and hedgerow trees along the fences. On High Bridge Road on the southern edges of Land Parcel A, mitigation embedded with the Scheme also includes notable offsets off the routes which would also provide areas for ecological mitigation comprising of species rich neutral grassland and strips of woodland.

6.5.144. For road users traveling through this section of the landscape the impacts at Year 1 particularly when traveling to the south of Land Parcel A and through and past the western sections of Land Parcel would be high, there would be a major change in the view from the routes with the introduction of the components of solar panel areas that would be highly prominent and would have a strong influence on overall views, this would result in major/moderate **(significant)** effects. At Year 15 the hedgerows will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar

panel areas the closer range views would be of the established hedgerows, this would reduce the magnitude of change at year 15 to medium, resulting in a moderate **(significant)** effect on users of these routes where views are closest and most open, effects would be reduced where views are more restricted or with distance.

Jaques Bank - Chapel Road - Godnow Road

6.5.145. There are three approximately north south connective roads in the eastern portion of the Study Area to the south-west Of Crowle. Godnow Road runs between the southwestern extents of Crowle and Godnow Bridge over the Canal and is located to the south east of Land Parcel B. Chapel Road is located to the south of the Staniforth and Keadby Canal and connects Goodnow Road to Jaque's Bank at Medge Hall south of Land Parcel B. Jaques Bank runs down the eastern edge of Land Parcel C crossing Boating Dike to join the A18 at the junction of the A18 and High Levels Bank. Viewpoint 19 is located on the northern section of Jaques Bank and Viewpoint 16 is located on the A18 looking towards Jaques Bank, see **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]**.

6.5.146. Existing views along all these routes are generally wide and open over the adjacent level farmland however there are some intervening factors that limit views towards the Scheme in some sections of the routes as follows. Properties on the southern edge of Crowle screen out views along the northern sections of Goodnow Road, to the south as the settlement is left the views open up across the open farmland including views towards the south eastern sections of Land Parcel B. Chapel Road lies to the south of the Stainforth and Keadby Canal which in this section is well furnished with vegetation largely screening out views towards Land Parcel B, the road is also located at a slightly lower level than the canal at this point which also serves to screen views to the north. To the south views are much more open over the intervening fields towards Land Parcel C. (Views towards the eastern portions of Land Parcel E are screened out by vegetation along the A18). Jaque's Bank is long and straight with ditches on both sides, whilst there are low level hedges along much of the eastern side of the road the western side of the road is generally devoid of vegetation allowing wide open views over the flat level farmland towards the eastern edges of the Order Limits around Land Parcel C.

6.5.147. Users of minor roads not used primarily for recreation are identified in the methodology as being of medium sensitivity. For all parts of the Scheme visible

from these routes mitigation includes proposed new hedgerow planting and hedgerow trees along the fences. Along the southern section of Jaques Bank High Bridge Road immediately adjacent to the eastern edge of the Order Limits of Land Parcel C mitigation also includes a section of thin woodland strip.

6.5.148. For road users traveling through this section of the landscape the impacts at Year 1 particularly when traveling to the east of Land Parcel C and through and past the eastern sections of Land Parcel C would be high, there would be a major change in the view from this section of the routes in particular with the introduction of the components of solar panel areas that would be highly prominent and would have a strong influence on overall views, this would result in major/moderate **(significant)** effects. At Year 15 the hedgerows and woodland strip would have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar pV modules the closer range views would be of the established hedgerows, this would reduce the magnitude of change at year 15 to medium, resulting in a moderate **(significant)** effect on users of these routes where views are closest and most open, effects would be reduced where views are more restricted or with distance.

Railways

6.5.149. The South Humberside Main Line Railway is situated north of the Stainforth and Keadby Canal and runs in an east west direction through the northern portions of the Scheme. There is a short, approximately 400m section of the railway that is located within the Order Limits at Land Parcel A. Elsewhere the Order Limits of both Land Parcel A and C run adjacent to the line and then just to the north at Land Parcel B. Viewpoints 5, 6, 27, 28, 29 and 30 and photomontage 5 **ES Appendix 6.3 - Viewpoint Photographs [~~Document Reference 6.3.6.3~~APP-064 - APP-066]** and **ES Appendix 6.4 - Photomontage Visualisations [~~Document Reference 6.3.6.4~~APP-067 - APP-068]** represent views from the canal.

6.5.150. Views are generally wide and open over the adjacent level farmland. To the north over Land Parcel A views are animated by the Tween Bridge Wind Farm turbines with wider views framed by the woodland on the edge of Thorne Moors. In the eastern section views to the north over Land Parcel B are generally more limited by intervening woodland in the proximity of Medge Hall. To the south over Land Parcel B views again are over the intervening farmland.

6.5.151. Users of commercial railways are identified in the methodology as being of low sensitivity. For all parts of the Scheme visible from the railway line i.e. Land Parcels A B and C, mitigation includes offsets of the Scheme and the associated fencing from the route and proposed hedgerow planting and hedgerow trees to screen the fence lines and partially break the views of the panels. To the south of Land Parcel A there are enhanced offsets and woodland strip planting to provide additional mitigation for this most open section of the route. Where views of the parcels are gained from the rail line mid to long range views over the agricultural fields would be replaced by solar pV modules these views would also include the upper sections of the 132kv substations and the BESS.

6.5.152. For rail users traveling through this section of the landscape the impacts at Year 1 particularly when traveling through the western section of the scheme would be high, there would be a major change in the view from the route that would be highly prominent and would have a strong influence on overall views, this would result in moderate **(significant)** effects. At Year 15 the woodland, hedgerows and associated planting will have matured and would be being maintained at 3m. Whilst the mid to long range views out over the agricultural landscape would be replaced by solar pV modules and the upper sections of the 132kv substations and BESS, closer range views would be of the established hedgerows, trees and woodland planting, this would reduce the visual effects at Year 15 to medium, resulting in a moderate/minor **(not significant)** effect on users of the railway through this section of route passing through and approaching the Scheme.

Decommissioning

6.5.153. The effects during decommissioning are expected to be similar at first to those during the construction period, due to the presence of visible machinery, vehicles and workers, but with reinstatement then carried out thereafter. There would also be no hedgerow removal required as there would be during the construction period.

6.5.154. The following **Table 6-5** identifies the likely effects during decommissioning, with further details regarding the nature of the potential effects identified in the assessment of construction phase effects, which the decommissioning phase would be very similar to. As set out in **ES Appendix 6.1 – Landscape and Visual Impact Assessment Criteria [~~Document Reference 6.3.6.1~~APP-061]**, those effects described as major, major/moderate and in some cases, moderate may be

regarded as **significant** effects as required by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

Table 6-5: Summary of Assessment of Likely Landscape and Visual Effects at Decommissioning

Receptor	Sensitivity	Magnitude	Level of Effect	Significant
Landscape Features				
Vegetation and Ground Cover	High	Low	**Moderate/Minor**	**Not Significant**
Topography	Medium	Negligible	**No Effect**	**Not Significant**
Drainage and Water Features	Medium	Negligible	**No Effect**	**Not Significant**
Landscape Character				
National Character Area (NCA) 39: Humberhead Levels	Medium	Low	**Moderate to minor**	**Not Significant**
Thorne and Hatfield Peat Moorlands Landscape Character Area (LCA G2)	Medium	Low to Medium	**Moderate**	**Not Significant**
Flat Open Remote Farmland Landscape Character Type	Medium	Low to Medium	**Moderate**	**Not Significant**

Flat Wooded Farmland Landscape Character Type	Medium	Low to Medium	**Moderate**	**Not Significant**
Landscape Character of the Order Limits	Medium	High	**Major Moderate**	**Significant**
Visual Receptors				
Residential Receptors	High	Medium-Low	**Moderate**	**Not Significant**
Users of publicly accessible bridleways and footpaths	High	Medium-Low	**Moderate**	**Not Significant**
Users of the transport network	Medium-Low	Medium-Low	**Moderate/Minor**	**Not Significant**

6.6. Mitigation and Enhancement

6.6.1. Available mitigation measures for this type of development may include:

- Avoidance of effects (i.e. designing out impacts);
- Reduction in magnitude of effects (e.g. through planting vegetation to screen or filter views); and
- Compensation for effects (which may include enhancements to offset any adverse effects).

6.6.2. The primary mitigation adopted in relation to landscape and visual matters is that which has been embedded within the design of the Scheme and comprises the consideration given to avoiding and reducing landscape and visual effects during

the evolution of the Scheme layout. This is sometimes referred to as 'mitigation by design'. This has included the location and offsetting of key elements of the Scheme in response to the identification of potential visual receptors and the protection of existing landscape elements such as existing trees and hedgerows during the construction period, further details on which are set out in **ES Appendix 6.6 - Arboricultural Impact Assessment [~~Document Reference 6.3.6.6~~APP-070].**

6.6.3. In addition, a series of landscape and ecological mitigation and enhancement measures are included as part of the Scheme, each of which has been developed collaboratively alongside the project Ecologists as set out below and illustrated on **ES Figure 6.4 - Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]**. These are also considered to form embedded mitigation which would be implemented as part of the Scheme through the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**. Further details of the benefits of the proposed measures for biodiversity are discussed separately in the **ES Chapter 7 - Ecology and Nature Conservation [~~Document Reference 6.2.7~~AS-012]**.

- Existing hedgerows allowed to grow up and be managed at 3m;
- Existing hedgerows gapped up where required with locally appropriate mixed native hedgerow species;
- New native hedgerow trees added to existing hedgerows, where appropriate;
- New species rich native hedgerows planted with hedgerow trees adjacent to footpaths and on boundaries with no existing vegetation. Position of new hedge lines reflective of the local landscape pattern and to allow for required offset from drainage features;
- Sowing of new areas of species rich neutral grassland under the proposed arrays for grazing by sheep;
- Areas of existing arable land managed as neutral species rich grassland and areas of arable land managed/cropped for the benefit of Skylark and wintering birds;
- Existing areas of woodland, tree groups and individual trees retained;

- New areas of linear woodland planting and small copses to provide new habitats and screening; and
- New permissive footpath link with bird hides (enhancement, with further details in within **ES Chapter 2 – Scheme Description [~~Document Reference 6.1.2~~APP-039]**).

6.6.4. Whilst some small linear woodlands and woodland copses are proposed, the visual mitigation elements largely comprise of a combination of hedgerow planting and hedgerow management. This would involve growing the existing hedgerows out to 3m height and then their continued maintenance at 3m and planting new native hedgerows, (where boundaries are currently open, either fully or in part including gapping up and repairing existing hedge lines). These measures align with the objectives of published landscape character assessments covering the Study Area.

6.6.5. **ES Figure 6.4 - Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]** shows the existing vegetation resource across the Order Limits and sets out the intended locations of new planting. At the detailed design stage. the species profile of the existing hedgerows will be used to formulate a proposed native hedgerow mix that is responsive to the site character and conditions. Hedgerow vegetation is likely to be specified at 60-80cm (1+0 year bareroot seedlings) to maximise establishment rates. Hawthorn and Blackthorn is likely to form the bulk of the mix at up to 60% with the other key occurring species making up the remaining 40%.

6.6.6. In terms of predicting growth rates at the assessment years and for the production of photomontages it is noted that GLVIA3 **[Ref 6-1]** states at para 4.42 *"Assumptions about plant growth or other changes over time should be realistic and not over optimistic. The design concept for the mitigation has to have a good chance of being achieved in practice to be taken seriously by the competent authority."*

6.6.7. The potential growth rates of the elements set out above and likely to form the proposed hedgerow mix, are influenced by several factors including soils, climate, weather, maintenance and management. The soils within the Order Limits comprise of largely arable land generally cultivated for a range of annual crops. The Scheme is located in the central portion of the country and is not particularly exposed nor is it subject to salt winds. Observed extension growth of the existing hedgerows within the field appears strong and for many of the species noted above is in excess of 600mm per year.

6.6.8. In terms of specification of the planting works and the subsequent maintenance of the planting this is set out in **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**, which requires high standards of site preparation and plant care during establishment. Plants will be protected from predators by shelters and the bases mulched to retain moisture and provide additional nutrients. Based on collated and extrapolated growth rates set out from a combination of sources including Trees for Town and Country by B. Colvin and S.R Badmin **[Ref 6-12]** and heights at 25yrs provided by supplier Hillier Trees, it is anticipated that on average the plant material comprising the proposed hedgerows could achieve approximately 500mm per year. This average growth rate, across the locally occurring species and those likely to be selected for the resultant planting mixes, has been used for the purposes of this assessment and supporting visual material.

6.6.9. It is acknowledged that the effectiveness of vegetation would improve over time (both in terms of integrating the Scheme into the surrounding landscape and in providing visual screening) and this has been considered in the judgements set out. The local landscape character and vernacular has also been considered, to avoid creating landscape features which are not already apparent in the locality.

6.6.10. The maintenance strategy for the hedgerows and woodland planting as set out in the **Outline Landscape Ecological Management Plan [~~Document Reference 7.6~~APP-181]**, would be to let them grow out with minimal intervention in the early stages of the Scheme. Later, the hedgerows would generally be maintained at a height of 3m - 3.5m. The woodland copses would be allowed to grow taller to provide more substantial visual breaks in certain strategic locations.

Residual Effects

6.6.11. The assessment of effects set out previously in Section 6.5 is based on the assumption that the mitigation measures set out in Section 6.6 are embedded mitigation which would be implemented as part of the Scheme. It is therefore not considered appropriate or necessary to identify the effects which would occur without this mitigation in place.

6.6.12. As the mitigation measures set out in Section 6.6 have already been considered in the assessment of effects set out in Section 6.5, no further separate assessment of residual effects is required and the residual effects are as reported in **Section 6.6** and summarised in **Table 6-6**.

6.7. Cumulative and In-Combination Effects

6.7.1. **Section 17.5** of **Chapter 17: Cumulative Impacts [~~Document Reference 6.2.17~~APP-054]** sets out the Landscape and Visual Cumulative Effects Assessment.

6.8. Summary

Introduction

6.8.1. This Chapter has sought to determine the landscape and visual effects of the Scheme and whether such effects would be significant or not. The assessment has been undertaken by Chartered Landscape Architects at Pegasus Group who are experienced in the assessment of landscape and visual effects of energy developments and are familiar with the local landscape.

6.8.2. It is acknowledged from the outset that, in common with almost all commercial energy development proposals, some landscape and visual effects would occur as a result of the Scheme.

Baseline Conditions

6.8.3. The Scheme comprises of an area of predominantly agricultural land between the settlements of Thorne and Crowle. Tween Bridge Wind Farm is located within the northern part of the Order Limits. The Stainforth and Keaby Canal crosses the Order Limits from west to east.

6.8.4. The landscape is predominantly flat and low lying. Vegetation consists of eroded hedgerows which are often gappy in parts. There are occasional hedgerow trees and isolated trees often along field boundaries which follow drainage ditches. There are occasional small blocks of woodland in the northern part of the Order Limits.

6.8.5. The M180 and A18 cross through part of the Order Limits from west to east. There is a network of minor roads which are within the Order Limits or adjacent to the Order Limits. There are a network of footpaths and recreational routes that are within the Order Limits or lie close to the Order Limits. The Stainforth and Keadby Canal provides recreational use for both walkers, cyclists and boat users along the canal.

6.8.6. There are several settlements which vary in size that are situated close to the Scheme, with a number of individual or clusters of properties situated close to the Scheme.

Likely Significant Effects

Construction

6.8.7. With regard to effects on landscape features, the construction of the Scheme would result in notable short-term impacts from the construction activity, including the movement of vehicles and plant, temporary compounds and the construction of the Scheme itself. However, with regard to the trees, woodland and hedgerows with the Order Limits, all vegetation would be retained bar limited removals of hedgerows to facilitate access tracks, with existing gaps utilised for access where possible. This therefore would not result in any significant adverse effects on the most sensitive landscape features at the Order Limits.

6.8.8. Once construction is completed there would be no further adverse effects on the landscape features within the Order Limits. Indeed, the Scheme includes for notable planting of new trees, woodland and hedgerows, as well as the establishment of neutral species rich grassland across the majority of the Order Limits.

6.8.9. With regard to effects on landscape character, the construction phase would cause notable, but temporary effects upon the Landscape Character of the land within the Order Limits, due to the extent and size of the Scheme. Such effects would be significant given the duration and nature of the of the construction work.

Operation

6.8.10. The operational phase would also cause notable effects upon the Landscape Character of the land within the Order Limits, due to the extent and size of the Scheme along with localised effects upon the Peat Moorlands Landscape Character Type and Thorne and Hatfield Peat Moorlands Landscape Character Area G2, Flat Open Remote Farmland Landscape Character Type, Flat Wooded Farmland Landscape Character Type, and Flat Drained Treed Farmland Landscape Character Type as much of the Scheme would occupy these character areas and types. Such effects would be significant.

6.8.11. In terms of visual receptors, there would be significant visual effects on several individual properties, which lie outside of the closest settlements within the agricultural landscape, including upon select properties as set out within **ES Appendix 6.2 - Residential Visual Amenity Assessment [~~Document Reference 6.3.6.2~~APP-062]**. This applies to those properties which have clear, open views across part of the Scheme, which are not blocked by other properties or vegetation. For the majority of residential properties however the magnitude of impact would be no greater than low, resulting in moderate to minor effects. Mitigation has been included as part of the final layout proposals, which includes further offsetting and new vegetation planting to help minimise impacts.

6.8.12. At the early design stages of the Scheme, it was determined that users of the Stainforth and Keadby Canal and its towpath, would be sensitive receptors and appropriate offsets from the Canal Corridor would be required that have been designed into the final layout. Nonetheless it is acknowledged that there would be significant visual effects on users of some sections of the canal as they approach and pass through the scheme either in boats or using the towpath, plus several other Public Rights of Way which pass through or close to the Scheme. This would apply to those sections which have clear, open views across parts of the Scheme, which are not blocked by existing hedgerows or other vegetation. Mitigation has been included as part of the final layout proposals, which includes further offsetting and new vegetation planting to help reduce impacts.

6.8.13. Regarding road users, for a number of roads which pass through or within close proximity of the Scheme, there would be significant visual effects on users of some sections. This would apply to those sections which have clear, open views across part of the Order Limits, which are not blocked by existing hedgerows or other vegetation. Mitigation has been included as part of the final layout proposals, which includes further offsetting and new vegetation planting to help reduce impacts.

Mitigation and Enhancement

6.8.14. The primary mitigation adopted in relation to landscape and visual matters is that which has been embedded within the design of the Scheme and comprises the consideration given to avoiding and minimising landscape and visual effects during the evolution of the Scheme layout. This is sometimes referred to as 'mitigation by design'. In addition, a series of landscape mitigation and enhancement measures are proposed to be included as part of the Scheme, and these are illustrated on **ES**

Figure 6.4 - Landscape and Visual Mitigation Strategy [~~Document Reference 6.4.6.4~~APP-148]. These include planting of new hedgerows, trees, woodland and the establishment of neutral species rich grassland.

Conclusion

6.8.15. **Table 6-6** below summarises the findings of the landscape and visual impact assessment. Some significant adverse effects are identified (to ground cover and the landscape character of the site and immediate surroundings during construction and at operation to the landscape character of the site and immediate surroundings, some residential receptors, some users of the public rights of way network and canal corridor and some users of the transport network), but these are highly localised and limited in nature, with many of the effects reduced by Year 15 following implementation of the landscape mitigation planting. Indeed, this planting would result in significant beneficial effects in terms of the hedgerow network within the Scheme.

6.8.16. Amendments are made to **Table 6-6** as a result of discussion in relation to agenda Item 4a Landscape and Visual Matters from Issue Specific Hearing 1 (ISH1) on Wednesday 15th April 2026 providing a more detailed breakdown of those individual residential receptors with in respect of which significant residual effects are reported in **Appendix 6.2 Residential Visual Amenity Assessment [APP-062].**

~~6.8.15.~~6.8.17. All other residential properties reported in **Appendix 6.2 Residential Visual Amenity Assessment [APP-062]** do not have significant effects identified and are not individually reported on and updated in **Table 6-6**.

Table 6-6: Summary of Assessment of Residual Landscape and Visual Effects

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
Landscape Features				
Vegetation and ground cover				
	High	Construction:	**Moderate minor**	**Not Significant**

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
Woodland, Tree Groups and Individual Trees		Very Low		
		Operation Yr1: Low (beneficial)	**Minor (beneficial)**	**Not Significant**
		Operation Yr15: Medium (beneficial)	**Moderate (beneficial)**	**Not Significant**
		Decommissioning: None	**No effect**	**Not Significant**
Hedgerows	High	Construction: Very Low	**Moderate Minor**	**Not Significant**
		Operation Yr1: medium (beneficial)	**Major/ Moderate (beneficial)**	**Significant**
		Operation Yr15: High (beneficial)	**Major (beneficial)**	**Significant**
		Decommissioning: Very Low	**Moderate minor**	**Not Significant**
Ground Cover	Medium	Construction: High	**Major – moderate (adverse)**	**Significant**

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
		Operation Yr1: Low (beneficial)	**Minor (beneficial)**	**Not Significant**
		Operation Yr15: Medium (beneficial)	**Moderate (beneficial)**	**Not Significant**
		Decommissioning: Medium	**Moderate**	**Not Significant**
Topography	Medium	Construction: Very low	**Minor**	**Not Significant**
		Operation Yr1: none	**No effect**	**Not Significant**
		Operation Yr15: none	**No effect**	**Not Significant**
		Decommissioning: Negligible	**Negligible**	**Not Significant**
Drainage and Water Features	Medium	Very Low (All Phases)	**Minor/No effect**	**Not Significant**
Landscape Character				

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
National Character Area (NCA) 39: Trent and Belvoir Vales	Medium	Low (All Phases)	**Moderate - Minor**	**Not Significant**
Thorn and Hatfield Peat Moorlands Landscape Character Area (LCA G2)	Medium	Construction and Operation Yr1: Low to Medium	**Moderate**	**Not Significant**
		Operation Yr15 and Decommissioning: Low	**Moderate/Minor**	**Not Significant**
Flat Open Remote Farmland Landscape Character Type	Medium	Construction and Operation Yr1: Low to Medium	**Moderate**	**Not Significant**
		Operation Yr15 and Decommissioning: Low	**Moderate/Minor**	**Not Significant**
Flat Wooded Farmland Landscape Character Type	Medium	Construction and Operation Yr1: Low	**Moderate/Minor**	**Not Significant**
		Operation Yr15 and Decommissioning: Very Low	**Minor**	**Not Significant**

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
Flat Drained Treed Farmland Landscape Character Type	Medium	Construction and Operation Yr1: Medium	**Moderate**	**Not Significant**
		Operation Yr15 and Decommissioning: Low	**Moderate/Minor**	**Not Significant**
Flat Drained Farmland Landscape Character Type	Medium	Construction and Operation Yr1: Very Low	**Minor**	**Not Significant**
		Operation Yr15 and Decommissioning: Very Low	**Minor**	**Not Significant**
Landscape Character of the Order Limits and Immediate Surroundings	Medium	Construction and Operation Yr1: High	**Major/Moderate**	**Significant**
		Operation Yr15 and Decommissioning: Medium-High	**Moderate**	**Significant**
Visual Receptors				

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
Residential Receptors	High	None to Low – Medium (All Phases)	**None to Moderate**	**Significant**
Detailed Breakdown of Residential Receptors identified with significant residual effects				
Buildings Farm	High	Operation Year 1: High Operation Year 15: High	**Major** **Moderate**	**Significant** **Significant**
Mauds Bridge	High	Operation Year 1: High	**Moderate/Major**	**Significant**
Stoupersgate Farm, Fairview and Stoupersgate Bungalow	High	Operation Year 1: High	**Moderate**	**Significant**
Severals Cottage	High	Operation Year 1: High Operation Year 15: High	**Major** **Moderate**	**Significant** **Significant**
Severals Farm	High	Operation Year 1: High	**Moderate**	**Significant**
New Plains House and	High	Operation Year 1: High	**Moderate**	**Significant**

Receptor	Sensitivity	Magnitude	Level of Residual Effect	Significant
Plains House Farm				
Stone Lodge Farm, Jaques Farm and Charity Farm	High	Operation Year 1: High	**Moderate/ Major**	**Significant**
Users of publicly accessible BOATs, bridleways and footpaths	High	Construction and Operation Yr1: None to High	**None to Major**	**Significant**
		Operation Yr15 and Decommissioning: None to Medium-low	**None to Major/Moderate-minor**	**Significant**
Users of the transport network	Medium to Low	Construction and Operation Yr1: None to High	**None to Major/Moderate**	**Significant**
		Operation Yr15 and Decommissioning: None to Medium	**None to Moderate**	**Yest Significant**

6.9. References

6-1 Guidelines for Landscape and Visual Assessment (GLVIA3), (Landscape Institute and the Institute for Environmental Management and Assessment, 2013).

6-2 National Policy Statements - Overarching National Policy Statement for Energy (EN-1) 17 January 2024 Ref: ISBN 978-1-5286-4582-9, E03028327 11/23

6-3 National Policy Statements - National Policy Statement for renewable energy infrastructure (EN-3). Ref: ISBN 978-1-5286-4584-3, E03028327 11/23

6-4 Energy White Paper: Powering our net zero future, Updated 18 December 2020

6-5 National Planning Policy Framework (NPPF) Published 27 March 2012 Updated 7 February 2025

6-6 The Doncaster Local Plan 2015-2035 (adopted September 2021)

6-7 The North Lincolnshire Local Development Framework.

6-8 Thorne & Moorends Neighbourhood Plan up to 2032 published 31 October 2016.

6-9 Natural England National Landscape Character Area Profile 39 Humberhead Levels Published by Natural England 17 July 2012

6-10 Landscape Character & Capacity Assessment of Doncaster Borough (March 2007), Final Report, Revision A

6-11 The North Lincolnshire Landscape Character Assessment (September 1999)

6-12 Trees for Town and Country by B. Colvin and S.R Badmin (Originally compiled by the Association for Planning and Regional Reconstruction)

6-13 North Lincolnshire Local Plan – Adopted Plan (May 2003)

6-14 Planning for Renewable Energy Development, Supplementary Planning Document (North Lincolnshire Council, November 2011)

6-15 Planning for Solar Photovoltaic (PV) Development, Supplementary Planning Document (North Lincolnshire Council, January 2016)

6-16 Visual Representation of Development Proposals, Technical Guidance Note 06/19 (Landscape Institute, 17 September 2019)

6-17 Council of Europe Landscape Convention (ETS No. 176), as amended by the 2016 Protocol (CETS No. 219)

6-18 Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

6.10. Glossary

Table 6-7: LVIA Glossary

Term/Acronym	Description
AOD (Above Ordnance Datum)	Baseline standard for measuring height usually measured in metres AOD (m AOD)
Characterisation	The process of identifying areas of similar landscape character, classifying and mapping them and describing their character.
Designated Landscape	Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents.
GLVIA3	'Guidelines for Landscape and Visual Impact Assessment - Third Edition'. Published in April 2013 by the Landscape Institute and the Institute of Environmental Management and Assessment. Guidance providing advice on the process of assessing the landscape and visual effects of developments.
Landform	An area, as perceived by people, the character of which is the result of the action and interaction of natural and /or human factors.
Land Use	What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.
Landscape and Visual Impact Assessment (LVIA)	A tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape and as an environmental resource in its own right and on

	people's views and visual amenity (GLVIA 3, 2013 p157).
Landscape Character Assessment	The process of identifying and describing variation in the character of the landscape and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscape distinctive. The process results in the production of a Landscape Characterisation Assessment.
Landscape effects	Effects on the landscape as a resource in its own right.
Landscape quality (condition)	A measure of the physical state of the landscape. It may include the extent to which the typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
Landscape receptors	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.
National Character Areas	Previously known as Joint Character Areas developed by the then Countryside Agency. These are areas that share similar landscape characteristics.
Photomontage	A visualisation which superimposes an image of a Proposed Development upon a photograph or series of photographs.

Public Right of Way	Footpath, bridleway or byways over which members of the public have a right to use.
Root protection area	A defined area around a tree where construction and development activities are restricted to protect the tree's root system.
Susceptibility (or vulnerability)	How susceptible or vulnerable the landscape receptor is to accommodate the Proposed Development without undue negative consequences for the maintenance of the baseline situation
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset of landscape.
Visual amenity	The overall pleasantness of the views people enjoy in their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual effects	Effects on specific views and on the general visual amenity experienced by people.
Visual receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visualisation	A computer simulation, photomontage or other technique illustrating the predicted appearance of a development
Zone of Theoretical Visibility	A map, usually digitally produced, shows areas of land within which development is theoretically visible. (GLVIA 3, 2013 p159). Used within Landscape and Visual Assessments (LVIAs) to identify areas of interest for further investigation and assessment.