ARCUS

LANDSCAPE AND VISUAL APPRAISAL

SWEETBRIAR SOLAR FARM

LIGHTROCKPOWER

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Prepared By:

Arcus Consultancy Services

1C Swinegate Court East
3 Swinegate
York, YO1 8AJ
T +44 (0)1904 715 470 l E info@arcusconsulting.co.uk
w www.arcusconsulting.co.uk

Registered in England & Wales No. 5644976

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1 INTRODUCTION

This report presents the findings of a Landscape and Visual Appraisal ('LVA' or 'appraisal') undertaken to accompany a planning application by Lightrock Power ('the Applicant') for the installation of a ground mounted solar photovoltaic (PV) of circa 39 Megawatts ('the Development') on land 2 km northwest of Ulceby, and approximately 6 km northwest of the centre of Immingham ('the Site').

The LVA has been undertaken by a Chartered Landscape Architect in accordance with good practice guidance. It records the baseline landscape and visual resources of the Site and surrounding area; identifies landscape and visual receptors most likely to be affected by the Development; and determines the extent to which these receptors would be altered, with mitigation in place.

2 SCOPE OF THE APPRAISAL

2.1 The Development

The Development would have an export capacity of up to 39 megawatts (MW) and the total Site area is approximately 44.58 hectares (ha).

A full description of the Development is set out in the Planning Design and Access Statement and suite of planning drawings which accompany the planning application. In summary, the scheme consists of the following key elements which are shown on Planning Drawing 2: Indicative Site Layout and Drawing 4157_DR_LAN_101 Rev A: Landscape Mitigation Plan, Appendix C.

Solar Farm, comprising:

- A temporary construction compound (TCC). The access to be used for the TCC is off Carr Lane and serves Sweetbriar Farm. There will be one TCC that will serve the wider development;
- Solar panels, known as strings, are mounted on metal frames driven into the ground in parallel rows tilted 10 to 25 degrees from the horizontal to face south towards the sun. There is a distance of 2-6 meters between strings of panels in order to avoid inter-panel shading, but this distance is influenced by slope and aspect. Each string of panels would be mounted on a rack comprising metal poles anchored to the ground set a maximum of 2.5 m to 3.0 m above ground level and the bottom edge at a height of 0.8 m from the ground (each panel approximately 1.1 m x 2.25 m). Given the nature of the installation, ground excavation is not required for panel installation and the metal frames are likely to be screwed or piled to a depth of between 1-2 m below the ground depending on conditions. There are gaps between the rows of panels and around the perimeter of the panels up to existing field boundaries, and therefore the area of land directly impacted by the Development is smaller than the site area;
- A substation compound (26 m x 10 m), includes housing for DNO and Client substation located adjacent to the existing vehicular access point;
- Up to 16 inverters/transformers located around the Site and each located within a Glass Reinforced Plastic (GRP) or container enclosure/kiosk measuring approximately 7 m x 2.5 m x 3 m high;
- Buried cables linking the solar panels to the substation;
- A 2.4 m high timber post and wire mesh security fence (deer proof) erected around the perimeter of the Site;
- A CCTV camera system mounted on 3m high poles inside the security fence;
- An existing access track leading from Carr Lane and additional tracks within the Site provide access to the inverters. New tracks will be kept to a minimum across the Site and will be approximately 4 m wide, constructed from crushed stone on top of a geotextile membrane. Areas of new hardstanding would be limited to the substation and inverter kiosk foundations, and the substation compound. Access across the wider Site from the TCC would by via existing field access tracks that will then be extended as needed to reach areas of panels further within the Site; this is to minimise the requirement for new field entrances and reduce traffic on the roads around the Site during the construction period; and
- New tree, shrub, and hedgerow planting within and to the perimeter of the Site in conjunction with wildflower grassland and other enhancements (refer to section 7 for further details).

All GRP enclosures / containers would be painted in a suitable colour to help integrate them into the landscape and minimise their visual appearance. The final choice of colour would reflect the character of the landscape in which the Development is located and would be agreed with North Lincolnshire Council (NLC) as the determining authority.

The construction period of the Development would last approximately 6 months and the operational period would be for 40 years.

2.2 LVA Methodology & Relevant Guidelines

The methodology for the LVA is included in Appendix A and is based on current best practice guidance, namely:

- Landscape Institute / Institute of Environmental Management and Assessment (2013), 'Guidelines for Landscape and Visual Impact Assessment', 3rd Edition ('GLVIA3')[1];
- Landscape Institute (2013), GLVIA3 Statement of Clarification 1/13[2];
- Landscape Institute (2019), 'Visual Representation of Development Proposals', Technical Guidance Note 06/19[3];
- Assessing landscape value outside national designations, Technical Guidance Note 02/21, The Landscape Institute (2021)[4];
- Natural England (2014), 'An Approach to Landscape Character Assessment'[5]; and
- Natural England (2019), 'An Approach to Landscape Sensitivity Assessment'[6].

The two components of LVA referred to throughout the report are based on the following definitions:

- 'Assessment of landscape effects: assessing effects on the landscape as a resource in its own right'[7]; and
- 'Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people.

Development may have a direct (physical) effect on the landscape in which it is located as well as an indirect or perceived effect from landscape character areas surrounding it. The potential landscape effects occurring during the construction and operational stages of the Development may therefore include, but are not restricted to, the following:

- Changes to landscape elements: the addition of new elements or the removal of vegetation, buildings, and other characteristic elements of the landscape character type;
- Changes to landscape qualities: degradation, erosion, or reinforcement of landscape elements and patterns, and perceptual characteristics, particularly those that form key characteristic elements of landscape character types;
- Changes to landscape character: landscape and character may be affected through the effect on characteristic elements (including perceptual characteristics), landscape patterns and attributes and the cumulative addition of new features, the magnitude and presence of which is sufficient to alter a notable part of the overall landscape character type of a particular area; and

[1] Landscape Institute and Institute of Environmental Management and Assessment, 2013, *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge, London.

[2] The Landscape Institute (2015) GLVIA3 – Statements of Clarification. Available online at: https://www.landscapeinstitute.org/technical-resource/glvia3-clarifications/

[3] The Landscape Institute, *Visual Representation of Development Proposals, Technical Guidance Note 06/19*, 17th September 2019.

[4] The Landscape Institute, *Assessing landscape value outside national designations, Technical Guidance Note 02/21*, 2021 [Online] Available at: https://www.landscapeinstitute.org/technical-resource/assessing-landscape-value-outside-national-designations/ (Last accessed 01/11/21)

[5] Natural England (2014), *An Approach to Landscape Character Assessment*. Available online at: https://www.gov.uk/government/publications/landscape-character-assessments-identify-and-describe-landscape-types

[6] Natural England (2019), *An Approach to Landscape Sensitivity*. Available online at: https://www.gov.uk/government/publications/landscape-sensitivity-assessment

[7] Ibid. page 21.

- Cumulative landscape effects: where more than one development may lead to a potential landscape effect.

Visual effects are concerned wholly with the effect of development on visual receptors and general visual amenity. Visual effects are identified for different receptors (people) who would experience the view such as at their places of residence, during recreational activities, at work, or when travelling through the area. Visual effects may include the following:

- Visual effect: change in the appearance of the landscape as a result of development. This may include changes to the quality of the view, the ability of the visual receptor to appreciate the view, or changes to the characteristic elements within the view. These changes can be positive (i.e. beneficial or an improvement) or negative (i.e. adverse or a detraction); and
- Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

A detailed description of the methodology used in the LVA has been provided in Appendix A – LVA Assessment, ZTV, Photography, and Photomontage Methodology.

2.3 Cumulative Assessment

In addition to assessing the Development as a standalone scheme, the LVA also considers the additional effects on landscape character and visual amenity of the Development in conjunction with other related developments in the vicinity. This is discussed further in Section 10 of the appraisal.

2.4 Limitations of the Assessment / Assumptions and Limitations

Glint and glare have been discussed within the Planning Design and Access Statement and the separate Glint and Glare Assessment Report which accompanies the planning application, with a conclusion that there would be no unacceptable effects on visual receptors south of the Site. This is mainly due to the absence of residential properties, recreational routes, and local roads immediately south of the Site as well as screening by intervening vegetation. As such, glint and glare have not been addressed within the LVA.

The appraisal of residential properties, or groups of properties, is limited to those within approximately 1 km of the Development. A number of these properties are accessed from private farm tracks / roads and, due to the limitations of access, they have been appraised from the nearest public road or footpath with the aid of aerial photographs. In these cases, the appraisal should be regarded as an informed estimate of the likely visual effects.

2.5 Scoping Responses and Consultations

An EIA Screening Request was submitted to North Lincolnshire Council (NLC) in October 2021 which assumed the development would not require an Environmental Impact Assessment (EIA). A formal EIA Screening Opinion from NLC has confirmed that the Development is not EIA. Further Pre-Application consultation with NLC confirmed the need for an LVA to be prepared and NLC has been consulted on aspects of this, including LVA methodology and viewpoint selection (refer to Section 2.10).

2.6 Study Area

The study area for the LVA has been set as a 5 kilometre (km) radius from the planning application boundary for the Site. It encompasses the larger settlements of Barrow upon Humber, Goxhill, and Ulceby, and the smaller settlements of North Killingholme, South Killingholme, Harbrough, Brocklesby, Kirmington, and Wootton as well as the surrounding countryside, part of which falls within the boundary of the Registered Park and Garden at Brocklesby Park. The study area is located within the administrative boundaries of West

Lindsey District Council (WLDC) and North East Lincolnshire (NEL), which is a Unitary Authority. The majority of the study area is situated within North Lincolnshire Council (NLC), which is also a Unitary Authority.

Beyond 2 km, it was concluded that the Development would be highly unlikely to have any meaningful influence on landscape character or visual amenity. This is due in part to its limited height and screening by intervening settlement, transport corridors, topography, vegetation, as well as the proximity of the existing Lindsey Oil Refinery and Humber Refinery (the 'oil refineries') and related infrastructure (the 'pylons') which have considerable influence on local landscape character and views.

The extent of the study area is shown on Figure 1.1 (Site Location) and Figure 1.2 (Aerial Mapping), Appendix B. A detailed study area of 1 km radius around the Site has been used to appraise the effects of the Development on occupiers of residential properties and users of public rights of way and local roads.

2.7 Desk-Based Study

Information for the LVA was gathered from the following key sources:

- North Lincolnshire Local Development Framework Core Strategy (Adopted June 2011);
- Saved Policies of the North Lincolnshire Local Development Plan (2003);
- Emerging North Lincolnshire Local Development Plan (Updated February 2020);
- Planning for Renewable Energy Development SPD (November 2011);
- The Yorkshire and Humber Plan: Regional Strategy to 2026 (May 2008);
- Neighbourhood Plan for Ulceby;
- Natural England (2012), National Character Area Profile 41: Humber Estuary;
- Natural England (2014), National Character Area Profile 42: Lincolnshire Coast and Marshes;
- North Lincolnshire Landscape Character Assessment and Guidelines (1999);
- North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (January 2015);
- West Lindsey Landscape Character Assessment (August 1999);
- The Historic Landscape Characterisation Project (September 2011);
- Ordnance Survey mapping at 1:50,000 and 1:25,000 scales;
- Aerial Photography;
- Web GIS data bases;
- Lidar data;
- MAGIC website; and
- Google Earth, Street View and Maps.

2.8 Field Study

Following the desk-based appraisal, fieldwork was undertaken in October 2021.

Key activities undertaken during the fieldwork stage were:

- To augment and verify published descriptions of landscape character with fieldwork observations;
- To undertake an appraisal of the quality or condition of the baseline landscape and visual resource;
- To identify any significant features and elements in the landscape such as vegetation or built form that would screen the Development and thereby verify or refine the ZTV;
- To visit each viewpoint location identified during the desk study and screening report, and to microsite each viewpoint location in accordance with good practice guidance and obtain accurate coordinates;

- To undertake viewpoint photography at each viewpoint location; and
- To identify landscape features and elements that may be altered or removed as a result of the Development.

The fieldwork stage also included a provisional appraisal of effects on key landscape and visual receptors. These typically included:

- Landscape elements / features / characteristics; and
- Occupiers of residential properties, users of public rights of way (footpaths, bridleways and byways), people engaged in outdoor sport or recreation and road users.

2.9 Zone of Theoretical Visibility (ZTV)

To assist with defining the area within which the Development would be likely to be seen, Zones of Theoretical Visibility (ZTV) diagrams have been prepared. These diagrams also help with identifying potential visual receptors and viewpoint locations.

ZTVs are computer generated from a digital terrain model (using OS Terrain 5 at 5 m resolution), with a 3D model of the Development incorporated (taken as 2.5 m above existing ground levels based on the highest parts of the solar panels). Other elements of the Development are not included in the ZTVs, which illustrate the theoretical visibility of the solar panels throughout the study area based on an average eye height of an adult person (taken as 1.6 m).

In this instance, two ZTVs have been prepared: 'bare-earth' and 'screened' (refer to Figures 1.6 and 1.7, Appendix B).

The bare-earth ZTV illustrates theoretical visibility of the Development within a 5km radius of the study area without the benefit of screening afforded by buildings and vegetation and, as such, it represents a 'worst-case scenario'. The screened ZTV illustrates the theoretical visibility of the Development within a 2km radius that takes account of screening by buildings and woodland (identified from OS Vector Map District Data), however, it does not take into account hedgerows, individual and groups of trees and other scattered vegetation which are characteristic features of the study area. In reality, therefore, actual visibility of the Development is likely to be much less than that indicated by the screened ZTV when factoring in this additional screening.

2.10 Viewpoints

A number of viewpoints have been selected to illustrate likely views of the Development from nearby residential properties, the local road network, public rights of ways and other publicly accessible locations. Some of the viewpoints also illustrate the local landscape context surrounding the Site.

The viewpoints were selected initially by reference to the ZTVs and in consultation with NLC. The preferred viewpoints were then refined on Site to take account of screening by vegetation, buildings and local landform.

Following methodology established in GLVIA3, the viewpoints were chosen based on the following criteria:

- Viewpoints should be representative of the likely impacts;
- Viewpoints should show a range of different types of views;
- Viewpoints should be representative of a range of different receptor groups;
- Viewpoints should be representative of a range of distances and directions; and
- Viewpoints should be representative of the varying image of the Development within the landscape.

A summary of the final viewpoints included in the LVA is provided in Table 1.1 below. The location of the viewpoints is shown in conjunction with the ZTVs on Figures 1.6 and 1.7 (Bare Earth and Screened ZTVs), Appendix B. All viewpoints are restricted to publicly accessible locations.

Baseline photographic panoramas obtained from each viewpoint in the direction of the Site are illustrated on Figures 1.8a-1.8f (Viewpoints 1 – 6, Appendix B). These were taken in Autumn (October) when the seasonal filtering and screening of views by deciduous vegetation was only partially in leaf and was not at its greatest. As such, other views of the Site might be obtained at other times of the year when deciduous vegetation is in full leaf (summer) or not in leaf at all (winter).

Table 1.1: LVA Selected Viewpoints

VP Ref	Viewpoint Name	Reason for Selection	Distance to Site (m) *
VP 01	PRoW (NI|THOR|130) Looking Southwest	Viewpoint represents receptors from the PRoW where it borders the mainline railway and is representative of views gained form the Open Undulating Farmland towards the north boundary of the Site (Area 1 Solar).	566 m
VP 02	PRoW (NI|EHAL|81) Looking Southwest	Viewpoint represents receptors from the PRoW and is representative of views gained from Open Undulating Farmland across the Wooded Farmland towards the east boundary of the Site (Area 1 Solar).	1275m
VP 03	A1077 Looking Northwest	Viewpoint represents receptors from the A road and is representative of views gained from Ulceby at an elevated location across Open Undulating Farmland towards the southern extent of the Site (Area 2 Substation).	386 m
VP 04	Cross Road Looking North	Viewpoint represents receptors from a local minor road and is representative of views gained from the Open Undulating Farmland to the wider south of the Site (Area 1 Solar).	666 m
VP 05	Carr Lane Looking South	Viewpoint represents receptors from a key road heading north from the settlement of Ulceby Skitter looking across Open Undulating Farmland to the wider south of the Site (Area 1 Solar).	16 m
VP 06	Carr Lane Looking North	Viewpoint represents receptors from a key road heading north from the settlement of Ulceby Skitter looking across Open Undulating Farmland to the wider south of the Site (Area 1 Solar).	160 m

* As measured from the viewpoint to the approximate location of the nearest Site boundary.

3 LANDSCAPE LEGISLATION AND POLICIES

This section summarises current legislation, planning policy and guidance of national and local importance that are pertinent to landscape and visual matters and which are likely to have a bearing on the Site with implications for the Development.

In summary, the Site is not covered by any landscape-related planning designations, however, the Brocklesby Park Registered Park and Garden (RPG) encroaches into a very minor part of the southern extent of the study area. Therefore, policies relating to this RPG designation are not likely to be a relevant material consideration within the LVA.

There are no Supplementary Planning Documents of direct relevance to this LVA, however, Ulceby is looking to assess the need for a Neighbourhood Plan, but without an adopted Neighbourhood Development Plan (NDP) this is not relevant.

3.1 European Landscape Convention

The European Landscape Convention (ELC) was ratified in the UK on the 21 November 2006 and became binding on 1 March 2007.

The ELC defines landscapes as: "*An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*."

The ELC applies to natural, rural, urban and peri-urban areas including land, inland water and marine areas. Its purpose is to promote landscape protection, management and planning in relation to all landscapes, regardless of whether their quality and condition is considered outstanding, ordinary or degraded.

The UK is recognised as already putting many of the principles of the ELC into practice. The importance of landscapes in contributing to local identity and in reflecting local cultural influences and ecological diversity is demonstrated through the use of Landscape Character Assessments at a national, regional and / or local level.

3.2 National Planning Policy Framework (NPPF)[8]

The National Planning Policy Framework (NPPF) sets out the Government's strategic vision for the planning system in England and how it is expected to be applied at a local level in development plans and planning decisions. The NPPF places great emphasis on plans and developments that contribute to sustainable development.

Policies and paragraphs which cover landscape and visual matters and which are most relevant to the Site and the Development include:

- Paragraph 130, which covers design although matters of layout and appearance are not particularly relevant to the type of development proposed here. However, bullet b) notes that developments should incorporate effective landscaping, whilst bullet c) requires developments to be sympathetic to local character and their landscape setting;
- Paragraph 134, which also covers design issues and notes that decision-makers should refuse permission for development that fails to take opportunities available to improve the character and quality of an area;
- Paragraphs 152 and 158 which deal with climate change, with para. 148 emphasising the importance of the planning system in supporting the transition to a low carbon future, including support for renewable and low carbon energy. Bullet b) of para. 154 also requires decision-makers, when determining applications for renewable and low carbon schemes, to grant consent if the impacts are (or can be made) acceptable;

[8] Ministry of Housing, Communities and Local Government (Revised July 2021), National Planning Policy Framework. Available online at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

- Paragraph 174, which deals with the natural environment with bullets a) and b) noting that policies and decisions should not only protect and enhance valued landscapes, but also recognise the intrinsic character and beauty of the wider countryside. Bullet d) also notes that new development should minimise impacts on, and provide net gains for, biodiversity; and
- Paragraph 176, which also deals with the natural environment, specifically development within designated landscapes (including AONBs) where it notes that great weight should be given to conserving and enhancing their landscape and scenic beauty. It says nothing about proposals that lie outside of, but adjacent to, designated areas and which may affect their setting (as is the case here).

3.3 Local Planning Policy

At a local level, the adopted Development Plan for North Lincolnshire Council (NLC) currently comprises a number of documents of which the most pertinent to this LVA are:

- North Lincolnshire Local Development Framework: Core Strategy (Adopted June 2011);
- Saved Policies of the North Lincolnshire Local Development Plan (2003); and
- Emerging North Lincolnshire Local Development Plan (Updated February 2020).

3.3.1 North Lincolnshire Local Development Framework (Adopted June 2011) [9]

North Lincolnshire Local Plan Core Strategy was adopted by North Lincolnshire Council (NLC) in June 2011. This Core Strategy sets out the long-term spatial planning framework for the development of North Lincolnshire by providing strategic policies and guidance to deliver the vision for the area including the scale and distribution of development, the provision of infrastructure to support it and the protection of our natural and built environment.

It is a key document of the Local Plan that provides the strategic planning framework for the county's future development needs up to 2036. A range of policies set out how these needs can be met while at the same time achieving social and environmental objectives. The Local Plan Core Strategy is accompanied by a Policies Map, which illustrates geographically the extent of policies and designations.

Policies covering landscape and visual matters that are most relevant to the Site and the Development are summarised below.

- Policy CS16 (North Lincolnshire's landscape, greenspace and waterscape), which requires development proposals to: 1) identify "*a network of strategically and locally important landscape, greenspace and waterscape areas*" noting that " *Development on or adjacent to these areas will not be permitted where it would result in unacceptable conflict with the function(s) or characteristic of that area*; b) Require development proposals to "*improve the quality and quantity of accessible landscape, greenspace and waterscape, where appropriate.*" c) Require development proposals to "*address local deficiencies in accessible landscape, waterscape and greenspace where appropriate*"; and d) Require "*the protection of trees, hedgerows and historic landscape to be specified where appropriate*";
- Policy CS17 (Biodiversity), which requires development proposals to conserve, restore and enhance the biodiversity and geodiversity assets of the county through: ...3)"*Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors, links and stepping stones between areas of natural greenspace*" ;... 4)and "*Ensuring development seeks to produce a net gain in biodiversity by*

[9] North Lincolnshire Local Development Framework: Core Strategy (Adopted June 2011): Available online at: North Lincolnshire Council | Planning policy - Local Development Framework - North Lincolnshire Council (northlincs.gov.uk) (Accessed on 21/10/2021).

designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for".

3.3.2 Saved Policies of the North Lincolnshire Local Development Plan (2003) [10]

The North Lincolnshire Local Plan was adopted in May 2003 and this plan has been replaced by the Local Development Framework and most of the policies have been saved together with a number of supplementary planning guidance notes and development briefs. The following policies are considered to be relevant to the Site and Development:

- Policy LC7 (Landscape Protection) notes that 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; and
- Policy LC15 (Landscape Enhancement) notes that development will only be permitted where it provides opportunities for landscape enhancement or creation.

3.3.3 Emerging North Lincolnshire Local Development Plan [11]

Given that the emerging Local Plan is at an advanced stage of preparation and is currently under examination, it should be afforded a degree of weight in the decision-making process. As such, the following policies are considered to be relevant to the Site and Development:

Policy DQE1p (Protection of Landscape, townscape and views) notes that landscape plays an important role in defining the character and appearance of the environment, and importantly the setting of new development within the environment. It states that "*It is important that new development is located and designed to recognise existing landscape character. Where appropriate this should be through a specific landscape appraisal".*

Policy DQE3 (Biodiversity and Geodiversity) notes that "*The Nature Recovery Networks a major commitment in the UK Government's 25-Year Environment Plan and intends to improve, expand and connect habitats to address wildlife decline and provide wider environmental benefit for people".* North Lincolnshire have prepared a Biodiversity Opportunity Mapping Study, which identifies areas of opportunity for local landscape scale habitat improvements within North Lincolnshire, and as such represents strategic areas for biodiversity. It indicates target habitat protection, restoration and creation such as "*heathland, grassland, woodland and wetlands".*

3.4 Landscape Planning Designations and Protected Features

As part of the baseline, any value attached to the landscape within the study area is taken into account. This usually takes the form of landscape-related designations valued for their wild or scenic beauty at a national, regional or local level such as National Parks, AONBs and Special Landscape Areas (or equivalent designations).

The baseline also takes account of any protected features, the presence of which may indicate value at a national, regional or more local levels. Protected features mostly relate to cultural heritage or nature conservation assets such as World Heritage Sites, Ancient Monuments, Conservation Areas, Listed Buildings, Historic Parks and Gardens, Sites of Special Scientific Interest, Nature Reserves, Ancient Woodland, etc.

[10] North Lincolnshire Local Development Plan (2003). Available online at: North Lincolnshire Council | Planning policy - The North Lincolnshire Local Plan - North Lincolnshire Council (northlincs.gov.uk) (Accessed on 21/10/2021).

[11] Emerging North Lincolnshire Local Development Plan. Available online at: Stage 3 (2020) – Preferred Options (Regulation 18) | 9 Delivering a Quality Environment | North Lincolnshire Local Plan (northlincs.gov.uk) (Accessed on 21/10/2021).

Landscape-related designations and protected features identified within the Site and wider study area from a search of the HC website and MAGIC website[12] are listed in Table 1.2 below and shown Figure 1.4 (Landscape Baseline, Appendix B).

Table 1.2: Landscape Designations and Protected Features

Landscape Designations and Protected Features	Present Within Site	Present Within Study Area (2 km radius)
National Parks	None	None
Areas of Outstanding Natural Beauty (AONBs)	None	None
Special Landscape Areas (or equivalent)	None	None
Green Belt	None	None
Country Parks	None	None
World Heritage Sites	None	None
Scheduled Monuments	None	Yes (refer Section 4 for details)
Conservation Areas	None	None
Listed Buildings	None	Yes (refer Section 4 for details)
Registered Historic Parks and Gardens / Registered Battlefields	None	Yes (refer Section 4 for details)
National Trails/ Cycle Routes and Long-Distance Footpaths	None	None
Public Rights of Way	None	Yes (refer Section 4 for details)
Nature Reserves	None	None
Sites of Special Scientific Interest (SSSI)	None	None
Ramsar Sites	None	None
Special Areas of Conservation	None	None
Special Protection Areas	None	None
Registered Common Land	None	None
Ancient Woodland	None	Yes (refer Section 4 for details)

[12] MAGIC website. Available online at: https://magic.defra.gov.uk/ (Accessed on 28/04/2021).

4 BASELINE CONDITIONS

This section describes the baseline landscape character and visual amenity against which the Development would be appraised. This has been identified from desktop studies supplemented by field observations of the Site and wider study area.

4.1 Landscape Character Types / Areas

An appraisal of the baseline landscape character has been considered at three levels:

- National / Regional level, in relation to published National Character Area (NCA) profiles identified by Natural England;
- County / District level, in relation to published Landscape Types (LTs) identified by North Lincolnshire Council, North East Lincolnshire Council and West Lindsey District Council; and
- Local / Site level, based on field observations of the study area and the site itself.

4.2 National / Regional Landscape Character

The Site falls within the National Character Area of the Lincolnshire Coast and Marshes (NCA 42; NE521), characterised by a wide coastal plain which extends from Barton-upon Humber in the north, across to Grimsby at the mouth of the Humber and south to Skegness. The area is bounded by the North Sea to the east, and the Lincolnshire Wolds to the west. A dispersed settlement pattern is characteristic throughout much of the area with a concentration of larger settlements along the coast, and inland is a predominantly open, medium-scale agricultural landscape with mixed arable farmland.

The study area falls within two National Character Areas; NCA 41: Humber Estuary and NCA 42: Lincolnshire Coast and Marshes and the boundary between these NCAs is shown on Figure 1.5A (Landscape Character Areas), Appendix B, however, maps prepared by Natural England note that NCA boundaries are "*not precisely mapped and should be considered as a zone of transition between NCAs*".

Landscape characteristics detailed within the NCA profiles are likely to be represented over a wide area of the NCA. Any changes at the Site level relative to the NCA would be extremely small in scale and are unlikely to impact upon those key landscape characteristics identified for the NCA. As such, the National Character Area (NCA) profiles are not considered further in the LVA.

The regional / local landscape character assessment, with more detail on the local landscape, has been used within this assessment.

4.3 County / District Landscape Character

4.3.1 North Lincolnshire Landscape Character Assessment and Guidelines (1999) [13]

The North Lincolnshire Landscape Character Assessment and Guidelines (NLLCA) was originally produced by North Lincolnshire Council, however there is a corresponding assessment covering North Lincolnshire prepared by JBA Consulting, but this document is undated with no clarity on the source or assigned planning status. The NLLCA will therefore be used to inform the LVA and sets out 6 different Landscape Character Areas (LCAs) and those within the study area are identified on Figure 1.5A, Appendix B.

Part 1 of the NLLCA shows that the Site itself straddles the *Lincolnshire Drift LCA*, which covers the majority of the study area. This LCA corresponds with part of a regional landscape character area that extends from the Humber Estuary in the north and east to the Wash and Fens in the south, typically 5 to 7km wide. The flat coastal plain encompasses

[13] North Lincolnshire Landscape Character Assessment and Guidelines (1999). Available on line at: NorthLincolnshire_LandscapeCharacterAssessment.pdf (Accessed 22/10/21).

Barrow upon Humber and Goxhill and is marked by approximately 5 to 10 metre contours. In contrast, the terrain rises gradually to more undulating land in the south and west where the foot of the Wolds marks the eastern boundary lying around the 30 to 40 metre contour line immediately west of Wootton.

The LCA occurs where it is underlain by Cretaceous chalk deposits that dip eastward from their outcrop along the Lincolnshire Wolds and the parent materials of the Lincolnshire Drift are predominantly glacial boulder clay, gravels and sands. Soils derived from the glacial till form extensive tracts of fertile arable land, although drainage is not always satisfactory and often impeded. The disposition of arable land and pasture closely reflects these soil variations. The key characteristics of the LCA are as follows:

- *"Gently undulating arable landscape with topography dipping from the higher Lincolnshire Wolds in the west to the flat landscape of the Humber to the north and east.*
- *Settlement is dispersed with a concentration of larger settlements to the north and brick with pantile or occasionally slate roofs the local vernacular.*
- *Large scale rectilinear intensively farmed fields with pockets of smaller-scale historic landscape.*
- *Clipped hedgerows, some degraded due to farm amalgamation.*
- *Open landscape punctuated by medium-sized woodland blocks becoming more common in central and southern regions.*
- *Trees tend to be concentrated around farmsteads and settlements and are occasionally found within hedgerows.*
- *Landscape is degraded in many places with urban influences, transmission lines and views of industry detracting from the rural scene."*[14]

The landscape resource of the Site and study area are typical of the key characteristics since this is an extensive agricultural landscape with large, open fields. Some fields have clipped hawthorn hedgerows with few hedgerow trees and where they border the local road networks these hedgerows close down views across the landscape and provide intimacy, in particular where they are associated with pockets of woodland associated and with the rivers, dykes and ditches. There are also small blocks of mixed woodland and shelterbelts associated with large farm buildings and individual farm houses. Where field boundaries are absent, there are long eastward views towards the oil refineries and industrial coastline of the Humber Estuary.

The 'future pressures for change' assigned for the LCA places emphasis on the changing countryside and the impact of agricultural intensification, which is reflected in the loss of hedgerows through enlargement of fields, increase in arable production at the expense of permanent and temporary grassland, the loss of grassland verge and hedgerow diversity due to greater use of fertiliser and the abandonment of traditional farm buildings for larger agro-industrial complexes. Future pressure for change within the LCA that are relevant to this LVA therefore include:

- *"Continued pressure for agricultural intensification, farm expansion, diversification or specialisation; and*
- *Protection and enhancement of wet neutral grassland and riparian habitats, pastures and meadows and field boundary features under the Countryside Stewardship Scheme"*[15]

[14] North Lincolnshire Landscape Character Assessment and Guidelines (1999). Available on line at: NorthLincolnshire_LandscapeCharacterAssessment.pdf (Page 108) (Accessed 16/11/21).

[15] North Lincolnshire Landscape Character Assessment and Guidelines (1999). Available on line at: NorthLincolnshire_LandscapeCharacterAssessment.pdf (Page 112) (Accessed 16/11/21).

Part 2 of the NLLCA sets out the 'Landscape Strategy and Guidelines' for each Local Landscape Type (LLT) within the Lincolnshire Drift LCA, which occurs within the study area, namely:

- OUF: Open Undulating Farmland
- WF: Wooded Farmland

For the *Open Undulating Wooded Farmland LLT*, the 'Landscape Strategy' aims to locally enhance the landscape through the strengthening of hedgerows, shelterbelts and woodland blocks and that strategic woodland planting could be introduced to provide a greater level of variation and integrate intrusive elements into the landscape. 'Landscape Guidelines' that are of key relevance to the LVA include:

- *"Promote the planting of hedgerow trees to introduce an increasing degree of visual enclosure as the land becomes flatter and lower-lying, to soften views of industry and infrastructure.*
- *Encourage the retention, infilling and thickening of hedgerows, where possible linking to existing shelterbelts and woodland blocks to create wildlife corridors and enhance ditches."*[16]

For the *Wooded Farmland LLT,* the 'Landscape Strategy' aims to locally enhance the landscape by preventing further degradation through intensive agriculture production. These measures could be aimed at the conservation of historic character, woodland management, hedgerow renewal and management and creation of new woodland. 'Landscape Guidelines' that are of key relevance to the LVA include:

- *"Existing mature tree groups within villages need to be protected and manged for future regeneration. Increase the number of specimen trees within villages, particularly along roads .*
- *Protect existing woodland blocks and seek to strengthen those at the edge of settlements, particularly to aid the screening of industry.*
- *Enhance the presence of hedgerow trees, especially where it will distinguish the more intricate field pattern surrounding villages*
- *Encourage the promotion of marginal habitat creation along East Halton Beck."*[17]

4.3.2 North East Lincolnshire Landscape Character Assessment, (January 2015) [18]

The North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (NELLSCS) covers only a very small parcel of land with the south eastern part of the study area. The assessment sets out 6 Landscape Types (LTs) as forming the wider character of North East Lincolnshire and those within the study area are identified on Figure 1.5A, Appendix B. Where relevant, reference is also made to the underlying Local Character Types (LLTs), which are identified on Figure 1.5B, Appendix B.

The study area straddles the *Open Farmland LT,* which is characterised by a flat landform, large skies, medium to large scale arable farmland, limited development, open views towards settlement edges and industry/docks, and mature hedgerow field and roadside boundaries.

The LCT lies immediately north-west of the main settlement of Grimsby. The A180 transport corridor defines the northern extent while open farmland lies to the north-west, west and south of the settlement edge of Grimsby to the east. This is on the whole a visually open,

[16] North Lincolnshire Landscape Character Assessment and Guidelines (1999). Available on line at: NorthLincolnshire_LandscapeCharacterAssessment.pdf (Page 119) (Accessed 16/11/21).

[17] North Lincolnshire Landscape Character Assessment and Guidelines (1999). Available on line at: NorthLincolnshire_LandscapeCharacterAssessment.pdf (Page 121) (Accessed 16/11/21).

[18] North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (2015). Available at Landscape Character Assessment, Sensitivity and Capacity Study (2015) - NELC | NELC (nelincs.gov.uk) (Accessed 22/10/21)

low-lying landscape with large skies. The LT also notes that views are generally across the landscape towards adjacent landscape types, with Immingham docks, industrial areas and the power station distantly visible against large skies to the east. The key characteristics of the LT are as follows:

- *"Virtually flat landform emphasising large skies.*
- *Medium to large scale open arable farmland.*
- *Open views towards settlement edges and industry/docks.*
- *High voltage pylons have an urbanising effect.*
- *Network of busy roads including the main A180 transport route and the Grimsby to Doncaster railway line.*
- *Mature native hedgerow field and roadside boundaries with hedgerow trees, particularly in the north, tending to become sparse and gappy to the north and west of Healing.*
- *Extensive network of field drainage dykes including Main Drain.*
- *Village settlements of Healing, Stallingborough and Harborough, scattered farmsteads."*[19]

The landscape resource of the Site and study area are typical of the key characteristics since there is a network of busy roads and a railway line from Grimsby to Doncaster, which passes just south of the Site. The high voltage pylons also have an urbanising effect amongst the dominant land use which is arable farmland with some pasture. The fields are also medium to large scale and of a regular pattern affording a relatively uniform and simple appearance overall.

The 'pressures for change/key issues' assigned to the LT include the post war agricultural intensification that has led to the removal and frequent cutting of hedgerows in intensively farmed areas as well as the loss of hedgerow trees. The LT notes that the further loss of trees could cause the erosion of the planned enclosure landscapes. There are also development pressures from the settlement fringes including the north-western fringe of Grimsby and connecting busy roads across the area, particularly the A180. Potential for coalescence of settlements and the pressure from future wind energy development are also a source of concern. Key factors that form the baseline for change within the LT that are relevant to this LVA therefore include:

- *"Conserve views of large skies emphasised by flat landform and limited built development;*
- *Encourage introduction and appropriate management of wide field margins along field boundaries;*
- *Conserve, restore and enhance the historic field pattern wherever practicable with priority given to restoring and strengthening primary hedge lines including those alongside roads;*
- *Manage hedgerows to enhance field pattern by planting up gaps, allow hedges to grow by reducing cut rotation intervals to every three years to benefit wildlife; and*
- *Enhance tree cover through small scale planting of broadleaved coverts and woods in keeping with the visually open character".* [20]

[19] North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (2015). Available at Landscape Character Assessment, Sensitivity and Capacity Study (2015) - NELC | NELC (nelincs.gov.uk) (Page 47) (Accessed 16/11/21

[20] North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (2015). Available at Landscape Character Assessment, Sensitivity and Capacity Study (2015) - NELC | NELC (nelincs.gov.uk) (Page 50) (Accessed 16/11/21)

4.3.3 West Lindsey Landscape Character Assessment (August 1999) [21]

The West Lindsey Landscape Character Assessment (WLLCA) covers only a very small parcel of land within the southern extent of the study area. The assessment notes that West Lindsey can be divided into four Broad Landscape Character Areas (BLCAs), which generally reflect the character areas of the Countryside Agency's Countryside Character Map and English Nature's Natural Areas. These comprise the:

- *"Trent Valley;*
- *Lincolnshire Cliff;*
- *Lincolnshire Clay Vale; and*
- *Wolds."*

The WLLCA provides a more detailed review. It identifies the 14 different Landscape Character Areas (LCA), which draw attention to contrasts in landscape character. The WLLCA notes these landscape descriptions for each LCA are a starting point for policies and guidelines for the future conservation, management, restoration and enhancement of the landscape. It is also noted that they provide a point of reference and context for designing new landscapes to accommodate change, ensuring future change has a positive influence and that it reinforces local landscape character, quality and diversity. Specific guidelines are suggested for each LCA. They are two types:

- *"Principles for Landscape Management – priorities for action to conserve and manage the landscape in a way which will reinforce its distinctive character. For instance, by planting trees, laying and replanting hedgerows, repairing stone walls etc.*
- *Principles for accommodating new development – ways to integrate development into different types of landscape, where it should be restricted and how it can be accommodated as a positive influence. For instance, through the careful siting and massing of buildings and the use of materials."* [22]

The study area straddles *The Till Vale LCA*, which is an agricultural landscape with large, flat, open fields and a strong rural character. The area is crossed by three east-west main roads, the A631 to Gainsborough in the north, the A1500 Roman road near Sturton by Stow and the A57 alongside the Foss Dyke in the south. The settlements are generally small and scattered along this north-south line, often on slightly higher ground within the gently undulating landscape. The key characteristics are:

- *"Agricultural landscape with large, flat open fields.*
- *Some fields have low hawthorn hedgerows, with few hedgerow trees.*
- *Small blocks of mixed woodland and shelterbelts.*
- *Extensive network of rivers, dykes and ditches, which have little visual presence in the landscape.*
- *String of small nucleated settlements on higher undulating ground along a minor north south route, sequence of views to landmark churches.*
- *Large farm buildings and individual farmhouses on flatter land to the east.*
- *Ancient enclosure roads with characteristic wide verges and hedgerow boundaries, particularly in the east.*
- *Long westward views to the power stations on the River Trent, and eastward views to the scrap face of the LINCOLN "Cliff".* [23]

[21] West Lindsey Landscape Character Assessment (August 1999). Available at West-Lindsey-Landscape-Character-Assessment-Part-1.pdf (Accessed 22/20/21)

[22] West Lindsey Landscape Character Assessment (August 1999). Available at West-Lindsey-Landscape-Character-Assessment-Part-1.pdf (Accessed (Page 11) (16/11/21)

[23] West Lindsey Landscape Character Assessment (August 1999). Available at West-Lindsey-Landscape-Character-Assessment-Part-1.pdf (Accessed (Page 23) (16/11/21)

4.3.4 Historic Landscape Characterisation Project for Lincolnshire [24]

The Historic Landscape Characterisation project for Lincolnshire (HLCPL) began in October 2008 and was funded jointly by English Heritage, Lincolnshire County Council, North Lincolnshire Council, North East Lincolnshire Council, The Lincolnshire Wolds Countryside Service, West Lindsey District Council, East Lindsey District Council, North Kesteven District Council, South Kesteven District Council, Boston Borough Council, South Holland District Council and City of Lincoln Council. The project defines two broader Character Areas, then ten subsidiary Character Zones (CZs). The study area is crossed by two Character Zones, namely:

- The Wolds
- The Northern Marshes

For *The Wolds CZ*, the landscape is predominantly rural with a slightly higher proportion of fields than the rest of the county, and a correspondingly lower proportion of industrial types. The key characteristics are:

- *The area has a very high proportion of woodland HLC types, especially of plantation woodland and estate woodland. This reflects the extensive woodland cover around Brocklesby Park and the surrounding estate, and large areas of modern plantation in the vicinity of Market Rasen.*
- *Although there are several areas of well-preserved planned enclosure, much of the rural landscape consists of large modern fields.* [25]

For *The Northern Marshes CZ*, the landscape is influenced by the many industrial features along the coast and along the seaward bank of the Humber Estuary there is a large modern presence clustered around the deep-water port at Immingham, which was completed in 1913. The key characteristics are:

- *The most immediately visible of these industries is the Lindsey Oil Refinery at South Killingholme. The refinery complex includes many large and tall structures, such as tanks and flare stacks, which are a significant vertical element in this largely flat landscape.*
- *The ruins of Thornton Abbey are perhaps the most significant standing archaeological remains in the character area.* [26]

4.4 Local / Site Landscape Character

Although an important factor in the baseline assessment, the national / regional and county / district character types and areas described above cover broad areas which share similar characteristics. The level of detail provided is insufficient for more fine grained assessments such as this LVA, since, within each character type / area, there is likely to be considerable local variation that needs to be understood and factored into the baseline studies.

This section therefore analyses the landscape character of the Site and its surrounds in more detail based on field observations supported by maps and aerial photographs. It is divided into two parts: the first part summarises the local landscape character context corresponding with the study area; the second part describes the Site and its immediate boundaries / context.

[24] The Historic Landscape Characterisation Project for Lincolnshire (September 2011). Available at The Historic landscape characterisation project for Lincolnshire (Accessed 25/10/21)

[25] The Historic Landscape Characterisation Project for Lincolnshire (September 2011). Available at The Historic landscape characterisation project for Lincolnshire (Page 25) (Accessed 16/11//21)

[26] The Historic Landscape Characterisation Project for Lincolnshire (September 2011). Available at The Historic landscape characterisation project for Lincolnshire (Page 21) (Accessed 16/11//21)

4.4.1 Local Landscape Context

For ease of reference, the study area is broadly described in relation to sectors extending around the Site corresponding with the principal points of the compass (north, east, south and west), starting at north and working in a clockwise direction.

4.4.1.1 Northern Sector

This sector is characterised by a low-lying rolling landscape that typically sits between 5 m and 10 m Above Ordnance Datum (AOD) – Refer Figure 1.3 (Topography), Appendix B. It is also a predominantly agricultural landscape and one which is intimate in character with areas of woodland cover and well-defined hedgerows.

A belt of deciduous vegetation extends north of the Site to meet with the woodland at Thornton Abbey, which provides a strong measure of containment. Carr Lane also heads and runs perpendicular with the railway line through this sector and has limited influence along the corridor through which it travels, since it is heavily clothed in tall hedgerows to each side.

Adjoining the railway line to the north, Crook Mill Lane runs parallel between Bystaple Level Crossing (LC) and Thornton Abbey, and there is a distinctive row of white polar trees to each side of the road, which are prominent in the same context as the blocks of deciduous woodland around Thornton Abbey. The access to Thornton Abbey is from College Road and the abbey grounds are set within a lower lying part of this sector where East Halton Beck passes north to south. To the south of Thornton Abbey, the land rises towards the bordering agricultural fields and this along with the large blocks of woodland serves to conceal the abbey grounds. Beyond this, Crook Mill Lane is bordered to both sides by a distinctive row of white poplar which are mature and provide a significant buffer in the landscape between Thornton Abbey and the Site. Then, the two further large woodland blocks to each side of Crook Mill Lane (Woodlands at Abbey Farm and South Cloister Culvert), plus extensive woodland lining the railway all add to containment in this northern sector. All this woodland cover serves to close down any intervisibility between the Site and the Scheduled Monument This is evidenced as part of viewpoint VP 03 (A1077 by Hill Garth Farm) where Thornton Abbey can be identified in the landscape; it shows that only the higher ruinous ramparts are visible, depicting that this sector is relatively more heavily wooded.

Fields are medium to large sized and both regular and irregular in shape. They are also generally enclosed by hedgerows and whilst the overall field pattern is still clear, many of the hedged boundaries are fragmented or have been removed.

Settlement is limited to the village of Thornton Curtis with its Grade I listed church dating from the 12th century and Thornton Hall which is a Grade II* listed country house. There is also a well-connected network of public rights of way in the eastern part of this sector that provides access to the coast from inland parts around Thornton Abbey. Other settlements include Thornton Abbey and East Halton.

4.4.1.2 Eastern Sector

The aspect and topography of the Site is broadly flat and gently sloping from 20 m Above Ordnance Datum (AOD) in the west to 10 m AOD in the east.

The East Midlands Railway also runs north to south (parallel to the Site boundary), 30 m from the eastern boundary of the Site.

The majority of this sector is characterised by agricultural land, scattered trees and hedgerows, which contribute some screening in an otherwise flat landscape.

Carr Lane immediately borders the east boundary of the Site where a local cluster of ribbon development and individual farmsteads extend from Cross Road in the south as far the

south east corner of the Site. These properties comprise Ashville Farm, Meadow Croft Farm, Homeland, Ivanhoe, Southlands, Philmar and Hillcrest. Beyond these properties, the mainline railway runs closely parallel on an embankment and provides an additional level of containment in the immediate vicinity of the Site, beyond which Skitter Beck also sits parallel to the railway forming part of a local area known as Ulceby Carr. Killingholme Industrial Park is located 3.6 km east of the Site, and on clear days tall infrastructure, for example industrial stacks, may be visible from the west, breaking up the landform and views across the area.

Where fields are present between the industrial land use, they are of medium-size and irregular shape which generally follow the water courses and land drains. Although defined in part by hedgerows, many of the field boundaries are fragmented or missing and this conveys an open and slightly neglected / degraded quality, often with hedgerows missing from the roadsides allowing open views towards the industrial skyline in the east.

Several rows of pylons and telegraph poles supporting overhead power lines also cross these fields and converge on the National Grid Killingholme Substation, a large energy infrastructure complex close to the River Humber and Immingham Docks. The combination of vertical structures and extensive infrastructure complex set within a more open landscape detracts from the otherwise distinctive landscapes which characterise this part of the Humber Estuary.

The main settlements include North Killingholme and South Killingholme with a road network which forms a grid pattern that is influenced by the presence of the large industrial areas and the refineries energy infrastructure complexes to the east. North Killingholme has the Grade I listed church of Saint Denys, which dates back to the 12th century.

Public rights of way are noticeably absent in this sector giving no access to the countryside for recreation; as a result, local lanes are popular for recreation. This was experienced during the field work where the lanes were used for horse riding, cycling, dog walking and jogging, but this is a busy road network where places for quiet and solitude are mainly limited to Carr Lane in the north and West Middle Mere Road in the south.

4.4.1.3 Southern Sector

The land in the surrounding area is predominantly flat and low-lying, but does slope up to approximately 40 m AOD to the west of Ulceby at Hill Garth Farm.

The transport infrastructure network exerts a strong influence on the wider landscape and includes the A1077 that connects Barton upon Humber to Immingham, A180 motorway corridor and mainline railway that connects Sheffield to Cleethorpes with a northern spur to New Holland. The Site is influenced by the flatter open undulating farmland and wooded farmland landscape types that extend to the north of these transport corridors and mostly sit below 20 m AOD, but to the south of this area the landscape takes on a more wooded character, particularly around Kirmington and Brocklesby.

Several medium to large-sized arable fields are located between the Site and the A180 corridor, where the boundaries are degraded or missing in places.

The Skitter Beck passes through this sector in straight sections on its way to joining with East Halton Beck and then the River Humber at the northern limit of the study area. It occupies a clearly defined alignment when adjoined by woodland blocks. The course of the beck is also defined by belts of trees.

To the west of Skitter Beck, the land rises slightly towards Kirmington and land use is still predominantly arable, although there are concentrations of pasture interspersed with large woodland blocks.

Brocklesby, which also lies just at the tip of the southern sector itself, is designated as a Historic Park and Garden and includes a country house surrounded by C20 formal gardens

by Reginald Blomfield, set within a late C18 park, lakes, and woodland for which Lancelot Brown, Thomas White and Humphrey Repton provided designs, with buildings by James Wyatt .

4.4.1.4 Western Sector

As with the northern sector, this sector is strongly influenced by the Open Undulating Farmland landscape type where the gently rolling landform sits between 20 m and 50 m AOD, however, two rows of pylons also exert some influence where they extend into the area from the west.

Land use is predominantly arable land laid out as medium to large-sized fields, although many hedgerows are depleted where the open character of the landscape further enhances the gently rising ground. Tree cover is limited to a scattering of small wooded areas and belts of trees adjoining settlements and isolated farmsteads and so the area retains an open character.

Settlement is more widespread and includes the village of Wootton as well as a scattering of farmsteads and isolated properties. Wootton adjoins the A1077, which continues across this sector from north to south before it heads east to west in the southern sector. Wootton is a nucleated settlement and unique in that it has not significantly expanded along the A1077, unlike other settlements of Ulceby and Thornton Curtis.

Few detractors exist in this sector beyond the urbanising influence of the A1077 and the two rows of pylons that extend into the sector. Despite the open nature of the intensive agricultural landscape, there is limited evidence of intrusive development and the sector retains a rural character where those field trees, hedgerows and fragmented woodland that does exist has a greater presence within the context of these open arable areas.

4.4.2 Character of the Site and Immediate Surrounds

The Site itself is surrounded by existing scattered trees and hedgerows. This means the Development will not be the only visible man-made infrastructure in the landscape. The majority of the Site is comprised of fields of improved grassland and fields prepared for arable cultivation. An extensive network of hedgerows crosses the Site, with smaller patches of scrub and groups of trees also present. There are no ponds or other areas of standing water across the Site, although there are ponds and agricultural drains and ditches in close proximity to the Site.

High voltage electrical pylons are present on site and in the surrounding environment, and these break up the flat landform.

The Site comprises agricultural land, located approximately 2 km north east of the village of Ulceby, North Lincolnshire. The Site is adjacent to Carr Lane, 650 m north of Cross Road, and the Site itself is 1.9 km north of the A1077.

The Site, as defined by the red line application boundary, extends to an area of approximately 44.58 ha that sits in open countryside immediately north of Ulceby, near Immingham. The location of the Site relative to the village is shown on Figure 1.1 Site Location and Figure 1.2 Aerial Mapping (Appendix B).

The Site occupies a broadly undulating north-east to south-west orientated tract of land which falls towards Skitter Beck flowing in a south to north direction and enclosing the Site to the east. Ordnance Survey contour mapping of the area (1:25,000 scale) shows the 10 m contour adjoining the eastern boundary and projecting into the land parcel just outside the southern Site boundary to create a localised lower-lying area denoted by land drains. The mapping shows the western boundary of the Site as broadly following the 20m contour. The land then rises outside the Site boundary to the west to a local high point at Zulu Farm of 25m AOD.

The Site is presently in agricultural use and comprises several medium-sized fields of a narrow and regular shape. There are also existing access tracks crossing the field from Carr Lane leading to Sweetbriar Farm and North Field Farm respectively. Sweetbriar Farm is presently used as a free-range chicken farm and so all the land around the farm and associated buildings are used for that purpose.

One row of pylons and telegraph poles supporting overhead power lines crosses the Site. Collectively, the pylons / telegraph poles are urbanising features and detractors in the local landscape.

The Site boundaries are defined by a collection of native hedgerows and belts of trees which afford varying degrees of enclosure / containment. Hedgerows with mature tree cover define the northern boundary and, together with the small plantation and woodland belt along the railway that adjoin the Site to the north, they provide a high level of containment that prevents visibility of the Site from the road network to the north of the Bystaple Lane Level Crossing. These roads include Carr Lane where it heads east to join with Crook Mill Road.

In contrast, the western boundary is largely open except for a short section of hedgerow immediately south of the northern boundary. This affords views of the Site from the residential properties comprising Sweetbriar Farm, North Field Farm and Zulu Farm on slightly higher ground. The boundary does not afford views from public roads of the public rights of way. Similarly, the southern boundary is open which allows views across the Site from the public road network at both Carr Lane and Cross Road.

The eastern boundary partly adjoins Carr Lane and here a dense hedgerow defines its alignment and provides relatively high levels of containment. The residential property known as Southlands (and its small paddock to the north) which adjoins the Site in the southwest corner also provides some level of containment in views from Carr Lane. Within the Site, the field boundaries are defined by open ditches with no internal hedgerows.

4.5 Landscape Designations

The Site is not covered by any statutory landscape-related designations. Within the wider study area, the closest national landscape designation is the Lincolnshire Wolds Area of Outstanding Natural Beauty, located 15 km south of the Site at its closest point. There are no World Heritage Sites or Registered Historic Battlefields within a 5 km radius of the Site.

Identifying and understanding landscape-related designations and other protected features is integral to establishing landscape value, but new development may affect them individually. Those that could potentially be affected by the Development are described in Sections 4.5-4.14 of the current section.

It should be noted, however, that an assessment of effects on biodiversity and heritage assets, including their settings, is beyond the scope of this LVA (refer GLVIA3, para. 5.11). As such only effects on landscape-related designations are considered.

4.6 Scheduled Monuments

There are no designated archaeological or cultural heritage assets within the Site.

One Scheduled Monument is located within the study area and within the ZTV, which comprises:

- The Scheduled Monument 'Thornton Abbey Augustinian Monastery' (List Entry 1011198) is located approximately 1.1 km to the north east of the Site.

4.7 Conservation Areas

The Site itself does not lie within a conservation area, and the nearest is the Barrow upon Humber Conservation Area, located approximately 4.8 km north west of the Site. Due to distance, this is scoped out of the assessment.

4.8 Listed Buildings

A number of Listed Buildings and structures are found across the study area, both within the main settlements and in more isolated locations. Only the listed buildings at Thornton Abbey lie within the ZTV, namely the:

- Scheduled Monument of 'Thornton Abbey Augustinian Monastery' that has eight associated Listed Buildings within its area, three of which are Grade I listed and five are Grade II listed; and
- Thornton Hall Grade II* Listed Buildings and adjacent Grade II Listed stables, located approximately 1.3 km north west of the Site.

Several of these listings, although within approximately 2 km of the Site, lie outside of the ZTV and so are scoped out of the assessment. These listings include:

- Grade I Listed Church of St Lawrence, and three additional Grade II Listed Buildings (Churchyard Cross, The Laurels, and Thornton Hunt Inn), located in Thornton Curtis approximately 1.6 km north east of the Site;
- Ashdale Farmhouse, Grade II Listed Building, located approximately 1.3 km west of the Site;
- Church of Saint Nicholas, Grade I Listed Building, and an additional three Grade II Listed Buildings (Ashtree House, Churchyard Cross, and Holly Farmhouse) located in Ulceby, approximately 2 km south west of the Site; and
- Brocklesby Station, and the signal box opposite Brocklesby Station, both Grade II Listed Buildings and located approximately 3.3 km south of the Site.

4.9 Registered Historic Parks and Gardens

One Registered Parks and Garden (RPG) falls within the study area but outwith the ZTV and so this is scoped out of the assessment. This RPG comprises:

- Brocklesby Park Registered Park and Garden, located 3.5 km south of the Site.

4.10 National Trails / Cycle Routes and Long-Distance Footpaths

There are no National Trails or National Cycle Networks or other large-scale recreational facilities within 2 km of the Site. Hillcrest Camping Campsite is located 140 m east of the Site, on the opposite side of Carr Lane. This is a small campsite, and aerial imagery suggests there is natural screening present along its boundaries, blocking any views of the Development. There are no further local recreation facilities within 2 km of the Site.

4.11 Public Rights of Way

No public rights of way (footpaths, bridleways and byways) pass through the Site or immediately adjacent to it. Across the wider study area there is a comprehensive network of public rights of way that provide access to the countryside. Several of these routes' pass within approximately 2 km of the Site (refer Section 4.15 below).

4.12 Sites of Special Scientific Interest (SSSIs)

There are no ecological designations, including SSSIs, SPAs, SACs, Ramsar Sites, LNRs, NNRs and RSPB reserves identified within the 2 km search area. The closest statutory European ecological designation to the Site is the Humber Estuary SPA, SAC, and Ramsar Site located 6 km east of the Site.

4.13 Ancient Woodland

There is one area of Ancient Woodland area located 3.3 km approx. south of the Site which comprises Alder Wood.

4.14 Visual Receptors

The visual appraisal draws upon the ZTVs, site visits and viewpoint analysis to determine the potential effects of the Development on views and visual amenity experienced by a variety of visual receptors (people) within the study area.

Visual receptors include people who:

- Live and work in the area;
- Visit the area for a specific reason (for instance, visitors to tourist or recreational attractions); and
- Pass through the area (on foot, by horse, by bike, by car or by train).

In this instance, the following key receptor groups have been identified within the study area:

- Occupiers of residential properties (individuals, in groups or part of larger settlements);
- Users of sign-posted recreational routes (footpaths, bridleways and byways); and
- Users of the existing road network (A and B-class roads and local roads).

Within these key receptor groups, the appraisal of effects focusses on receptors who are most likely to undergo a 'noticeable' change in visual amenity arising from views gained of the Development.

4.14.1 Settlements and Residential Properties

The Site is located in a predominantly rural landscape in which settlement consists of a number of villages and hamlets as well as a scattering of farmsteads and residential properties. This pattern of settlement is clearly shown on Figure 1.1 (Site Location), Appendix B.

One settlement was identified within the study area (and within the ZTV) and is included in the appraisal:

- Village of Ulceby Skitter, located approximately 2 km south of the Site;

The settlements identified within the study area (but outwith the ZTV) and scoped out of the appraisal are:

- Village of Ulceby, located approximately 2 km south west of the Site; and
- Village of Thornton Curtis, located approximately 1.9 km north west of the Site.

The settlements outwith the study area and scoped out of the appraisal are the:

- Village of Wootton, located approximately 2.3 km west of the Site; and
- Villages of South and North Killingholme, located approximately 3 km south east of the Site.

In addition to the main settlements, there are a number of isolated properties, small groups of properties and farmsteads scattered across the study area from which views of the Development may be possible. As noted in Section 2.4, the LVA considers potential effects on occupiers of properties within approximately 1 km of the Site, these being:

- The Gatehouse, located approximately 20 m to the east, along Carr Lane;
- Sweetbriar Farm, located approximately 50 m to the west;
- Aurora, located approximately 100 m to the east, along Carr Lane;
- Hillcrest, located approximately 140 m to the east, along Carr Lane;

- Southlands, located approximately 80 m to the east, along Carr Lane;
- Zulu Farm, located approximately 220 m to the west;
- Northfield Farm, located approximately 150 m to the west;
- Ivanhoe, located approximately 230 m south east;
- Meadow Croft Farm, located approximately 360 m to the south east;
- Holmland, located approximately 370 m south east;
- Ashville Farm, located approximately 570 m south east;
- Becklea Farm, located approximately 460 m south east; and
- Garola House, located approximately 470 m to the south east.

A radius of 1 km was considered appropriate given the low-rise nature of the Development which has a considerable limiting effect on views. The gently undulating landform and pattern of woodland and tree cover which characterises the area also has a limiting effect on views.

Within this radius, eight individual and groups of properties have been identified and are shown on Figure 1.9 (Visual Amenity), Appendix B where they are numbered R1, R2, etc.

4.14.2 Recreational Routes

There are no long-distance walking routes within the study area, however a comprehensive network of public footpaths, bridleways and byways also cross the study area and are included in the appraisal. These are shown on Figure 1.4 (Landscape Baseline), Appendix B.

Users of recreational routes which pass within approximately 2 km of the Site have most potential to undergo an 'adverse' effect on views and visual amenity arising from the Development and so the LVA focuses on these. These routes below are relative to the principal points of the compass (north, east, south, west).

North of Site

- Footpath THOR|70, which passes north of Thornton Abbey;
- Footpath THOR|76, which passes north east of Thornton Abbey;
- Footpath THOR|82A, which passes north of Thornton Abbey;
- Footpath THOR|130, which passes from the junction of Carr Lane at Bystaple Lane LC and runs parallel to the railway line as far as Thornton Abbey Station;
- Footpath THOR|131, which passes east of Thornton Curtins;
- Footpath EHAL|80, which passes east to west, north of Westfield Farm; and
- Footpath EHAL|81, which passes north from Crook Mill Road.

East of Site

- None present.

South of Site

- Footpath BROC|1|1, which passes west of Ulceby Junction;
- Footpath ULCE|103, which passes south from Station Road, Ulceby;
- Footpath ULCE|104, which passes east of Pelham Farm; and
- Footpath ULCE|113, which passes south of Ulceby.

West of Site

- None present.

4.14.3 Transport Routes

The principal roads in the study area are Carr Lane which runs adjacent to the Site's eastern boundary, and Cross Road which runs 650 m south of the Site. Crook Mill Road joins Carr Lane at the Site's north eastern corner. The East Midlands Railway also runs parallel to the

Site's eastern boundary, at a distance of 30 m from the boundary at its closest point. As trains are transient and move at high speeds, views of the Development from passengers on this route would be glimpsed and interrupted by natural screening.

Key transport routes which pass through the study area and which are included in the appraisal are shown on Figure 1.1 (Site Location), Appendix B. These are limited to:

- A1077, which passes approximately 1.0 km south the Solar Site; and
- A180, which passes approximately 2.5 km south of the Site.

In addition to these main roads, a network of local un-classified roads crosses the study area - these are also included in the appraisal. Users of local roads which pass within approximately 2 km of the Site have most potential to undergo a 'adverse' effect on views and visual amenity arising from the Development and so the LVA focuses on these. These routes are listed below and can be identified on Figure 1.9 (Visual Amenity), Appendix B:

- Carr Lane, which adjoins the Site to the east;
- Cross Road, which passes approximately 670 m south of the Site; and
- Crook Mill Lane, which passes approximately 300 m north east of the Site.

4.15 Receptors Scoped Out of the LVA

Further to the information presented above, a number of landscape and visual receptors have been scoped out of this appraisal. These are listed below.

Landscape Receptors

The following landscape character receptors have been scoped out due to the extremely small geographic area with potential to be affected by the Development. The limited extent of theoretical visibility indicated by the (screened) ZTV for some of these receptors has also been a factor:

- NCA 41: Humber Estuary; and
- NCA 42: Lincolnshire Coast and Marshes.

Visual Receptors

The nearest receptors are the residential properties located close to the boundaries of the Site, as identified under the visual receptors section above, the closest of which is Southlands which directly adjoins the Site, The Gatehouse, approximately 20 m east, and Sweetbriar Farm, approximately 50 m west. The nearest settlement is Ulceby Skitter where the nearest receptors are approximately 2 km south of the Site.

The baseline environment includes few effects beyond the minor roads around the Site comprising Carr Lane, Cross Road, and Crook Mill Lane. There could potentially be some effects from the main roads (A1077 and A180) to the south of the Site, although the distance between these and the Site will likely make their effect minimal.

The following receptors have been scoped out on the basis of little or no theoretical visibility as shown on Figures 1.6, 1.7 and 1.9 (ZTV (Bare Earth and Screened) and Visual Amenity):

Heritage Receptors

- The Scheduled Monument at Thornton Abbey;
- Grade II listed Thornton Hall;
- Grade I listed Church of St Lawrence;
- Grade II listed Ashdale Farmhouse;
- Grade I listed Church of St Nicholas;
- Grade II listed Brocklesby Station;
- Brocklesby Registered Historic Park and Garden; and
- Alder Wood, Ancient Woodland.

Settlements

- Villages of Thornton Curtis, Wootton, South Killingholme and North Killingholme.

Recreational Receptors

- Footpath THOR|70;
- Footpath THOR|76;
- Footpath THOR|82A;
- Footpath THOR|131;
- Footpath EHAL|180;
- Footpath BROC|1|1;
- Footpath ULCE|103;
- Footpath ULCE|104; and
- Footpath ULCE|113.

Transport Receptors

- A180.

4.16 Night Time Baseline

In general, and notwithstanding the rural location of the Site, there are many sources of light pollution arising from the heavy industrial nature of the study area and the close proximity to the Humber Estuary. They are influenced by the presence of the large industrial areas and the refineries and energy infrastructure complexes to the east, which generate significant levels of light pollution.

4.17 Future Baseline

It is not anticipated that the baseline conditions described above would differ significantly in the future, with or without the Development. This is due to the existing heavy industrial uses in the wider area and the agricultural uses and woodland cover which dominate the immediate context of the Site and would continue to in the future.

5 ZTV ANALYSIS

The (screened) ZTV (Figure 1.7, Appendix B) indicates theoretical visibility of the Development within the wider study area. For the most part visibility is contained to within 2 km of the Site, as summarised below relative to the principal points of the compass:

- To the north, visibility extends to just under 2 km as far as the 15.0 m AOD contour just to the east of Villa Farm. The landform contains visibility to the west where it rises locally towards the residential property known as 'The Grange' and where levels reach 20.0 m AOD. In the field, a series of commercial buildings at Abbey Farm which lies to the south east of the Thornton Abbey are not factored into the ZTV model. These, along with the woodland belts along the Mainline railway, would prevent most views from this direction;
- To the east, visibility extends to the settlements of North Killingholme and South Killingholme, but in the field is contained by the large commercial units at the disused airfield and continues across the small collection of fields which lie to the south of the mainline railway;
- To the south, visibility is curtailed by the settlements of Ulceby and Ulceby Skitter, and woodland at Sink Covert also helps to close down views across the area. To the south east, visibility extends across West Middle Mere Road as far as the A1077, but in the field views across this area are curtailed by the woodland belts along the mainline railway and the field boundary hedgerows, which together form a robust network with a high level of tree cover that gives the impression of a heavily wooded landscape; and
- To the west, slightly more patchy visibility extends across gently rising ground as far as a local higher ground that reaches 25.0 m AOD at Zulu Farm and Glebe Farm. Beyond this, there is slight visibility which extends south west across a lower-lying area as far as Mill Farm.

Beyond 2 km of the Site, patches of theoretical visibility are indicated across the industrial areas to the east and southeast, but when factoring in the low-lying landform, pattern of hedgerows, high level of hedgerow trees, commercial units and other vegetation along the mainline railway not included into the ZTV model, it is highly unlikely that any meaningful visibility of the Development would be gained from these locations.

5.1 Weather Conditions

In addition to screening afforded by vegetation, buildings and local landform, the proximity to the Humber Estuary gives rise to changing weather patterns and local climatic conditions that would also influence visibility of the Development (in terms of the extent of view, degree of contrast, etc.) and thus the perceived visual impact. There would be periods of low visibility (i.e. fog, precipitation, low cloud, and bright sunny conditions that are accompanied by haze) as well as periods of high visibility in clear weather.

6 APPRAISAL OF LIKELY EFFECTS

In order to understand the likely effects of the Development, it is first necessary to understand the construction processes involved and the components of the Development which would be present during its operational life. The likely effects that would arise as a result of the Development can be attributed to either the short-term construction phase or the long-term operational phase.

The Site Layout Plan shown on Planning Drawing 2 and replicated on Drawing 457_DR_LAN_101 Rev A (Landscape Mitigation Plan), Appendix C illustrates the layout and key components of the Development.

6.1 Effects of Construction

The main access route to Site will be via Carr Lane, which runs adjacent to the Site's eastern boundary, and provides access to the A1077, A160, and A180. Access to the Development would make use of existing agricultural tracks (feeding Sweetbriar Farm) and would utilise the existing field access point off Carr Lane. The TCC for the development will also be located at the access point just off Carr Lane and will serve the wider development. Access across the wider Site from the TCC would by via existing agricultural tracks, and these will be extended as needed to reach areas of panels further within the Site; this is to minimise the requirement for new field entrances and reduce traffic on the roads around the Site during the construction period. Where new access tracks are required, they will be constructed approximately 4 m wide.

The access off Carr Lane would only require minimal hedgerow maintenance (trimming back the existing vegetation) to accommodate sight-lines etc, and existing hedgerows and tree belts to the external boundaries of the Site would be protected and retained by setting the solar panels back by an appropriate distance (this would also avoid / minimise shading of the panels). Similarly, any hedgerows and tree belts to internal field boundaries and adjoining watercourses would be retained, protected and incorporated with the Development, where applicable.

The Site is in the vicinity of East Halton/Skitter Beck and there are several other unnamed ditches and drains near the Site that connect into this water course. Through design, all infrastructure - and therefore construction activity - will be set back appropriately from ditches on Site allowing a 6 m buffer.

Within the Site, access would be provided by the existing agricultural tracks from Carr Lane. Access to the field inverters would also make use of existing on-site tracks where possible with the exception of a new track within PDA 1, PDA 6, PDA 9, PDA 12 and PDA 13 to the north east of the residential property known as Southlands and accessed from Carr Lane. Access to the field inverters would also be provided within the easements to the 33 kV and 400 kV overhead power lines. New tracks would generally follow existing field boundaries with crossing points coinciding with existing field entrances and / or gaps in existing vegetation where possible. The access track, substations and inverters would result in the loss of a very small area of arable farmland since there is a good network of existing tracks already on Site, which benefit from direct access off Carr Road.

The metal frames that support the solar panels would be driven into the ground rather than secured by concrete footings, thereby avoiding the need for extensive excavations and foundations. All cabling would be installed below ground with minimal disturbance to the existing ground.

There may be a need for temporary lighting during the construction phase, depending on the time of year and the length of the construction programme. This should only be required during autumn-winter construction.

Overall, the effects of construction on landscape resources would be restricted to small geographical areas within the Site and would not result in the removal of any important or unusual landscape features. The effects would be of short duration (6 months) and localised in their extent and would not have any meaningful influence on landscape character beyond the Site and its immediate setting.

The visual effects of construction would be limited to views of construction activities, including from Carr Lane where it directly adjoins the eastern boundary and from Cross Road that lies approximately 600 m to the south of the southern Site boundary. Some residential properties on rising ground that forms ribbon development along Carr Lane to the east and south east would also experience views of the construction activities and the residential property known as Southlands - which directly adjoins the Site's south eastern boundary - would experience effects, but these would be of short duration and localised and would not have any meaningful influence on visual amenity beyond the Site and its immediate setting.

Construction traffic will consist of heavy goods vehicles (HGVs), light good vehicles and cars, with no abnormal load movements expected to be required. The roads around the Site are minor, and often only wide enough for one vehicle, which may make traffic movement more difficult, particularly for HGVs. As a result, the magnitude of change during the construction phase would be medium.

6.2 Effects of Operation

Compared to the construction phase, the Development would gain a more 'settled' appearance during the operational period when construction activity ceases. The visual effects would be mainly attributed to the solar panels and the substation compound that will include housing for the transformers and inverters, plus the Client substation. Consideration will be given in the design of the Development to ensure that the substation items are placed sensitively adjacent existing vegetation to minimise effects on residential properties in the vicinity of the Site. Additionally, solar panels would be set back from the Site boundaries to allow sufficient buffer zones to the adjoining receptors. During the operational phase of the Development, additional traffic would be limited to maintenance vehicles. The security lighting would be motion activated only and no permanent lighting is required on Site.

The Development would be seen or experienced in the surrounding area to a greater or lesser extent with potential for indirect effects on landscape character and visual amenity. The extent to which landscape and visual receptors would be affected by the Development during its operational phase is discussed in Sections 8 and 9 below.

7 MITIGATION MEASURES

The landscape and visual objectives of the embedded mitigation were:

- To screen elements of the Development from key receptor locations, e.g., nearby residential properties;
- To soften 'hard edges' of the Development from the Public Rights of Way (PRoW) and views within the wider landscape; and
- To reflect existing landscape elements and character in areas of the wider landscape setting.

The embedded mitigation includes the following biodiversity objectives:

- To minimise impacts on existing habitats and species during construction;
- To extend and enhance the most valuable existing habitats onsite;
- To create new habitats onsite that reflect the natural flora and fauna of the area; and

- To make the most of opportunities to improve biodiversity within the Development site and surrounding area.

Mitigation and enhancement measures assumed to be incorporated with the Development as 'primary' mitigation to avoid any 'substantial' or unacceptable adverse landscape and visual effects, or which reduces them to acceptable levels are illustrated on Drawing 4157_DR_LAN_101 Rev A (Landscape Mitigation Plan), Appendix C. These include:

- Retaining all existing hedgerows and tree belts to the perimeter of the Site and internally and incorporating them within the scheme to maintain landscape character as well as to filter and screen views of the Development;
- Gapping up / reinforcing existing hedgerows to the eastern and northern boundaries using locally indigenous hedgerows species to improve screening of the Development;
- Reinstating hedgerows and woodland to the western boundary where presently missing to help restore landscape features lost to intensive farming practices, enhance habitat connectivity and further improve screening of the Development over time. New hedgerows would be planted as a double staggered row using locally indigenous hedgerow species supplied as forestry transplants (40/60 cm high);
- Reinstating hedgerows to the southern field boundary between the Site and the open field to the south where presently missing to help restore landscape features lost to intensive farming practices, enhance habitat connectivity and further improve screening of the Development over time;
- Incorporating specimen trees within existing / new hedgerows where not conflicting with overhead power lines. The choice of trees would be based on locally indigenous species supplied as selected standards (minimum 300 cm high);
- Replacing existing arable uses on the Site with species-rich / wildflower grassland to further enhance local landscape character as well as improve the biodiversity value of the Development; and,
- Improving the management of existing hedgerows and tree belts generally on the Site - this would include hedgerows along the northern boundary which support high levels of tree cover and in need of particular management to ensure the balance of tree cover and understorey species can be effectively maintained.

In addition, various ecological enhancements could be undertaken to further improve the biodiversity value of the Development, as set out in the EcIA. In brief, these could include sowing meadow grass in selected locations using locally sourced seed and providing bird and bat nesting boxes.

Overall, there is a considerable amount of planting proposed across the Site and the measures proposed in the LBMP have contributed to a biodiversity net gain of + 167.7% in Habitat Biodiversity Metric units and + 341.33% Hedgerow Biodiversity Metric Units as reported in Biodiversity Metrics Assessment Report submitted with the application.

8 APPRAISAL OF RESIDUAL LANDSCAPE EFFECTS

This section considers the potential effects of the Development on the landscape character of the area during its operational phase. Judgments about levels of effect are arrived at by combining levels of receptor 'sensitivity' with the predicted levels of 'magnitude of effect' that are likely to arise from the Development being operated. This is set out in detail in Appendix A (LVA Methodology) of the LVA.

In summary, the sensitivity of a landscape character receptor takes account of its 'susceptibility' to the proposed change, together with any 'value' attached to the landscape. This is described in the following sections in relation to each landscape character receptor appraised.

Magnitude takes account of matters such as the 'size or scale' of change, the 'geographical extent' of area affected, the 'duration' of effects and their 'reversibility'.

The size or scale of change and geographical extent of area affected (at a local and site scale) are described in the following sections.

Duration of effects and their reversibility take account of timescales over which effects are experienced and whether they are temporary or permanent. For a scheme of this type, effects arising from the completed development are assumed to be 'long-term' but 'reversible' and are not reiterated in the appraisal.

It is also important to note that duration includes timescales for mitigation measures to become effective. This could take several years if, for example, new planting is provided to screen views but needs to achieve a certain height.

Timescales required for new planting to be effective at screening views is particularly important in the assessment of visual effects (as described in Section 9). As such, for this part of the assessment, levels of effect are normally assessed, firstly, at completion when new planting is in place but not effective (taken as Year 1) and, secondly, when new planting has matured sufficiently to be effective at screening views (taken as Year 15).

Levels of effects reported at Year 15 are also 'residual' effects that remain after mitigation has become effective.

For consistency, effects on landscape character described in this section are also assessed at Year 1 and Year 15; however, timescales required for planting to achieve an effective screen is less important since effects on landscape character are not dependent on visibility. As such, no meaningful reduction in levels of effect would be expected over this timescale even though planting provided to mitigate views can help to soften the appearance of development and integrate it with the wider landscape.

8.1 Appraisal of Effects on Landscape Character

At a national / regional level, the Site sits within NCA 42: Lincolnshire Coast and Marshes where it occupies an extremely small part, and the study area forms part of NCA 41: Humber Estuary. The geographical extent of area influenced by the Development relative to the NCAs would be extremely small and so, in this regard, the magnitude of effect would broadly amount to 'no change', resulting in 'no effect' on either of the NCAs.

The effects of the Development on landscape character therefore focuses on a county / district level in relation to those Landscape Types (LTs) identified in Section 4.3:

- North Lincolnshire Landscape Character Assessment and Guidelines (1999);
- North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (January 2015);
- West Lindsey Landscape Character Assessment (August 1999); and
- The Historic Landscape Characterisation Project for Lincolnshire.

These baseline landscape character LTs are:

- Open Undulating Farmland; and
- Wooded Farmland.

The effects of the Development on the character of the Site itself and its immediate context have also been considered.

8.1.1 Effects on Open Undulating Farmland

Open Undulating Farmlands is the 'host' LT for the Development and therefore has the potential to be directly affected by it. The Site itself forms a small part of this LT which covers the majority of the study area and occurs more widely across Lincolnshire.

8.1.1.1 Sensitivity to the Development

In terms of susceptibility to change, the mainly large-scale, intensive pattern of hedged fields (although some are degraded with gaps) combined with the gently dipping terrain towards the Humber and sporadic woodland cover affords low to moderate levels of containment or enclosure.

Although predominantly rural in character, larger settlements are concentrated to the north near the Humber estuary while villages are scattered, situated on the elevated direr land of the Wolds dip-slope. Various industrial / urbanising land uses and features are present and have a localised negative influence on the character or experience of the landscape to a greater or lesser extent. These include the large sheds associated with the airfield industry that sit intrusively in the landscape and the various pylons / telegraph poles which emanate from it as well as some modern farm buildings which are large in scale. The substation and pylons are particularly important at lowering susceptibility as the industrial nature of these features represents an existing reference or context within the landscape to the type of change proposed.

Whilst of some value, the relatively intact pattern of hedgerows, linear tree belts and small wooded areas which characterise the area could potentially be replaced / substituted or their loss satisfactorily compensated for. The pattern of vegetation in conjunction with the dipping landform also provides good potential for mitigating the type of change proposed.

Overall, the landscape is judged to be able to accept the type of change proposed but with some concerns for maintaining the baseline situation without adequate mitigation.

On balance, the Open Undulating Farmland LT is judged to have a *low to medium* susceptibility.

In terms of value, the landscape is undesignated. The quality of the landscape is fair, but with the pattern of landscape components / elements / features (field pattern, etc.) showing signs of erosion or loss with sufficient scope to enhance this pattern as a fitting context for a solar scheme.

Scenic quality is pleasant but with few, if any, rare landscape elements / features present. There are also some incongruous features or detractors present, most notably the existing industrial uses, the large sheds associated with the airfield industry and pylons within the landscape.

Natural / heritage features of importance are largely absent and recreational value is limited to a number of PRoW that provide access to the countryside, but these are mainly limited to the landscape within the north east of the area. Overall, there is some sense of place within some of the smaller settlements and some degree of tranquillity in more remote parts.

On balance, the Open Undulating Farmland LT is judged to have a *low to medium* value.

By combining judgments on susceptibility and value an overall level of sensitivity is derived. In this instance, the sensitivity of the LT to the Development is judged to be low-medium.

8.1.1.2 Nature of Change and Magnitude of Effect

The Development would have little effect on those key characteristics and sensitivities identified for the LT. The geographical extent of the LT influenced by the Development would also be limited and confined to that part of the LT already influenced by the presence of the existing industrial uses, the pylons and the large sheds associated with the airfield industry.

At Year 1, the magnitude of effect is judged to be negligible to small adverse. At Year 15, the magnitude of effect would remain unchanged i.e., negligible to small adverse.

8.1.1.3 Level of Effect

At Year 1, taking into account the low-medium landscape sensitivity attributed to the LT and the negligible to small adverse magnitude of effect predicted, the level of effect would be between Negligible and Minor adverse. At Year 15, the level of effect would remain unchanged i.e. between Negligible and Minor adverse.

8.1.2 Effects on Wooded Farmland

Wooded Farmland is a linear LT that coincides with the Ulceby mainline railway junction and also the watercourse known as Skitter Beck. This includes the adjoining woodland areas at Sinks Covert and also the woodland associated with Thornton Abbey. The LT therefore has some potential to be indirectly affected by the Development since it is located within 300 m of the Site's eastern boundary.

8.1.2.1 Sensitivity to the Development

In terms of susceptibility to change, the linear extent of narrow width combined with the presence of woodland affords moderate levels of containment.

Although predominantly rural in character, the various pylons / telegraph poles which occupy the adjoining landscape type to the west and the industrial uses/large sheds on the landscape type to the east have a negative influence on the character or experience of the Wooded Farmland. In addition, with the exception of the close ecological associations and tree belts adjoining the water course, the peripheral pattern of hedgerows which characterise the remainder of the area could potentially be replaced / substituted or their loss satisfactorily compensated for. The associated woodland and pattern of hedgerows combined with the broadly flat landform also provides good potential for mitigating the type of change proposed.

On balance, the Wooded Farmland LT is judged to have a *medium* susceptibility.

In terms of value, the LT forms part of the setting of Ulceby and given its linear nature the setting of North Killingholme and South Killingholme. The LT is generally in good to fair condition with an attractive scenic quality due to the abundance of tree cover, albeit with some detractors (pylons and industrial interventions) present to the adjoining landscape type. There are also some heritage features of value (Thornton Abbey) and recreational interests including the footpath network, which yield a greater concentration of footpaths linking into the northern part of this LT.

On balance, the Wooded Farmland LT is judged to have a *medium* value.

By combining judgments on susceptibility and value an overall level of sensitivity is derived. In this instance, the sensitivity of the LT to the Development is judged to be medium.

8.1.2.2 Nature of Change and Magnitude of Effect

The Development would have little effect on those key characteristics and sensitivities identified for the LT. Similarly, the geographical extent of the LT influenced by the Development would also be limited and confined to a short section of the LT in the immediate vicinity of the Site and that would be separated by the intervening mainline railway.

At Year 1, the magnitude of effect is judged to be negligible to small adverse. At Year 15, the magnitude of effect would remain unchanged i.e. negligible to small adverse.

8.1.2.3 Level of Effect

At Year 1, taking into account the medium landscape sensitivity attributed to the LT and the negligible to small adverse magnitude of effect predicted, the level of effect would be between Negligible and Minor adverse. At Year 15, the level of effect would remain unchanged i.e. between Negligible and Minor adverse.

8.1.3 Effects on Character of the Site and its Immediate Context

This part of the appraisal considers effects on the character of the Site and its immediate surrounds where the influence of the Development would be greatest i.e. immediately east along Carr Lane and to the south from Cross Road.

As described in Section 4.4.2, the Site is presently in agricultural use comprising several arable fields. A number of pylons / telegraph poles supporting overhead power lines also cross the Site and, as such, it displays some industrial / urbanising characteristics despite its predominantly rural location.

8.1.3.1 Sensitivity to the Development

In terms of susceptibility to change, the low-lying landform occupied by the Site combined with the pattern of hedgerows, tree belts and wooded areas to some of its boundaries provides some degree of containment. But the fragmented nature or absence of hedgerows to other boundaries reduces this and, overall, the Site possess low-moderate levels of containment.

Whilst this increases susceptibility, factors which lower susceptibility include the rows of pylons / telegraph poles supporting overhead power lines that cross the Site, the proximity of the industrial uses towards the east at Immingham and the large-scale agricultural sheds. These are all urbanising and detracting features that have a negative influence on the character of the Site. They also represent a similar type of 'energy / power' development to what is proposed which is important as it introduces a degree of familiarity.

In addition, existing landscape elements and features found on the Site (excluding boundary vegetation) are limited to commercial crops which are of little / no value and could easily be replaced / substituted or the loss satisfactorily compensated for. There is also good potential for mitigating the type of change proposed given the limited height of solar panels and opportunities for additional planting to complement / reinforce the existing framework of vegetation.

On balance, the susceptibility of the Site is judged to be *low*.

In terms of value, the Site is undesignated and is not subject to any specific landscape strategies or guidance beyond protecting / conserving / enhancing characteristic elements and features (trees, hedgerows, pasture, etc.). It is located a distance of approximately 1.5 km from Thornton Abbey and forms part of its wider setting. Industrial / urbanising influences are also present.

Landscape quality is fair in that boundary hedgerows and tree belts are scarce but where they are present, they appear to be in reasonable condition and support some elements of

tree cover in places. Scenic quality is, however, diminished by the presence of pylons which cross the Site and proximity of the industrial uses to the east.

Similarly, no rare or distinctive landscape elements or features are found on the Site and those which are present (boundary vegetation) can be retained. In addition, no conservation interests exist on the Site and there is no public access to it.

Overall, the pylons and proximity of the industrial uses towards the east ensures there is limited visual appeal or sense of place attached to the Site and relatively low levels of tranquillity. On balance, the value of the Site is judged to be *low*.

Taking account of the low susceptibility and low value attributed to the Site, its overall sensitivity to the Development is judged to be low.

8.1.3.2 Nature of Change and Magnitude of Effect

The main effects of the Development would be the addition of solar panels across the Site together with the substation, inverters and other related infrastructure.

Existing arable uses which cover the Site would be replaced by traditional grassland / wildflower meadows to improve the biodiversity value of the scheme. Existing boundary vegetation which partly encloses the Site would be retained and protected. In addition, existing hedgerows would be reinforced or reinstated where presently missing, both within and to the boundaries of the Site to the east and between the Site and the landscape to the south to enclose the Site, help restore landscape features lost to intensive farming practises and provide containment in views from Cross Road. Various ecological enhancements are also proposed which would have a beneficial effect on local landscape character and biodiversity of the Site.

Judgments about the magnitude of effect on the character of the Site and its immediate setting took into account the introduction of the solar panels and associated infrastructure contained by a framework of existing and new vegetation. These effects are judged to be large adverse. Judgments also took account of localised enhancements, as described above, which at the Site level are judged to be small beneficial.

On balance, the magnitude of effect on the character of the Site and its immediate context at Year 1 is judged to be medium adverse. At Year 15, the magnitude of effect would be changed to medium to small adverse.

8.1.3.3 Level of Effect

At Year 1, taking into account the low landscape sensitivity attributed to the Site and the medium adverse magnitude of effect predicted, the level of effect would be Minor adverse. At Year 15, the level of effect would be changed to Minor - Negligible Adverse.

9 APPRAISAL OF RESIDUAL VISUAL EFFECTS

This section addresses the changes in the composition of available views of the landscape arising from the Development during its operational phase and the effects this has on those visual receptors (people) who experience the view. Effects on views and visual amenity are always assessed separately from effects on landscape character since change can affect landscape character regardless of whether anyone can see it.

As with landscape effects described in the previous section, judgments concerning levels of effect on views and visual amenity take into account the 'sensitivity' of the receptor and the 'magnitude' of change that arises from the Development being operated. This is described in more detail in Appendix A of the LVA. Similarly, the duration and reversibility of effects are assumed to be 'long-term' but 'reversible' and are not re-iterated.

Established vegetation on, or immediately adjacent to, the boundaries of the Site already provide some measure of containment. The exceptions to this are the western and southern boundaries where existing hedgerows are fragmented, degraded or missing and where new hedgerows with hedgerow trees are proposed to fully enclose the Site.

Where new hedgerows are provided, it is assumed that they would achieve a height of approximately 3 m; thereafter, they would be maintained at this height to minimise shading / avoid conflicts with overhead power lines. This is based on an initial planting height of 0.5 m and a conservative growth rate of 30 cm per year. Hedgerow trees and woodland planting are assumed to achieve a height of approximately 7.5 m by Year 15 based on an initial planting height of 2.5 - 3 m and a similar rate of growth. In both instances, rates of growth given assume adequate levels of aftercare are provided.

The appraisal also took seasonality into account when considering the effectiveness of existing vegetation at screening the Development. In most instances the density of vegetation meant that unless it was removed the Development would be largely screened throughout the year, but in some instances where vegetation is thin filtered views are likely in winter when it is not in leaf.

Where notable differences are likely between levels of effects in summer and winter this is noted. Judgments about levels of effects recorded in the following viewpoint assessment and Tables 1.3 - 1.6 below are, however, based on a worst-case winter scenario when screening by deciduous vegetation is least effective.

The following appraisal considers effects in relation to the agreed viewpoints and key visual receptors identified in Section 4.15 of the baseline. It is based on the scheme described in Section 2.1.

9.1 Viewpoint Assessment

In order to gain an understanding of the nature of changes to views and visual amenity arising from visibility of the Development, six viewpoints were identified in the visual baseline section (Section 2.10) to represent visibility from key visual receptor groups (e.g. residents, recreational walkers, road users, etc.).

For each viewpoint, the following information is provided:

- A representative baseline photograph (90-degree horizontal angle of view) orientated in the direction of the Development to show the context of the viewpoint;
- A description of the existing baseline view; and
- A qualitative appraisal of the potential visual effects, taking account of the sensitivity of the receptor and the predicted magnitude of change in the view.

It is recognised that different receptors would appreciate the landscape in many different ways, depending on whether they live in, work in, or are holidaying in the area and how they are travelling through e.g. on road or foot, or on water etc.

Those living within, or travelling through, the landscape of the study area on a regular basis may appreciate it beyond the perception of a visitor and may appreciate familiarity of landscape and views, based on their experience of viewing it in a certain way, over time and in its present state without intervention. Therefore, those who notice change within the landscape may be more acutely affected by change irrelevant of the scale of the Development. There may also be a different appreciation for change where such change, for instance, brings social or economic benefits and as such, it is difficult to interpret how such changes would be interpreted by various users other than as set out in the methodology in Appendix A.

The location of the viewpoints is shown in conjunction with the bare-earth and screened ZTVs on Figures 1.6 and 1.7, Appendix B. Baseline photographic panoramas obtained from each viewpoint in the direction of the Site are illustrated in Figures 1.8a-1.8f, Appendix B.

9.1.1 Viewpoint 1 – PRoW (NI/THOR/130) Looking Southwest

The viewpoint is located approximately 570 m to the north of the solar panels on the PRoW, which lies immediately to the west of the mainline railway. The railway embankment is bordered by a woodland belt on both sides and the PRoW which runs parallel to the railway line comprises a narrow grass track. To the west of the grassed footpath is a further mature hedgerow which comprises native species such as Ivy, Hawthorn, Elder, Field Maple, Dog Rose, Ash, and Blackthorn (up to 5 m in height) with generous tree cover. This hedgerow is dense and there are very few gaps. This viewpoint is the only location from the PRoW where there are available views towards the Site. The viewpoint is representative of views by users of the local footpath network in the landscape to the north of the Site.

9.1.1.1 Baseline

The outlook is a channelled view that extends from the PRoW looking towards the northern boundary of the Site in the mid-distance. The grassed surface of the footpath (approximate 3 m width) is visible in the foreground where it looks well-used. To either side of the grassed track, the bordering vegetation is tall and dense and has a substantial screening effect on views towards the Site and beyond. Only the northern boundary of the Site is visible and the features can hardly be picked out through the hedgerow. Telegraph poles are a detractor in the view where they border the PRoW and emphasise where the view terminates at the derelict station house, which is only just visible to the east of the view. The landscape beyond the Site is not evident in this view since the foreground vegetation provides significant screening with a primary focus on close range features.

Refer to Figure 1.8a, Appendix B.

9.1.1.2 Sensitivity

Walkers: High

9.1.1.3 Nature of Change and Magnitude of Effect (Year 1)

From here, mid-range views of the solar panels would not be gained as they would be orientated towards the south and set behind the existing hedgerow and trees that border the northern boundary of the Site. The tall hedgerow in the foreground would also provide further screening of the solar panels from this viewpoint The magnitude of effect is judged to be no change.

9.1.1.4 Level of Visual Effect (Year 1)

Walkers: Minor adverse to Negligible

9.1.1.5 Nature of Change and Magnitude of Effect (Year 15)

Assuming the existing hedgerow along the northern boundary of the Site is managed to its existing height of around 3-5 m, the existing tree cover is managed and the understorey layers are reinforced with additional planting where gaps are present then visibility would be maintained at filtered views, more so in summer when the hedgerow is in leaf from this viewpoint. The magnitude of effect is judged to be negligible.

9.1.1.6 Level of Visual Effect (Year 15)

Walkers: Negligible

9.1.2 Viewpoint 2 – PRoW (NI/EHAL/81) Looking Southwest

The PRoW is located approximately 1.3 km to the northeast of the Site (solar panels area) on the PRoW, which forms part of an access track to the field off Crook Mill Road. The PRoW is bordered by a dense hedgerow to the east, but in contrast it has an open boundary to the west with views over extensive, arable fields towards the Site. The location is representative of views by users of the local footpath network and experienced from the Open Undulating Farmland LCT, which is the dominant landscape type to the east of the Site. The viewpoint also captures the Wooded Farmland LCT, which forms a narrow track of land in the foreground of the view, where it closely follows the course of Skitter Beck / East Halton Beck and runs almost parallel the mainline railway. The mainline railway and both of the becks are well-wooded adding intimacy and interest to views across this area towards the Site.

9.1.2.1 Baseline

The outlook is an open, wide view, that extends across a broadly undulating landscape where levels vary between 5.0 and 10.0 m AOD. Here pockets of land rise to 10.0 m AOD they add complexity to the otherwise open arable fields, especially where woodland cover and isolated farmsteads are combined with this landform. There are groups of modern agricultural buildings to the north and south of the view which are partially clothed in woodland, which helps with their integration into the landscape (nevertheless these large buildings are detractors). The surface area of the Site can be seen extending to the north and south of the view, but this is partly contained by a framework of linear tree belts and wooded areas in the foreground. Beyond the Site, the landform rises gradually to a ridgeline in the middle distance that defines the limit of the view defined by pockets of tree cover on the horizon. This tree cover is associated with Sweetbriar Farm, North Field Farm and Zulu Farm and this is a typical feature of the Open Undulating Farmland LCT where built form occupies higher landform. Approximately 240 m south of the viewpoint there is a group of agricultural buildings and beyond this, a block a woodland partially blocks the view of the Site. Closer towards the Site, the hedgerows are more abundant, however they are low set and so the surface area of the Site is still visible.

Detracting features include the agricultural buildings, the rows of pylons and telegraph poles supporting overhead powerlines that pass across the Site. There are also power lines on the distant horizon. The derelict station house at Bystaple Lane Level Crossing is evident and the existing substation off Crook Mill Lane is also a distinguishing feature in the foreground framed by woodland cover screening the majority of views towards the southern sector of the Site.

Refer to Figure 1.8b, Appendix B.

9.1.2.2 Sensitivity

Walkers: High

9.1.2.3 Nature of Change and Magnitude of Effect (Year 1)

From here, mid-range views of the solar panels would be gained over a medium proportion of the view where the eastern boundary of the Site is effectively open and the landform (although gently undulating) is sloping towards the east giving a more expansive context of the Site to the receptor. The north-eastern section of the Site is the most visible area, since the remaining sections are obscured by woodland along the intervening mainline railway and around the existing sub-station. The white rendered buildings and large-scale sheds at both Sweetbriar and North Field Farms are evident features on the horizon. In combination with the overhead pylons and the proposed solar panels, the presence of built form in the landscape from this viewpoint would be increased. The magnitude of effect is judged to be small adverse.

9.1.2.4 Level of Visual Effect (Year 1)

Walkers: Minor adverse

9.1.2.5 Nature of Change and Magnitude of Effect (Year 15)

Assuming existing hedgerows to the eastern boundary of the Site are reinforced or allowed to grow out and maintained to a height of approximately 3 m, the understorey layer is reinforced with additional planting where gaps are present, and a new woodland block is planted to the north eastern corner of the Site, then visibility of the solar panels is likely to significantly reduce. The solar panels on the higher domed parts of the Site to the southern sector would be screened by the intervening vegetation, but the panels on the north-eastern sector would remain evident from this viewpoint. The magnitude of effect is judged to be negligible.

9.1.2.6 Level of Visual Effect (Year 15)

Walkers: Negligible

9.1.3 Viewpoint 3 – A1077 Looking Southwest

The viewpoint is located approximately 2 km from the solar panels from the A1077 Station Road that connects Scunthorpe to Immingham. This is a more winding section of the road that passes across the open farmland which separates the village of Ulceby from the hamlet of Ulceby Skitter. The road is bordered by hedgerows to its south verge and isolated groups of woodland beyond close down views in this direction. This is in contrast to the north verge where there is no hedgerow and open views are gained towards the Site. The viewpoint is located on the exit from Hill Garth Farm and there is also a narrow footway on the south verge of the road. The location is therefore representative of the landscape context and views gained by vehicle users and pedestrians and by the occupiers and agricultural workers at Hill Garth Farm.

9.1.3.1 Baseline

The outlook is an open, panoramic view, that extends across an elevated location (approximately 20 m AOD) across a low-lying but gently rolling landscape to the distant wooded landscape of Thornton Abbey. The ruinous tower of the abbey rises above the woodland cover and is just visible beyond Carr House Farm in the centre of the view. Large scale arable uses dominate the landscape interspersed with minor blocks of woodland with few hedgerows that convey the open character. Pylons are a prominent and detracting feature and it is also possible to see the industrial complexes along the bank of the Humber where flare stacks, white chimneys and wind turbines are a prominent feature. The new

house construction at Zulu Farm is a prominent feature to the west of the view set in tree cover and the white rendered buildings at North Field Farm also stand out in the landscape along with the large-scale agricultural buildings at Carr House Farm and Sweetbriar Farm. The woodland at Bystaple Lane LC is just visible along with the derelict station house and moving traffic along Carr Lane is also evident.

Refer to Figure 1.8c, Appendix B.

9.1.3.2 Sensitivity

Vehicle Users & Pedestrians: Low

Occupiers & Agricultural Workers at Hill Garth Farm: Medium

9.1.3.3 Nature of Change and Magnitude of Effect (Year 1)

From here, the mid-range views of the Site would be gained over a small proportion of the view where the southern sector of the Solar Panels Site is effectively open and the landform (although gently undulating) is tipping towards the south giving a more expansive context of the Site to the receptor. The solar panels would be set in a wider agricultural landscape and would add the presence of built form where only pylons are the built feature of this viewpoint. The magnitude of effect is judged to be small adverse.

9.1.3.4 Level of Visual Effect (Year 1)

Vehicle Users & Pedestrians: Minor adverse

Occupiers & Agricultural Workers at Hill Garth Farm: Minor to Moderate adverse

9.1.3.5 Nature of Change and Magnitude of Effect (Year 15)

Assuming there are hedgerows and scattered trees to the southern boundary of the Site and this is maintained to a minimum height of 3 m then visibility from this elevated location is only likely to give a small change in the outlook from Year 1. On balance, the magnitude of effect is judged to be small adverse to negligible.

9.1.3.6 Level of Visual Effect (Year 15)

Vehicle Users & Pedestrians: Negligible

Occupiers & Agricultural Workers at Hill garth Farm: Minor adverse to Negligible

9.1.4 Viewpoint 4 – Cross Road East of Glebe Farm Looking North

This viewpoint is located approximately 660 m south of the Site on a local road in the immediate vicinity of Glebe Farm and Ashville Farm. The road has an open outlook to both verges since boundary hedgerows are sparse and missing in most parts. The location is representative of the likely first available views of the Development gained by users of Cross Road as they leave Ulceby and travel towards Ulceby Skitter along a back road that is almost parallel with the A1077, but less busy in connecting the two settlements.

9.1.4.1 Baseline

The outlook is an open, unobstructed and panoramic view that extends across several wide, arable fields towards the southern sector of the Solar Panels Site. This is a local lane, but passing traffic is a common occurrence and there are dog walkers and joggers, since the lane has a pleasant, rural context. There are open views towards the wooded skyline at Thornton Abbey (although the ruinous tower is not visible from here), which also capture the industrial complexes along the bank of the Humber where wind turbines, chimneys and flue stacks punctuate the skyline above the tree cover. Telegraph poles and pylons on the Site dominate the view and to the west, Sweetbriar Farm and North Field Farm are visible

amongst woodland cover. The tall hedgerow and tree cover along the northern boundary of the Site are visible along with the open agricultural field beyond this boundary. The tree belts on both railway embankments are also visible, which help conceal the large-scale agricultural buildings at Abbey Farm and the derelict station house marks the north eastern boundary of the Site. The ribbon development along Carr Lane to the east of the Site is also visible due to the white rendered elevations and coniferous trees that stand out in a landscape which is otherwise devoid of domestic interruptions. Built form at Ashville Farm and Meadow Croft are also visible. Wide visibility of some of the surface area of the southern sector of the Site is gained from this location, which is set in the context of an open arable foreground.

Refer to Figure 1.8d, Appendix B.

9.1.4.2 Sensitivity

Road Users & Pedestrians: Medium

9.1.4.3 Nature of Change and Magnitude of Effect (Year 1)

From here, close-range open views of the solar panels would be gained over a medium proportion of the view comprising the southern sector of the Site. Views would also be gained of the north western sector of the Site where the landform rises towards Sweetbriar Farm from this viewpoint. The magnitude of effect is judged to be medium adverse.

9.1.4.4 Level of Visual Effect (Year 1)

Road Users & Pedestrians: Minor to Moderate adverse

9.1.4.5 Nature of Change and Magnitude of Effect (Year 15)

Assuming there are new hedgerows and scattered trees to the southern boundary of the Site and this is maintained to a minimum height of 3 m then visibility is likely to be reduced to some filtered views towards the southern sector of the Site, but the north western sector is likely to remain visible due to the elevated landform. On balance, the magnitude of effect is judged to be small adverse.

9.1.4.6 Level of Visual Effect (Year 15)

Road Users & Pedestrians: Minor adverse

9.1.5 Viewpoint 5 – Carr Lane Looking South

The viewpoint is located approximately 1.7 m northwest of the Site close to the Bystaple Level Crossing (LC) on the north-eastern vertex of the Site boundary at the junction where PRoW (NI|THOR||130) emerges onto Carr Lane. The lane is bordered by tall hedgerows with some hedgerow trees to both verges and it runs from Ulceby Carr crossing the LC at right angles before heading north towards Thornton Abbey. The location is representative of views from the local road network, for railway workers at the LC and for users of the PRoW network.

9.1.5.1 Baseline

The outlook is an open, wide and elevated view looking towards the north eastern section of the Site towards the distant horizon at Ulceby where the spire of the Grade I listed Church of St Nicholas stands out on the horizon. The woodland at Zulu Farm is also a feature on the horizon along with the tree cover at Sweetbriar Farm and North Field Farm. Pylons and telegraph poles dominate the skyline and where they cross the Site; they are also a dominant feature in the foreground of the view. The view extends over the existing hedgerow that defines the eastern boundary of the Site and this allows visibility across the entire northern sector at close range. To the north of the outlook, any distant views are

obscured by the woodland belt bordering the railway line and the woodland along the northern boundary of the Site. To the south, the woodland bordering the railway embankments and Skitter Beck frame the Site.

Refer to Figure 1.8e, Appendix B.

9.1.5.2 Sensitivity

Station Workers & Train Users: Medium

Road Users: Medium

PRoW Users: High

9.1.5.3 Nature of Change and Magnitude of Effect (Year 1)

From here, close range views would be gained with a high degree of visibility of the Development due to the elevation of the receptor (railway crossing point) and the lack of screening by intervening vegetation. The change would reveal the full extent of the solar panels on the northern sector of the Site from this viewpoint. The magnitude of effect is judged to be high adverse.

9.1.5.4 Level of Visual Effect (Year 1)

Station Workers & Train Users: Moderate-Major Adverse

Road Users: Moderate-Major Adverse

PRoW Users: Major Adverse

9.1.5.5 Nature of Change and Magnitude of Effect (Year 15)

Should the existing hedgerows to the eastern boundary of the Site be reinforced or allowed to grow and maintained to a height of approximately 3 m, then open visibility of the solar panels in the mid north western sector of the Site would remain, but the northern sector would be screened by the addition of new woodland planting from this viewpoint. The magnitude of effect is judged to be medium adverse.

9.1.5.6 Level of Visual Effect (Year 15)

Station Workers & Train Users: Moderate-Minor Adverse

Road Users: Moderate-Minor Adverse

PRoW Users: Moderate Adverse

9.1.6 Viewpoint 6 – Carr Lane Looking North

This viewpoint is located 160 m southeast of the Solar Panels Site on the highest part of the local road coinciding with an open section of the road where the hedgerows are absent. It represents the likely first available close-range views of the Site by users of the road heading north from Ulceby Skitter towards Thornton Abbey.

9.1.6.1 Baseline

The outlook is an open, contained view from a locally elevated location (approximately 10 m AOD) that extends across an arable field in the foreground towards the line of vegetation that forms the Site's northern boundary. To the west of the view, there are interspersed blocks of woodland where Sweetbriar Farm and North Field Farm are set on the mid horizon. The pylons are clearly visible on rising ground in the centre of the Site along with the built form of Southlands (southeast corner of Site). The sheds, garden fencing, conifers and horseboxes at Southlands are discordant features (along with the pylons) in what is otherwise an agricultural landscape. The eastern sector of the Site is screened by the

intervening, built form at Southlands, but most visibility is gained towards the west and southern sector of the Site where the field hedgerows are absent from Carr Lane.

Refer to Figure 1.8f, Appendix B.

9.1.6.2 Sensitivity

Road Users & Walkers: Medium to High

9.1.6.3 Nature of Change and Magnitude of Effect (Year 1)

From here, close range views and open visibility of the solar panels would be gained over a wide proportion of the view where the solar panels would be visible on rising landform that tips towards the receptor. There would be some filtered views towards the eastern and far northern sector of the Site since the intervening, built form and ribbon development along Carr Lane would obscure the majority of the solar panels, more so in summer from this viewpoint. The magnitude of effect judged to be high adverse.

9.1.6.4 Level of Visual Effect (Year 1)

Road Users: Moderate-Major adverse

9.1.6.5 Nature of Change and Magnitude of Effect (Year 15)

Assuming there are new hedgerows and scattered trees to the southern boundary of the Solar Site and also a new woodland block to the southeast corner, there would be a noticeable change in the outlook from Year 1 from this viewpoint. The magnitude of effect would be judged to be small adverse.

9.1.6.6 Level of Visual Effect (Year 15)

Road Users: Between Minor adverse

9.2 Visual Effects on Views from Residential Properties

The effect of the Development on local residents requires particular attention because they may experience the Development from different locations, at different times of the day, usually for longer periods of time and in different seasons.

Whilst individual or specific observations are made below concerning views or potential views from properties in the direction of the Development, a 'summation' is offered based on an opinion 'in the round' i.e., taking all relevant factors into account. This could include potential views from the property itself as well as from the surrounding amenity ground, the access / egress points and the immediately adjacent highway.

In all, seven individual or groups of properties were identified in Section 4.15.1 of the baseline conditions as being within approximately 1 km of the Site. Some of these properties were scoped out of the appraisal at the baseline stage on the basis of little or no theoretical visibility indicated by the screened ZTV (see Section 4.16). Those with theoretical visibility are considered further in Table 1.3 below based on a desktop appraisal in conjunction with a site visit to the closest public location in the vicinity of each property.

Occupants of residential properties are judged to be of 'high' sensitivity as they are static receptors whose enjoyment of their property is likely to be affected by the quality of views and visual amenity experienced there.

Table 1.3: Visual Effects on Residential Properties

Property	Description of Effect
R1 Sweetbriar Farm	Description: 2-storey, detached property (orientated due south over a small front garden and adjoining fields. A dense hedgerow adjoins the property curtilage on the boundary with the Site (west boundary) which has some screening effect on views at ground floor level, but some visibility of the Development could be gained from the upper floor windows of the main farmhouse, however this is the side gable of the property and not the principal elevation. To the north east of the property curtilage, the large-scale agricultural buildings screen views of the northern sector of the Site. To the south boundary of the property curtilage there are a few scattered trees. Assuming a group of specimen trees and a new woodland block are planted along the Site boundary (upper west) then by Year 15 visibility would be limited to filtered views, with more screening in summer. Magnitude of effect (Year 1): Medium adverse. Level of effect: Moderate-Major adverse Magnitude of effect (Year 15): Small adverse. Level of effect: Minor-Moderate adverse
R2 North Field Farm	Description: 2-storey, detached property orientated due south and facing onto a long front garden and adjoining fields. The east facing gable includes a rear extension that links to a further property orientated due north forming a 'fold yard' traditional building arrangement, tall garden vegetation as well as large trees adjoining the east boundary of the curtilage is likely to curtail visibility of the Development, but the south and north facing elevations of the property (which appear as principal elevations and could be two independent dwellings) would have open views. Magnitude of effect (Year 1): Medium Adverse. Level of effect: Moderate-Major Adverse Magnitude of effect (Year 15): Small Adverse. Level of effect: Minor-Moderate Adverse
R3 Zulu Farm	Description: 2-storey, detached property orientated due south over front garden with an open aspect. Mature tree belts which adjoin the north and east boundary have a considerable limiting effect on views of the Site and are likely to prevent visibility of the Development due to the depth of the woodland, the adjoining hedgerow and that the property is elevated on a ridgeline. Magnitude of effect (Year 1): Negligible adverse. Level of effect: Negligible adverse Magnitude of effect (Year 15): Negligible adverse. Level of effect: Negligible adverse
R4 Southlands	Description: 1.5-storey, detached property with dormer windows overlooking the Site. This property is visible from the southern sector of the Site and as such some visibility of the Development would be gained. There are 'L' shaped outbuildings located on the west boundary of the curtilage and a single detached garage close to the property and these would block views from the ground level towards the Site, but the south-central (domed sector) of the Site would appear in the views from the property. Assuming a new woodland block is planted at the south eastern apex of the Site then by Year 15 visibility would be limited to filtered views, with more screening in summer. Magnitude of effect (Year 1): Medium adverse. Level of effect: Moderate-Major adverse Magnitude of effect (Year 15): Small adverse. Level of effect: Minor-Moderate adverse
R5 Ribbon Development to East Side of Carr Lane	Description: A mixture of 1.5 and 2 storeys, detached properties adjoining Carr Lane with small pasture fields between where tree cover and hedgerows are abundant. A tall, thick hedge adjoins Carr Lane to the west and with the 'in-curtilage' vegetation this would effectively prevent visibility of the Development. There may be oblique views from upper floor windows where they are located perpendicular to Carr Lane. Magnitude of effect (Year 1): Small Adverse. Level of effect: Moderate Adverse Magnitude of effect (Year 15): Small Adverse-Negligible. Level of effect: Moderate-Minor Adverse
R6 Ulceby Carr Farm	Description: 2-storey, detached property orientated south surrounded by ancillary buildings. There is a lot of vegetation within and on the boundary of the curtilage and the eastern boundary is lined with tall trees and understorey planting. The large-scale agricultural buildings partially screen views towards the north and Carr Lane. Magnitude of effect (Year 1): Negligible adverse. Level of effect: Negligible Adverse Magnitude of effect (Year 15): Negligible adverse. Level of effect: Negligible adverse

Property	Description of Effect
R7 Northern Edge of Ulceby Skitter	Description: A group of properties to both sides of Carr Lane at the northern edge of the hamlet of Ulceby Skitter. Most are set back from Carr Lane with the side elevation facing the road and behind garden vegetation. The property known as Burtonswood faces the road. Other properties include Pengeston, Osbourne and Oleander on the east side of Carr Lane all set back behind front garden planting. Some oblique views are possible, more screened in summer when the vegetation is in leaf. Visibility would be limited to glimpsed and filtered views which would be increasingly screened as proposed perimeter planting matures. Magnitude of effect (Year 1): Negligible adverse. Level of effect: Negligible adverse Magnitude of effect (Year 15): Negligible adverse Level of effect: Negligible adverse

9.3 Visual Effects on Views from Settlements

Of those settlements identified in Section 4.15.1 of the baseline conditions, the screened ZTV indicates theoretical visibility of the Development from some of these. This is considered further in Table 1.4 below. As with occupants of residential properties described above, occupants of properties within settlements are judged to be of 'high' sensitivity.

Table 1.4: Visual Effects on Settlements

Settlement	Description of Effect
Ulceby	Description: A village which lies approximately 1.6 km south of the Site. The ZTV shows theoretical visibility extending mainly across the north eastern apex of the settlement. It is likely that the properties would not experience visibility since they are not orientated towards the Site and are enclosed by hedgerows and tree cover. There are also intervening hedgerows between the Site and the settlement and visibility would be filtered as a result. Magnitude of effect (Year 1): No change. Level of effect: No Change Magnitude of effect (Year 15): No Change. Level of effect: No Change
Ulceby Skitter	Description: A small hamlet which lies approximately 1.1 km south of the Site. Some properties which are orientated towards the Site with an open aspect would gain some visibility at Year 1 over a small extent of the view, albeit in context with the front garden vegetation and the set back from the highway. At Year 15, a reduction in magnitude is predicted given the proposed hedgerow planting and groups of specimen trees. Magnitude of effect (Year 1): Negligible adverse. Level of effect: Negligible adverse Magnitude of effect (Year 15): Negligible adverse. Level of effect: Negligible adverse.

9.4 Visual Effects on Views from Recreational Routes

Of those recreational routes identified in Section 4.15.2 of the baseline conditions, the screened ZTV indicates some theoretical visibility of the Development from a small number of public footpaths and bridleways which pass within approximately 1 km of the Site. These are considered in Table 1.5 below.

Users of recreational routes are judged to be of 'high' sensitivity to the Development as they pass slowly through the area and focus on views of the landscape.

Table 1.5: Visual Effects on Recreational Routes

Route	Description of Effect
Footpath NI|THOR|130	Description: Footpath at the northeast apex of the Solar Panels Site heading north to college Road and running parallel to the railway line. The view gained from here is represented in VP1 (Figure 1.8a). The ZTV indicates high theoretical visibility along the section between Bystaple Lane LC and College Road over a distance of approximately 1.5 km. In reality, no visibility of the Development is predicted due to screening by mature tree belts which adjoin the footpath along its western boundary and other intervening vegetation along the northern boundary of the Site. Assuming the vegetation along the northern boundary of the Site is managed and enhanced, there would be improved screening after Year 1. Magnitude of effect (Year 1): Small adverse - Negligible. Level of effect: Minor adverse-Negligible Magnitude of effect (Year 15): Negligible. Level of effect: Negligible
Footpath (NI|EHAL|81)	Description: Footpath located approximately 1.3 km northeast of the Solar panels Site and forms an access track to the open field off Crook Mill Road. The view gained from here is represented in VP2 (Figure 1.8b). The ZTV indicates high theoretical visibility along the section between Crook Mill Road and the woodland at Thornton Abbey to the north. Assuming the new woodland is planted along the eastern boundary of the Site, there would be improved screening after Year 1. Magnitude of effect (Year 1): No change. Level of effect: No effect Magnitude of effect (Year 15): No change. Level of effect: No effect

9.5 Visual Effects on Views from Scheduled Monuments

One Scheduled Monument (Thornton Abbey) was identified in Section 4.6 of the baseline conditions - the screened ZTV indicates little or no theoretical visibility of the Development from it. The magnitude of effect would therefore broadly amount to 'no change', resulting in 'no effect' on views from these heritage assets. Access to the Thornton Abbey Scheduled Monument (SM) is from College Road (and the visitor car park) which are set within a lower lying part of the abbey grounds. To the south of the car park the land rises immediately towards the bordering agricultural field and this further serves to conceal the car park. Beyond this, Crook Mill Lane is bordered to both sides by a distinctive row of white poplar which are mature and provide a significant buffer in the landscape between the SM and the Site. Then, there are two further large woodland blocks to each side of Crook Mill Lane (Woodlands at Abbey Farm and South Cloister Culvert), plus extensive woodland lining the railway. All this woodland cover serves to close down any intervisibility between the Site and the SM. This will be evidenced within the LVA as part of viewpoint VP 03 (A1077 by Hill Garth Farm) where the SM can be picked out in the landscape but this shows that only the higher ruinous ramparts are visible. The lower publicly accessible areas of the SM comprising the car park, landscape grounds and picnic area are completely enclosed in woodland.

9.6 Visual Effects on Views from Transport Routes

Visibility of the Site from roads would be limited to a short section of Crook Mill Lane as it approaches Carr Lane and the Site from the east, Carr Lane as it is adjacent to the Site's eastern boundary, and Cross Road to south. Cross Road is open looking north, with minimal screening along the road edge, and therefore uninterrupted views of the Development may be possible. Carr Lane and Crook Mill Lane are screened slightly by established hedgerows, but as these are fairly low, additional screening may be needed to screen views of the Development. Any views experienced would be limited by vegetation, with motorists

receiving transient, glimpsed views albeit at potentially slower speeds than average along the single-lane roads.

Of those key transport routes identified in Section 4.15.3 of the baseline conditions, the screened ZTV indicates some theoretical visibility of the Development from the A1077. Theoretical visibility is also indicated from two local roads which pass within approximately 1 km of the Site. These routes are considered in Table 1.6 below.

Users of main (A-class) roads are judged to be of 'low' sensitivity to the Development where they pass through the area at high speed with limited awareness of their surroundings. Users of local (B-class) and minor roads are judged to be of 'medium' sensitivity as they travel at slower speeds and generally have a greater appreciation of their surroundings.

Table 1.6: Visual Effects on Transport Routes

Location	Description of Effect
A1077	Description: The A1077 (Station Road) connects Scunthorpe to Immingham and this is a more winding section of road where it passes between open farmland from Ulceby to Ulceby Skitter. The view gained from here is represented in VP3 (Figure 1.8c). The ZTV indicates theoretical visibility for the winding section over a distance of approximately 0.3 km. There is predicted visibility of the Development due to the lack of roadside hedgerows together with the elevated nature of the view. Assuming that the southern boundary of the Site would be planted with a new hedgerow and new woodland at the south east apex there would be improved screening after Year 1. Magnitude of effect (Year 1): Small adverse. Level of effect: Minor adverse Magnitude of effect (Year 15): Small adverse - Negligible. Level of effect: Minor adverse-Negligible
Cross Road	Description: Cross Road crosses central parts of the study area in a broadly east-west direction and passes within approximately 0.6 km of the Site. The view gained from here is represented in VP4 (Figure 1.8d). The ZTV indicates theoretical visibility for a short section between Glebe Farm and Carr Lane over a distance of approximately 500 m. Assuming there are new hedgerows, scattered trees and a new woodland block to the southern boundary of the Site, the southern sector of the Site would afford improved screening. Magnitude of effect (Year 1): Medium adverse. Level of effect: moderate adverse Magnitude of effect (Year 15): Small adverse. Level of effect: Minor adverse
Carr Lane	Description: This local road crosses the central parts of the study area in a broadly north-south direction and passes directly adjacent to the eastern boundary of the Site. Views gained from the road are represented in VP5 (Figure 1.8e) and VP6 (Figure 1.8f). The ZTV indicates theoretical visibility between the solar panel area and Ulceby Carr over a distance of approximately 1.8 km and along the length of the eastern boundary over a distance of approximately 0.3 km. In reality, roadside hedgerows have a considerable limiting effect on views towards the Site and it is likely that a small extent of visibility of the Development would be gained for northbound travellers. Assuming a new hedgerow and a small group of specimen trees are proposed, the visibility would be significantly reduced. Magnitude of effect (Year 1): Small adverse. Level of effect: Minor adverse Magnitude of effect (Year 15): Small adverse to Negligible. Level of effect: Minor adverse to Negligible

10 CUMULATIVE EFFECTS

Cumulative effects are additional effects on key characteristics of landscape character and / or on views and visual amenity that arise when the Development is experienced or seen in conjunction with one or more related developments from a particular location. Cumulative effects on views and visual amenity may also occur 'sequentially' where two or more related developments may be seen as part of a journey, for instance, along a road or recreational route.

A review of the Councils' online planning application database and aerial mapping identified no operational solar farms within 5 km of the Site. The operational 18 MW Mauxhall Solar Farm is located 8.5 km south east of the Site. Given the distance between this development and the Site, substantial cumulative landscape and visual effects with the Development are unlikely. A review of planning applications in 5 km of the Site has identified no applications for solar farms in the vicinity of the Site. There are no further extant planning applications or permissions with potential for significant combined impacts with the Development.

10.1 Cumulative Effects on Landscape Character

In terms of additional effects on landscape character, the existing telegraph poles and pylons already exert an urbanising influence on the Open Undulating Farmland and Wooded Farmland LCTs in which they are located. The Development would add to this, but in comparison with the many rows of pylons which are both prominent and detracting features in the more open landscape, the geographical extent of its influence would be small.

At Year 1, the cumulative magnitude of effect on Open Undulating Farmland and Wooded Farmland LCTs arising from the Development in conjunction with the telegraph poles / pylons is judged to be small adverse. At Year 15, the cumulative magnitude of effect would remain broadly unchanged i.e., small adverse.

Taking account of the low-medium sensitivity attributed to Open Undulating Farmland / medium sensitivity attributed to Wooded Farmland and the small adverse cumulative magnitude of effect predicted, the cumulative level of effect at Year 1 would between Negligible-Minor and Minor adverse and Minor adverse respectively. At Year 15, the cumulative level of effect would remain broadly unchanged i.e., between Negligible-Minor and Minor adverse and Minor adverse.

10.2 Cumulative Effects on Views and Visual Amenity

In terms of additional effects on views and visual amenity, opportunities for the Development to be seen in conjunction with the telegraph poles / pylons within the wider landscape at the same time from a particular (static) location are largely limited to occupants of residential properties along Carr Lane. These properties occupy lower set ground east of the Site and very few properties are orientated towards it with an open aspect in which the substation / pylons are visible features to a greater or lesser extent.

At Year 1, the cumulative magnitude of effect on views for occupants of these properties arising from the Development in conjunction with the telegraph poles / pylons is judged to be small adverse. At Year 15, the cumulative magnitude of effect would remain broadly unchanged i.e. small adverse given the concealed location of these settlements.

Taking account of the high sensitivity attributed to occupants of residential properties and the small adverse cumulative magnitude of effect predicted, the cumulative level of effect at Year 1 would be between Minor and Moderate adverse. At Year 15, the cumulative level of effect would remain unchanged i.e., between Minor and Moderate adverse.

A number of opportunities exist for the Development to be seen in conjunction with the telegraph poles / pylons as part of a journey through the landscape, most notably from the A1077, Cross Road and Carr Lane which adjoins the Site.

At Year 1, the cumulative magnitude of effect on views for users of these local roads arising from the Development in conjunction with the telegraph poles / pylons is judged to be small adverse. At Year 15, the cumulative magnitude of effect is judged to be negligible to small adverse as screen planting to the eastern and southern boundaries becomes effective.

Taking account of the medium sensitivity attributed to users of local roads and the small adverse cumulative magnitude of effect predicted, the cumulative level of effect at Year 1 would be Minor adverse. At Year 15, the cumulative level of effect would be between Negligible and Minor adverse.

Opportunities also exist for the Development to be see in conjunction with the telegraph / pylons from two PRoW that cross the local area, most notably from the public footpaths to the north east apex of the Site where it runs parallel to the railway line and the footpath off Crook Mill Lane to the east.

At Year 1, the cumulative magnitude of effect on views for users of these public rights of way arising from the Development in conjunction with the substation / pylons is judged to be small adverse. At Year 15, the cumulative magnitude of effect would remain broadly unchanged i.e., small adverse to negligible given the screen planting to the eastern and southern boundaries would become effective.

Taking account of the high sensitivity attributed to users of public rights of way and the small adverse cumulative magnitude of effect predicted, the cumulative level of effect at Year 1 would be Minor-Moderate adverse. At Year 15, the cumulative level of effect would be changed to Minor adverse.

11 SUMMARY & CONCLUSION

This LVA has been carried out in order to appraise the likely landscape and visual effects associated with the proposed Sweetbriar Solar Farm ('the Development') located on land west of Carr Lane, near Ulceby Skitter, Lincolnshire ('the Site'). The application site extends to an area of approximately 44.58 ha and is presently in agricultural use as several arable fields of broadly medium to large size.

The LVA has recorded and analysed the baseline landscape and visual resources of the Site and surrounding area, identified landscape and visual receptors likely to be affected by the Development and determined the extent to which these would be altered.

Mitigating measures assumed to be built into the Development to reduce likely levels of adverse landscape and visual effects include retaining all existing vegetation within and to the perimeter of the Site as characteristic features of the local landscape and improving its management. Other beneficial measures assumed to be incorporated with the Development include reinforcing / reinstating hedgerows to all boundaries to fully integrate the Site within the landscape framework of the Open Undulating Farmlands LCT and Wooded Farmlands LCT. The planting mitigation will improve screening of the scheme and reinstating hedgerows between the Site, Cross Road and Carr Lane where they have been lost to intensive farming practises. In addition, existing land uses on the Site would be replaced with species-rich grasslands / wildflower meadows to improve the biodiversity value of the Development. Various other ecological enhancements are also proposed to further improve the biodiversity value of the scheme.

The LVA concluded that whilst the Development would give rise to varying degrees of adverse landscape and visual effects on a number of receptors, the degree of effects predicted to arise during the operational phase would be largely limited to the Site and its immediate setting.

11.1 Summary of Predicted Landscape Effects

The Development is relatively low-lying and does not give rise to significant vertical elements in the landscape, other than the substation, and would lead to a change in the overall use of the landscape, from an agricultural and arable setting to a field with solar panels for a temporary period. The landscape has the capacity to accommodate the Development due to the gently rolling nature of the landform and existing hedgerows, woodland and scattered trees which would provide screening and limit any landscape effects to a localised area around the Site. The development will also feature the planting of new lengths of hedgerow within gaps of the existing field boundary vegetation, and some additional planting would be considered necessary to the east, west and southern boundaries to include new hedgerows and new woodland blocks. Access to the Site will utilise existing agricultural field access points and where possible existing trackways.

The only other effects on landscape character would occur as a result of effects on views from areas of the landscape outside the Site. Over time, with additional planting to strengthen the existing boundary vegetation, any effects would be reduced and the Development would likely be integrated into the landscape to a greater extent and help limit views from properties and settlements in the vicinity of the Site.

The main effect on landscape character would be largely associated with the change from arable uses which cover the Site partly contained by arable fields, drainage ditches and hedgerows, to species-rich grasslands / wildflower meadows with solar panels and related infrastructure within the same context. All existing vegetation would be protected, retained and strengthened and new hedgerows with hedgerow trees and woodland blocks be planted to help restore characteristic landscape features as well as to improve the biodiversity value of the Development and habitat connectivity.

In summary, residual levels of effect on local landscape character are predicted to be:

- Open Undulating Farmlands: Between Negligible and Minor adverse (Years 1 & 15); and
- Wooded Farmlands: Between Negligible and Minor adverse (Years 1 & 15).

There will be no cumulative impacts, as no planning applications for other solar farms have been identified in the area.

11.2 Summary of Predicted Visual Effects

The LVA has informed the extent to which vegetative screening is necessary to assimilate the Development into the landscape and this will ensure that the Development is sited appropriately to the amenity of residents in the surrounding area. Details of proposed additional landscaping are shown on the Landscape Mitigation Plan within Appendix C.

The topography of the Site is predominantly flat, with a gentle slope from 20 m AOD in the west to 10 m AOD in the east. The Site benefits from existing established vegetation and hedgerow screening which would limit views from nearby properties and settlements. The Development is relatively low-lying and does not give rise to significant vertical elements in the landscape and this assessment has shown there is unlikely to be discernible views from the majority of properties on Carr Lane. The nearest settlements of Wootton, Thornton Curtis, and North and South Killingholme would experience no change.

Visual effects on residential properties are likely to be limited given the nature of the solar development and associated infra-structure which would be generally at a low height across the Site. Existing hedgerows would help to screen the Development from Carr Lane and appropriate planting is also proposed to further reduce visual effects and deliver biodiversity enhancements. Appropriate consideration will be given to ensure that no significant amenity effects occur as a result of the Development. The Development will be designed to ensure any effects on residential properties are minimised.

There is a public right of way (footpath NI|THOR|130) which ends at the top north east corner of the Site, and continues north along the East Midlands Railway to Thornton Abbey Station. Once the Development is operational, views of the Development may be possible from this route where it terminates at Carr Lane, and therefore additional natural screening is proposed to screen these views, although the route is heavily screened by trees near the Site.

Whilst there are a number of isolated properties in the immediate vicinity of the Site, as identified above in Section 2.1, many benefit from existing screening/ boundary vegetation, which would limit visual impact of the Development. Furthermore, as part of the assessment this has shown where additional landscape planting is required to mitigate visual impact on these properties.

The ZTV shows theoretical visibility of the Development mainly confined to areas north and east of the Site at distances up to approximately 1 km with some patchy visibility at distances up to 2 km. This largely reflects the landform and woodland cover of the area, notably the low-lying landscape immediately east of the Site and localised high ground to the west with pockets of woodland cover. The relatively contained nature of the Site itself afforded by established vegetation on or immediately adjacent to the boundaries also has a limiting effect on views, particularly from the north and west.

Close but mainly filtered views of the Development would be obtained from Carr Lane where it adjoins the eastern boundary of the Site and from Cross Road which passes to the south. Visibility of the Development would also be obtained from a number of small properties along Carr Lane and from two of public rights of way to the north and east of the Site.

In summary, residual levels of effect on views and visual amenity are predicted to be:

- Effects on people living in residential properties adjacent to the Site (on Carr Lane) who are of high sensitivity are predicted to be Moderate adverse at Year 1, reducing to Moderate-Minor adverse at Year 15 as new screen planting establishes.
- Effects on other people living in residential properties adjacent to the Site (Sweetbriar Farm, North Field Farm and Southlands) who are also of high sensitivity are predicted to be Moderate-Major adverse at Year 1, reducing to Minor-Moderate adverse at Year 15.
- Effects on people using public footpaths and bridleways that cross the landscape north of the Site towards College Road and east of the Site at Crook Mill Lane who are of high sensitivity are predicted to be between Minor adverse- Negligible and Negligible at Year 1, reducing to Negligible and No-Effect at Year 15.
- Effects on people using Carr Lane which adjoins the Site to the east who are of medium sensitivity are predicted to be Minor adverse at Year 1, reducing to Minor adverse - Negligible at Year 15 where existing boundary hedgerows are reinforced. Effects on people using Cross Road which passes adjacent to the Site to the south are predicted to be Moderate adverse at Year 1, reducing to Minor adverse at Year 15 where existing boundary hedgerows are reinforced / reinstated and other hedgerows between the Site and the local road are reinforced / reinstated.
- Effects on people using other local roads adjacent to the Site (A1077 and minor roads between Ulceby Skitter and Thornton Abbey) who are of medium sensitivity are predicted to be Minor adverse at Year 1, reducing to Minor adverse - Negligible at Year 15.

The appraisal also considered the cumulative effects on views and visual amenity of the Development in conjunction with telegraph poles and pylons. The appraisal concluded that cumulative levels of effect on those visual receptors assessed as part of the standalone scheme (above) would be:

- Effects on people living in residential properties / communities are predicted to be between Minor and Moderate adverse at Year 1 and Minor and Moderate adverse at Year 15 since the cumulative situation would remain unchanged.
- Effects on people using public footpaths / bridleways are predicted to be Minor – Moderate adverse at Year 1 and Minor adverse at Year 15.
- Effects on users of local roads are predicted to be Minor adverse at Year 1, reducing to between Negligible and Minor adverse at Year 15.

11.3 Conclusion

The nature, scale and form of the Development would result in some adverse effects on landscape character and on visual amenity as summarised above. However, the limited height of the Development, combined with a framework of existing and new boundary vegetation, ensures that effects would be relatively localised in their extent.

There is a considerable amount of embedded mitigation planting proposed across the Site, and the Development would retain, protect and enhance landscape features such as existing trees, hedgerows and woodland areas where possible with minimal losses. The measures proposed have contributed to a biodiversity net gain of + 167.7% in Habitat Biodiversity Metric units and + 341.33% Hedgerow Biodiversity Metric Units as reported in the Biodiversity Metrics Assessment.

Given the location of the Site, the topography within and around the Site and due to the fact that the Site is already partially screened within hedgerows and scattered trees (which can be readily extended alongside the Development to offer additional mitigation), and the potential to incorporate grassland mix within the Development, overall, there is no reason why the likely landscape and visual effects arising from the Development should be regarded as unacceptable.

APPENDIX A – LVA METHODOLOGY

1 LVA METHODOLOGY

1.1 Guidance

The assessment methodology follows the 'Guidelines for Landscape and Visual Impact Assessment' Third Edition (GLVIA3)[1]. As recommended by GLVIA3, this is not a generic LVA methodology, but has been tailored to be proportionate to the nature and location of the Development. The methodology also considers the following guidance:

- Landscape Institute/ Institute of Environmental Management and Assessment (2013), 'Guidelines for Landscape and Visual Impact Assessment', 3rd Edition ('GLVIA3')[2];
- Landscape Institute (2013), GLVIA3 Statement of Clarification 1/13[3];
- Landscape Institute (2019), 'Visual Representation of Development Proposals', Technical Guidance Note[4];
- Landscape Institute (2019), Residential Visual Amenity Assessment TGN 2/19[5]
- Natural England (2014), 'An Approach to Landscape Character Assessment[6]'; and
- Natural England (2019), An approach to Landscape Sensitivity Assessment[7].

1.2 Introduction

The level of landscape and visual effect is determined through consideration of the 'sensitivity' and 'susceptibility' of the landscape or visual receptor to the proposed solar panels and the 'magnitude of change' that would be brought about by the proposed solar panels were they to be constructed.

The time period for the assessment covers the construction of the proposed solar panels and associated infrastructure, to completion of the works and the commencement of its operation.

The assessment has involved a process of iterative design and re-assessment of any remaining, residual effects that could not otherwise be mitigated or 'designed out'. The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); cumulative; and positive, neutral or negative. The landscape and visual assessment unavoidably involves a combination of both quantitative and qualitative assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

[1] Landscape Institute and Institute of Environmental Management and Assessment, 2013, *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge, London.

[2] Landscape Institute and Institute of Environmental Management and Assessment, 2013, *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge, London.

[3] The Landscape Institute (2015) GLVIA3 – Statements of Clarification. Available online at: https://www.landscapeinstitute.org/technical-resource/glvia3-clarifications/

[4] The Landscape Institute, *Visual Representation of Development Proposals, Technical Guidance Note 06/19*, 17th September 2019. Available online at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

[5] Landscape Institute, *Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 02/19* 15th March 2019. Available online at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf

[6] Natural England (2014), An Approach to Landscape Character Assessment. Available online at: https://www.gov.uk/government/publications/landscape-character-assessments-identify-and-describe-landscape-types (Accessed on 14/08/2020).

[7] Natural England (2019), An approach to landscape sensitivity assessment. Available on line at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817928/landscape-sensitivity-assessment-2019.pdf

1.3 Terminology

A description of the terms used in this LVA are provided below.

1.3.1 Sensitivity of Receptor

This is established by considering the value of the receptor and its susceptibility to change. Both these two aspects inform the sensitivity of landscape and visual receptors as set out in Sections 1.5.1 and 1.6.1 below. For the purposes of this LVA, receptor sensitivity is classified on a four-point scale of: negligible, low, medium, and high (refer to Tables A1.4 and A1.11).

1.3.2 Resource / Receptor Value

For the landscape resource this is related to the value that is attached to different landscapes by society. A landscape may be valued by different people for different reasons. For visual receptors this relates to the recognition attached to a particular view (for example in relation to heritage assets or through planning designations) and indicators of value attached to views by visitors (for example through appearances in guidebooks or on tourist maps and the provision of facilities such as car parking and interpretation). For the purposes of the LVA a receptor value is classified on a four-point scale of: negligible, low, medium, and high (refer to Tables A1.1, A1.2 and A1.9).

1.3.3 Susceptibility to Change

For landscape receptors this means the ability to accommodate a Development without undue consequences for the maintenance of the baseline situation and/or achievement of landscape planning policies and strategies

For visual receptors this is a product of the occupation or activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the views and visual amenity they experience.

For the purposes of this LVA, susceptibility to change is classified on a three-point scale of: low, medium, and high (refer to Tables A1.3 and A1.10).

1.3.4 Magnitude of Change

This is gauged by assessing the type and amount of change predicted to occur in relation to the landscape or visual receptor. Factors influencing the magnitude of change include: size, scale and nature of change; geographical extent; and duration and reversibility of effect as set out in Sections 1.5.2 and 1.6.2 and associated tables.

For the purposes of the LVA, magnitude of change is classified on a four-point scale of: negligible, small, medium, and large (refer to Table A1.8 and A1.14)

Where there is no change to the receptor, or indeed no view of the solar panels, the magnitude of change is assessed as No Change which would result in No Effects.

1.3.5 Level of Effect

The level of landscape and visual effect is gauged by considering the magnitude of change along with the sensitivity of the receptor using professional judgement. For the purposes of the LVA, level of effect is classified on a six-point scale of: negligible, minor, minor to moderate, moderate, moderate to major and major (Tables A1.15 and A1.16).

In line with best practice guidance set out in GLVIA3, in addition to assessing level, effects are classified as: beneficial, adverse or neutral, as well as direct and indirect. An effect is understood to be neutral when the predicted residual change would, on balance, result in neither an improvement, nor a deterioration of the landscape and visual resource compared with the existing situation.

1.4 Baseline

The landscape and visual baseline of the assessment was established by undertaking a detailed desk study, fieldwork, and analysis of findings to create a detailed understanding of the existing landscape and visual context of both the site and surrounding landscape within the study area.

Establishing the landscape baseline included gathering data on the landscape character and how this varies through the study area; together with its geographic extent; and how it is experienced and valued. The desk-based assessment began with a review of legislation, policy and guidance including published landscape character assessments of the area and its wider context. This developed an understanding of the baseline environment within which the 5 km radius study area is located, however beyond 2 km it was concluded that the Development would be unlikely to have any meaningful influence on landscape character of visual amenity.

The visual baseline establishes the areas from where the new components of the development can be seen, who can see them, the places where those who see them would be affected and the nature of views and visual amenity.

Together the established baseline provides an understanding of the components of the landscape and visual resource that may be affected by the development, which includes the identification of key receptors and viewpoints which represent such receptors. The baseline is of sufficient detail to enable a well-informed assessment of the likely landscape & visual effects on the baseline conditions of the Development.

The desk-based assessment has involved the following key activities:

- Familiarisation with the landscape and visual resources of the area within which the development would be located;
- Identification of landscape and visual resources likely to be significantly affected by the development;
- Preparation of Zone of Theoretical Visibility (ZTV) maps;
- Identification of the location of viewpoints, informed by the ZTV, that were used to inform the assessment of effects of both landscape and visual resources; and
- Identification of suitable study areas for the LVA.

Viewpoints identified through consultation and during desk studies were ground-truthed through fieldwork and their positions fixed prior to photography being undertaken. Landscape character types (LCTs) were reviewed during fieldwork and the descriptions contained in the published landscape character assessment were augmented where necessary. Landscape and visual receptors were also assessed to ensure they are accurately represented through desk-based assessment.

1.5 Assessment of Landscape Effects

In accordance with GLVIA3 the assessment of landscape and visual effects are separate but linked procedures; the landscape is assessed as an environmental resource in its own right, whereas visual effects are assessed on views and visual amenity experienced by people.

Both landscape and visual effects have been assessed at construction stage and during operation of the solar panels.

1.5.1 Sensitivity

As noted above, the sensitivity of landscape receptors is assessed through consideration of their value and susceptibility to change. The process for determining landscape sensitivity is set out below.

Landscape Value

For landscape receptors, value concerns the importance of the landscape resource as evidenced by the presence of landscape designations and professional judgement. Susceptibility is concerned with the landscapes ability to absorb change brought about by the development.

Table A1.1 below illustrates how the value has been determined.

Table A1.1: Landscape Receptor Value

Value	Recognition	Features / Quality	Condition
High	Typically, a landscape / feature of international or national recognition e.g. World Heritage Sites, National Parks, Scheduled Monuments and Grade I and II* Listed Buildings, Registered	A strong sense of place with landscape / features worthy of conservation; Absence of detracting features.	A very high-quality landscape / feature; attractive landscape / feature; exceptional
Medium	Regional recognition e.g. Conservation Areas; Grade II Listed Buildings, Registered Parks and Gardens	A number of distinguishing features worthy of conservation; evidence of some degradation and occasional detracting features.	Ordinary to good quality landscape / feature with some potential for substitution; a reasonably attractive landscape / feature.
Low	Undesignated, but locally valued landscape / features	Few landscape features worthy of conservation; evidence of degradation with some detracting features.	Ordinary landscape / feature with high potential for substitution; quality that is fairly commonplace.
Negligible	Typically, an undesignated landscape / feature.	No landscape features worthy of conservation; evidence of degradation with many detracting features.	Low quality landscape / feature with very high potential for substitution; limited variety or distinctiveness; commonplace

The European Landscape Convention[8] promotes the need to take account of all landscapes, with less emphasis on the special and more recognition that ordinary landscapes, such as community landscapes also have their own value. The criteria used to assess undesignated (community value) landscapes are set out using Box 5.1 in GLVIA3[9], as per Table A1.2 below.

Table A1.2: Factors for Assessing the Value of Undesignated Landscapes

Factor	Criteria
Landscape Quality (condition)	A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
Scenic Quality	The term used to describe landscapes that appeal primarily to the senses (primarily but not wholly the visual senses).
Rarity	The presence of rare elements or features in the landscape or the presence of a rare Landscape Character Type.

[8] The European Landscape Convention for the UK. Available on line at https://www.gov.uk/government/publications/european-landscape-convention-guidelines-for-managing-landscapes

[9] Landscape Institute Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Box 5.1, Page 84.

Factor	Criteria
Representativeness	Whether the landscape contains a particular character and/or features or elements which are considered particularly important examples.
Conservation interests	The presence of features of wildlife, earth science or archaeological or historical and cultural interest can add to the value of the landscape as well as having value in their own right.
Recreation value	Evidence that the landscape is valued for recreational activity where experience of the landscape is important.
Perceptual aspects	A landscape may be valued for its perceptual qualities, notably wildness and/or tranquility.
Associations	Some landscapes are associated with particular people, such as artists or writers, or events in history that contribute to perceptions of the natural beauty of the area.

Susceptibility of the Landscape Receptors to Change

This means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies[10].

Susceptibility of landscape receptors to change has been assessed using the criteria set out in Table A1.3 below.

Table A1.3: Landscape Receptor Susceptibility to Change

Susceptibility	Criteria
High	The landscape receptor is highly susceptible to the development, and a low ability to accommodate the specific proposed change, because the key characteristics of the landscape have no or very limited ability to accommodate the specific proposed change without undue adverse effects taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies / strategies.
Medium	The landscape receptor is moderately susceptible to the development, and a moderate ability to accommodate the specific proposed change, because the relevant characteristics of the landscape have some ability to accommodate it without undue adverse effects, taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies / strategies.
Low	The landscape receptor has low susceptibility to the development, and a high ability to accommodate the specific proposed change, because the relevant characteristics of the landscape are generally able to accommodate it with little, or no, undue consequences for the maintenance of the baseline situation, taking account of the existing character and quality of the landscape.
Negligible	Very high ability to accommodate the specific proposed change; no undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies / strategies.

Landscape Sensitivity

GLVIA3 indicates that combining susceptibility and value can be achieved in a number of ways and needs to include professional judgement. However, it is generally accepted that a combination of high susceptibility and high value is likely to result in the highest sensitivity, whereas a low susceptibility and low value is likely to resulting in the lowest level of sensitivity. A summary of the likely characteristics of the different levels of

[10] Landscape Institute Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Paragraph 5.40, Page 88.

sensitivity is described below in Table A1.4 below. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.

Table A1.4: Landscape sensitivity criteria

Landscape Resource Sensitivity	Characteristics
High	Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would generally be a lower landscape capacity or scope for landscape change or positive enhancement, and higher landscape value and quality. Often includes landscapes which are highly valued for their scenic quality, including most statutorily (nationally / internationally designated landscapes). Elements/features that could be described as unique or are nationally scarce. Mature vegetation with provenance such as ancient woodland or mature parkland trees, and/or mature landscape features which are characteristic of and contribute to a sense of place and illustrates time- depth in a landscape and if replaceable, could not be replaced other than in the long term.
Medium	Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would be a medium landscape capacity or some scope for landscape change. Often includes landscapes of medium landscape value and quality which may be locally designated. Areas that have a positive landscape character but include some areas of alteration/degradation/or erosion of features. Perceptual/aesthetic aspects has some vulnerability to unsympathetic development; and/or features/elements that are locally commonplace; unusual locally but in moderate/poor condition; or mature vegetation that is in moderate/poor condition or readily replicated.
Low	Landscape character, characteristics and elements where, through consideration of the landscape resource and characteristics, there would be higher landscape capacity or scope for landscape change or positive enhancement. Damaged or substantially modified landscapes with few characteristic features of value. Capable of absorbing major change, and landscape elements/features that might be considered to detract from landscape character such as obtrusive man-made features (e.g. power lines, large scale developments, etc.).
Negligible	Landscape character, characteristics and elements where there is a high landscape capacity or a planned desire for landscape change. Usually applies to landscapes with a lower landscape susceptibility or higher landscape capacity for the development. May also apply to derelict landscapes, spoil heaps, and de-graded urban fringe areas that require restoration or re- development / re-planting. Areas that are relatively bland or neutral in character with few/no notable features.

Landscape Resource Sensitivity	Characteristics
	A landscape that includes areas of alteration/degradation or erosion of features, and/or landscape elements/features that are common place or make little contribution to local distinctiveness. Opportunities for the restoration of landscape through mitigation measures associated with the proposal.

1.5.2 Magnitude of Landscape Effects

The determination of the magnitude of landscape and visual effects combines an assessment of the size or scale of change likely to be experienced as a result of each effect[11], the geographical extent of the area likely to be influenced and the duration and reversibility of effects.

Geographical Extent

The geographical area over which the landscape effects would be felt is also considered. This is dependent upon the nature of the proposal and the scale of effects upon the receiving landscape; however, in general effects may have an influence at the following scales:

- At the site level, within the Development site itself;
- At the level of the immediate setting of the site;
- At the scale of the landscape type or character area within which the proposal lies; or
- On a larger scale, influencing several landscape types or character areas.

Size or Scale

Judgements are needed about the size or scale of change in the landscape that is likely to be experienced as a result of each effect. GLVIA3 states that 'judgements should, for example, take account of:

- The extent of the existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape – in some cases this may be quantified;
- The degree to which aesthetic and perceptual aspects of the landscape are altered either for example, removal of existing components of the landscape or by addition of new ones; and
- Whether the effect changes the key characteristics of the landscape, which are critical to its distinctive character.

Duration and Reversibility of the Landscape Effects

Duration and Reversibility are separate but linked considerations. Duration can usually be simply judged on a scale such as:

- Short-term: 0-5 years;
- Medium-term: 5-10 years; and
- Long-term: 10-40 years.

For the purposes of this assessment this Development has been assessed as long term.

Reversibility is a judgement about whether or not a development can be removed, and once removed can the landscape / landscape be fully restored. The examples in Table A1.7 below indicate the type of land use and the respective assessment of reversibility defined in GLVIA3. Tables A1.5 to A1.8 set out the criteria used to assess the magnitude of

[11] Guidelines for Landscape and Visual Impact Assessment (page 90)

landscape effects. Not all aspects of a criterion need to be met for an evaluation to be given.

Table A1.5 Magnitude of Landscape Change: Reversibility

Category	Description
Permanent	Permanent, is irreversible change to the landscape, for example housing development, as it not possible to remove the Solar panels and restore the land to the original state.
Partially Reversible	Partially Reversible, change to the landscape, where the landscape can be restored to something similar to the landscape that was removed. For example, mineral developments, as it is possible to restore the land to something similar to the original state, but not the same state.
Reversible	Reversible, change to the landscape where the landscape can be fully restored. For example, a marine fish farm development, as it is possible to wholly remove the remove the Solar panels and to restore the landscape to the original state. This also includes construction activities which are of temporary nature.

Overall Magnitude of Landscape Change

The overall magnitude combines size and scale, geographical extent, duration and reversibility as set out in Table A1.6 below.

Table A1.6: The Assessment of Overall Magnitude of Change

Category	Description
Large	A large extent of existing landscape elements would be lost / adjusted, the proportion that this represents within the landscape is considerable and the resultant change to the landscape character resulting from such a loss is large. Large scale alteration of the aesthetic and perceptual aspects of the landscape such as the removal of existing components of the landscape or by addition of new ones – for example, removal of hedges may change a small scale, intimate landscape into a large-scale, open one, or introduction of new buildings or tall structures may alter open skylines. The effect changes the key characteristics of the landscape & landscape, which are critical to its distinctive character. The change would affect all of the landscape receptors being assessed, as the development would occupy a large geographical extent, e.g., the change would be on a large scale, influencing several landscape types or character areas. The effects are either of a long duration, permanent, or irreversible /reversible change to the landscape.
Medium	A medium extent of existing landscape elements would be lost / adjusted, the proportion that this represents within the landscape is medium and the resultant change to the landscape character resulting from such a loss is medium. Medium scale alteration of the aesthetic and perceptual aspects of the landscape such as the, removal of existing components of the landscape or by addition of new ones. The effect changes some of the key characteristics of the landscape & landscape, which are critical to its distinctive character. The change would affect a medium extent of the landscape receptors being assessed, as the development would occupy a moderate geographical extent, e.g., at the scale of the landscape type or character area within which the proposal lies. The effects are either of a long / or medium duration, permanent, or irreversible /reversible change to the landscape.
Small	A small extent of existing landscape elements would be lost / adjusted, the proportion that this represents within the landscape is low and the resultant change to the landscape character resulting from such a loss is low.

Category	Description
	Small scale alteration of the aesthetic and perceptual aspects of the landscape such as the, removal of existing components of the landscape or by addition of new ones. The effect changes a small number of the key characteristics of the landscape & landscape, which are critical to its distinctive character. The change would affect a small part of the landscape receptors being assessed, as the development would occupy a small geographical extent, e.g., at the level of the immediate setting of the site. The effects are either of a Medium / or short duration and reversible change to the landscape.
Negligible	A barely perceptible extent of landscape features and elements of importance to the character of the baseline are lost / adjusted. There is a barely discernible change to aesthetic and / or perceptual attributes of landscape & landscape character and such changes occurs across a very limited geographical area and / or proportion of the landscape receptor. The effect changes a barely discernible number of the key characteristics of the landscape, which are critical to its distinctive character. The change would affect only a negligible part of the landscape receptors being assessed, as the development would occupy a limited geographical extent, e.g., the site level, within the development site itself. The effects are of short duration and reversible.
No Change	The proposals would not affect any of the landscape receptors being assessed

1.6 Assessment of Visual Effects

Visual effects are concerned wholly with the effect of the development on views, and the general visual amenity and are defined by the Landscape Institute in GLVIA3, paragraphs 6.1, as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern … is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

Visual effects are identified for different receptors (people) who will experience the view at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view.
- Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

The visual assessment aims to determine from which points the Development can be seen in the surrounding landscape; this is known as the visual envelope. Once determined, a series of key representative viewpoints are chosen (i.e. areas within the visual envelope from where it may be possible to see the Development from publicly accessible viewpoints), such as residential areas, public open spaces, PRoW / public footpaths and roads.

Visual effects relate to changes in available views of the landscape and the effect of those changes on people, including:

- The direct effects of the Development on the content and character of views through the intrusion or obstruction and/or the change or loss of existing elements.
- The overall effect on visual amenity, be it degradation or enhancement.

In predicting the effects of the Development on the visual receptors from specific viewpoints being assessed, GLVIA3 (para 6.27) states that it is helpful to consider (but not restricted to) the following issues:

- Nature of the view (full, partial or glimpsed);
- Proportion of the Development visible (full, most, part or none);
- Distance of the viewpoint from the Development and whether it would be the focus of the view or only a small element;
- Whether the view is stationary, transient or sequential; and
- The nature of the changes to the view.

Additionally, the seasonal effects of vegetation are to be considered, in particular the varying degree of screening and filtering of views.

People have different responses to views which are dependent upon context such as the:

- Location;
- Time of day;
- Season; and
- Degree of exposure to views.

Responses to views are also dependent upon the purpose of people being in a particular place such as:

- Recreation;
- Residence;
- Employment; and
- Passing through on roads, rail or other forms of transport.

As people move through the landscape, certain activities or locations may be specifically associated with the experience and enjoyment of the landscape, such as:

- The use of paths such as footpaths, bridleways, byways open to all traffic (BOATs) and National Trails;
- National or local cycle routes; and
- Tourist or scenic routes, and associated viewpoints on land or water.

1.6.1 Evaluating Visual Sensitivity to Change

To determine visual effects both the sensitivity of the visual receptor and the magnitude of change must be considered. Determining visual sensitivity is the combination of susceptibility to change and value of a view. It is considered that a combination of high susceptibility to change and high value is likely to result in the highest sensitivity, whereas a low susceptibility and value is likely to result in the lowest level. The value, susceptibility to change and resultant sensitivity of a visual receptor are broadly categorised based on the following Tables A1.7 and A1.8 below. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.

The susceptibility of visual receptors to changes in the view and visual amenity is related to activity they are engaged in and the extent to which their attention is focussed on the views and visual amenity at that location. As such those receptors most sensitive to change are likely to include people engaged in outdoor activities where an appreciation of the landscape is the focus or residents in areas where the landscape setting contributes to the setting of the properties.

Conversely, those considered least sensitive to change include (but are not restricted to) people engaged in outdoor sports or recreation where there is no focus on the surrounding landscape/views and people at their place of work where the focus is on the work activity.

See Table A1.7 below for a full description of the criteria used to assess the susceptibility of viewpoints.

Susceptibility of Visual Receptors to Change

The susceptibility of visual receptors to changes in views depends upon:

- The occupation or activity of people experiencing the view at particular locations; and
- The extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations.12

The criteria used to assess the susceptibility of a visual receptor are summarised in Table A1.7 below.

Table A1.7 Visual Receptor Sensitivity to Change

Susceptibility	Type of Receptor
High	Residents at home. Views from well used public rights of way including strategic footpaths / long distance trails and cycle routes (where the attractive nature of the countryside is a significant factor in the enjoyment of the walk). Visitors along scenic routes and to recognised viewpoints. Visitors to protected landscapes or heritage assets where views of the surroundings are an important contributor to the experience. The location, numbers, frequency of use and visual context of the viewpoint would be high. Communities where views contribute to the landscape setting enjoyed by residents in the area. Travellers on road, rail or other transport routes along scenic routes, where the appreciation of the view contributes to the enjoyment and quality of the journey.
Medium	Views experienced from boats, public rights of way / footpaths used locally and passing through the landscape and well used footpaths within settlements. Views from places of worship and associated grounds, schools, country parks and golf clubs. Views experienced by users of local roads where there are clear / open views across the landscape and low levels of traffic. The location, numbers, frequency of use and visual context of the viewpoint would be medium.
Low	Views experienced from places of work where workers and visitors are concentrating on their day-to-day activities. Views experienced by on near to motorways, major roads Views experienced by users of the rail network and main roads travelling at speed or local roads where the focus is upon the road ahead owing to traffic conditions and the context / composition of the view. Views experienced from less well used public rights of way which pass through less attractive landscapes or townscapes and are not used for enjoyment of the scenery. Views experienced by those playing or spectating at outdoor sports or utilising outdoor sports facilities. The location, numbers, frequency of use and visual context of the viewpoint would be low.

In making judgements about the value of each view, the assessment should take into account the following:

- Recognition of the value to a particular view, e.g. in relation to heritage assets or planning designations; and
- Indicators of the value attached to views by others, e.g., in guide books, tourist maps, literary references, painting etc.

[12] Ibid. 1. Paragraph 6.32

Table A1.8 below shows a full description of the criteria used to assess the value of the view.

The value attached to views should be made on judgements based on the following:

- Recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations; and
- Indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature or art.

The criteria used to assess the value of views are summarised in Table A1.8 below.

Table A1.8 Value Attached to Views

Value	Criteria
High	Views from and within landscapes / viewpoints of national importance (National Parks, AONBs), highly popular visitor attractions where the view forms an important part of the experience, or heritage assets, or through planning designations such as conservation areas, listed buildings, Parks & Gardens or with important cultural associations, or where the view is deemed by the assessor to be of a high value.
Medium	Views from landscapes / viewpoints of regional/district importance, or visitor attractions at regional or local levels where the view forms part of the experience, or local planning designations, or with local cultural associations, or where the view is deemed by the assessor to be of a medium value.
Low	Views from landscapes / viewpoints with no designations, and not particularly popular as a viewpoint, and unlikely to be visited specifically to experience the view available with minimal or no cultural associations, or where the view is deemed by the assessor to be of a low small value.

Sensitivity of Visual Receptors

The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different viewers to the proposed change. Professional judgements are made on the merit of the view based on the visual receptor, with Table A1.9 below serving as a guide.

Table A1.9 Visual sensitivity criteria

Value	Criteria
High	A well balanced view containing attractive features and notable for its scenic quality. A view which is an important reason for receptors being there. A view which is experienced by a large number of people and/ or recognized for its qualities. A view with a medium – high susceptibility to change, and experienced by visual receptors of a high sensitivity.
Medium	An otherwise attractive view that includes some attractive or discordant features or visual detractors. A view which plays a small part in the reason why a receptor would be there.

Value	Criteria
	A view which is locally recognized. A view with a low - medium susceptibility to change, and experienced by visual receptors of a low - medium sensitivity.
Low	A view that is unattractive, discordant and/or contains many visual detractors. A view which is unlikely to be part of the receptor's experience. A view with a negligible susceptibility to change, and a low sensitivity.

1.6.2 Magnitude of Visual Change

The magnitude of change to visual receptors is assessed in terms of the following:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Development;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and
- The nature of the view of the Development, in terms of the relative amount of time over which it would be experienced and whether views would be full, partial or glimpses.

Table A1.10 below sets out the criteria used to assess the magnitude of visual change. Not all aspects of a criterion need to be met for an evaluation to be given.

Geographical Extent

The geographical extent of the visual change identified at viewpoints is assessed by reference to a combination of the ZTV and field work. The following factors are considered:

The geographical extent of a visual effect reflects:

- The angle of view in relation to the main activity of the receptor;
- The distance of the viewpoint from the Solar panels; and
- The extent of the area over which the changes would be visible.

Duration and Reversibility of Visual Change

The following terminology, which considers whether views would be permanent and irreversible or temporary and reversible, is used to describe the duration of the visual change at representative viewpoints:

- Short-term: 0-5 years;
- Medium-term: 5-10 years; and
- Long-term: 10 to 40 years.

For the purposes of this assessment the solar panels has been assessed as long term.

Reversibility is a judgement about whether or not a development can be removed, and once removed can the view be fully restored.

Overall Magnitude of Visual Change

The three factors that contribute to assessment of the magnitude of visual change are combined as shown in Table A1.10.

Table A1.10 Assessment of Magnitude of Visual Change

Magnitude evaluation	Size, scale and nature	Geographical Extent	Duration & Reversibility
Large	Occupies an extensive proportion of the view and may even obstruct a significant portion of the view. Views may become the dominant feature. Considerable change to the majority / many existing landscape elements and/or landscape character; fundamental changes the surroundings and baseline to a large extent; very noticeable	Ranging from notable change over extensive area to intensive change over a more limited area.	Long term; permanent / non- reversible or partially reversible.
Medium	Occupies much of the view but would not fundamentally change its characteristics. Changes would be immediately visible but not a key feature of the view. Some change to existing landscape elements and /or landscape character; discernible changes the surroundings of a receptor, such that its baseline is partly altered; readily noticeable.	Moderate changes in a localised area.	Medium term; semi-permanent or partially reversible.
Small	Occupies a small portion of the view and therefore would not result in a change to the view's composition. Small change to existing landscape elements and/or landscape character; slight, but detectable impacts that do not alter the baseline of the receptor materially not readily noticeable	Minor changes in a localised area.	Short term / temporary; partially reversible or reversible.
Negligible	Occupies a small portion of the view and therefore would not result in a change to the view's composition. Small change to existing landscape elements and/or landscape character; slight, but detectable impacts that do not alter the baseline of the receptor materially not readily noticeable	Minor changes in a localised area.	Short term / temporary; partially reversible or reversible.
No Change	There are no changes to the existing view.		

1.7 Nature of Effect

The nature of an effect is also assessed. This is dependent on a number of criteria which vary between effects upon the landscape/landscape and effects on visual amenity. Effects are classified as beneficial, neutral or adverse according to the following definitions:

- Beneficial effects contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, positive attributes. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components;
- Neutral effects occur where the development neither contributes to nor detracts from the landscape and visual resource or where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation; and
- Adverse effects are those that detract from or weaken the landscape and visual resource through the introduction of elements that contrast in a detrimental way with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its positive characterisation.

The LVA describes the overall effects on receptors and explains the justification for each assessment. For each assessed effect, a conclusion has been drawn on whether the effect is beneficial, neutral or adverse.

1.8 Level of Effect and Criteria

The level of landscape and visual effect has been assessed based on the sensitivity of the affected resource / receptor, and the magnitude of change caused by the proposed Extension, as set out for each above in the preceding tables.

The combined sensitivity and magnitude used to determine the level of effect is summarised within Table A1.11 below. Note that effects can be either positive or negative, and in some cases, neutral (neither positive, nor negative).

Table A1.11 - Matrix for Determining Level of Effect

		Sensitivity (value / importance)			
		High	Medium	Low	Negligible
Magnitude of change	Large	Major	Moderate – Major	Minor – Moderate	Negligible
	Medium	Moderate – Major	Moderate	Minor	Negligible
	Small	Minor – Moderate	Minor	Negligible – Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

It should be noted that the above matrix is intended as a framework for assessment only and that the level of effect will vary depending on the circumstances, the type and scale of development proposed, the baseline context and other factors. The gradations of magnitude of change and level of effect used in the assessment represent a continuum; the assessor has used professional judgement when gauging the level of effect.

Table A1.12 below provides a more detailed summary of the categories of effect.

Table A1.12 - Categories of Landscape and Visual Effect

Level of Effect	Description of Landscape Effect	Description of Visual Effect
Major	Considerable change over an extensive area of a highly sensitive landscape, fundamentally affecting the key characteristics and the overall impression of its character.	The development would become a prominent feature and would result in a very noticeable change to an existing highly sensitive and well composed view.
Moderate	Small or noticeable change to a highly sensitive landscape or more intensive change to a landscape of medium or low sensitivity, affecting some key characteristics and the overall impression of its character.	The development would introduce some enhancing or detracting features to an existing highly sensitive and well composed view, or would be prominent within a less well composed and less sensitivity view, resulting in a noticeable improvement or deterioration of the existing view.
Minor	Small change to a limited area of landscape of high or medium sensitivity or a more widespread area of a less sensitive landscape, affecting few characteristics without altering the overall impression of its character.	Where the Development would form a perceptible but not enhancing or detracting feature within a view of high or medium sensitivity or would be a more prominent feature within a poorly composed view of low sensitivity, resulting in a small improvement or deterioration of the existing view.
Negligible	No discernible improvement or deterioration to the existing landscape character.	No discernible improvement or deterioration in the existing view.
No Effect	The development would not affect the landscape receptor.	The development would not affect the view
Major	Considerable change over an extensive area of a highly sensitive landscape, fundamentally affecting the key characteristics and the overall impression of its character.	The development would become a prominent feature and would result in a very noticeable change to an existing highly sensitive and well composed view.

1.9 Assessment of Cumulative Effects

The assessment of cumulative effects is essentially the same as for the assessment of the stand-alone landscape and visual effects, in that the level of landscape and visual effect is determined by assessing the combination of sensitivity of the landscape or visual receptor (ranging from high to negligible) and the magnitude of change (ranging from high to zero).

Types of cumulative effect are defined as follows:

- Cumulative Landscape Effects: Where more than one type of development may have an effect on a landscape designation or particular area of landscape character; and
- Cumulative Visual Effects: Where the cumulative or incremental visibility of similar types of Development combined generate a cumulative visual effect.

These can be further defined as follows:

- Simultaneous or combined: where two or more developments may be viewed from a single fixed viewpoint simultaneously, within the viewer's field of view and without requiring them to turn their head.

- Successive or repetitive: where two or more developments may be viewed from a single viewpoint successively as the viewer turns their head or swivels through 360°.
- Sequential: where a number of developments may be viewed sequentially or repeatedly at increased frequency, from a range of locations when travelling along a route within the Study Area.

A cumulative landscape or visual effect simply means that more than one type of development is present or visible within the landscape. Other forms of existing development and land use such as woodland and forestry, patterns of agriculture, built form, and settlements already have a cumulative effect on the existing landscape that is already accepted or taken for granted. These features often contribute strongly to the existing character, forming a positive component of the local landscape. Landscapes however, will have a finite capacity for new development, beyond which further change or alteration to the existing landscape character may be unacceptable in landscape terms.

Whilst the Cumulative Landscape and Visual Impact Assessment (CLVIA) considers other development, it should not be considered as a substitute for individual LVA assessment in respect of each of the other developments concerned.

The methodology for cumulative assessment follows that contained within GVLIA3 (para 7.8) and requires that the baseline includes additional changes to the baseline landscapes or visual resources as a result of other development.

Existing similar types of developments are therefore included within the baseline description, and cumulative effects of consented and Development are considered separately.

1.9.1 Magnitude of Cumulative Change

Cumulative landscape and visual effects may result from additional changes to the baseline landscape or visual resources, as a result of the Development, in conjunction with other developments.

The principle of magnitude of cumulative change thus makes it possible for the Development to have a major effect on a particular receptor, while having only a minor cumulative effect in conjunction with other existing developments.

The cumulative landscape and visual magnitude of change is determined with reference to the criteria set out above and the following considerations:

- The number of visible existing and/or potentially visible proposed developments.
- The distance to existing and/or proposed developments.

1.9.2 Significance of Cumulative Effects

Cumulative landscape and visual effects may result from additional changes to the baseline landscape or visual resources, as a result of the Development, in conjunction with other developments.

The principle of significance of cumulative change thus makes it possible for the Development to have a major effect on a particular receptor, while having only a minor cumulative effect in conjunction with other existing developments.

The cumulative landscape and visual magnitude of change is determined with reference to the criteria set out above and the following considerations:

- The number of visible existing and/or potentially visible proposed developments; and
- The distance to existing and/or proposed developments.

2 VISUAL ASSESSMENT OF RESIDENTIAL PROPERTIES

Planning law contains a widely understood principle that individuals (i.e. visual receptors at a single residential property) have no 'right to a view' and that the outlook or view from a private property is a private interest and not therefore protected by the UK planning system.

However, the planning system also recognises situations where the effects on residential visual amenity are considered as a matter of public interest. This matter has been examined at a number of public inquiries where the key determining issue was not the identification of significant effects on views, but whether a Development would have an overbearing effect and/or result in unsatisfactory living conditions, leading to a property being regarded, objectively, as an unattractive (as opposed to a less attractive) place in which to live.

As a consequence, the visual assessment methodology provides for a much more detailed assessment of the closest residential properties. This allows the assessor, and consequently the determining authority, to make a judgement as to whether the residents at these properties would be likely to sustain unsatisfactory living conditions which it would not be in the public interest to create. Reviews of decisions demonstrate that significant changes to the views available from a residential property, and its curtilage, are not the decisive consideration.

By way of further clarification, the methodology for assessing the visual effects on views from residential properties allows for two stages of assessment as follows:

- The first stage is to identify those properties where a significant visual effect on a view from the property is likely to occur.
- The second stage is to consider the residential amenity and whether, in terms of the wider public interest, the visual effects would result in unsatisfactory living conditions, leading to a property being regarded, objectively, as an unattractive (as opposed to a less attractive) place in which to live.

A residential property, for the purposes of environmental impact assessment, should be one that was designed and built/converted for that purpose and currently (at the time of the assessment) remains in a habitable condition, of a safe construction, wind and water tight with appropriate vehicle access, and services (drinking water, sanitation, and power supply). Related buildings such as barns/outbuildings, garage, huts and derelict properties should generally be excluded from the assessment, unless they form part of the curtilage of an existing residence.

The sensitivity of individual residential receptors is assessed as high in each case.

The assessment of residential properties or groups of residential properties in this case has been limited to those properties within 1 km of the proposed solar farm, which appear on the Ordnance Survey 1:25,000 scale map. Whilst most of the properties can be viewed at close range from public roads and footpaths, some of these properties are accessed via private or gated roads and due to these access limitations, they have been assessed from the nearest public road or footpath which may be at greater distance from the property. The assessment, in this instance, should therefore be regarded as a 'best estimate' of the likely visual effects.

The assessment has been further supported by aerial and ground level photography as well as map-based data. The assessment takes account of the likely views from the ground floors of properties and main garden areas, but excludes upper floors and other land that may be connected with the property. Relevant information considered as part of the assessment may include, but is not limited to the following:

- Scale of Development:
  - Number and height of the Development;

  - The horizontal extent or AOV of the visible array; and
  - Separation distance (closest and furthest buildings).
- Description of Property, as far as this can be ascertained:
  - Orientation and size of property and whether views from the property towards the development would be direct or oblique;
  - Location of principle rooms and main living areas such as living/dining rooms, kitchens and conservatories, as opposed to working areas such as farm buildings and utility areas;
  - Location of principle garden areas which may include patios and seating areas as opposed to less well used areas such as paddocks or garages; and
  - The effects of any screening by landform, vegetation or nearby built development.
- Location and Context:
  - The aspect of the property in terms of the overall use and relationship to the garden areas and surrounding landscape;
  - The principle direction of main views and visual amenity; and
  - The context and nature of any intervening structures e.g. other existing development, farm buildings or forestry.

3 VIEWPOINT ANALYSIS

Viewpoint analysis is used to assist the LVA and is conducted from selected viewpoints within the Study Area. The purpose of this is to assess both the level of visual impact for particular receptors and to help guide the design process and focus the landscape and visual assessment.

A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur. By arranging the viewpoints in order of distance it is possible to define a threshold or outer limit beyond which there would be no further significant effects.

The assessment involves visiting each viewpoint location. The fieldwork is conducted in periods of fine weather and good visibility and also considers seasonally reduced leaf cover.

Viewpoint selection followed good practice guidance and in particular paragraphs 6.18 to 6.20 of GLVIA3. The viewpoints chosen were used to aid the description of effects on both landscape and visual resources.

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

- Representative viewpoints (for example, representing views of users of a particular footpath);
- Specific viewpoints (for example, a key view from a specific visitor attraction);
- Illustrative viewpoints (chosen to demonstrate a particular effect/specific issue);
- Any important sequential views, for example, along key transport routes; and
- Any additional viewpoints that have been requested by consultees at Scoping.

For the purposes of the LVA, all of the viewpoints were taken from publicly accessible land.

Baseline photographic panoramas have been produced for each viewpoint to illustrate the nature of existing views in the direction of the solar panels. A baseline photographic survey

has been undertaken using a digital SLR camera in accordance with current good practice guidance[13].

The methodology for photography follows GLVIA3 and the Landscape Institute's TGN 06/19 Visual Representation of development proposals.

4 ZTV METHODOLOGY

In order to assist with viewpoint selection and to appreciate the potential influence of the development in the wider landscape, preliminary ZTV plans are used. ZTV plans illustrate the area from where it may be theoretically possible to view all, or part, of the Development. The ZTV does not however, take account of the screening effects of buildings, localised landform and vegetation, unless specifically mentioned (see individual figures). As a result, there may be roads, tracks and footpaths in the vicinity of the site and in the wider setting which, although shown as falling within the ZTV, are screened or filtered by banks, walls and vegetation which would otherwise preclude viewing opportunities.

The ZTVs provide a starting point in the assessment process and accordingly tend towards giving a 'worst case' or greatest calculation of the theoretical visibility.

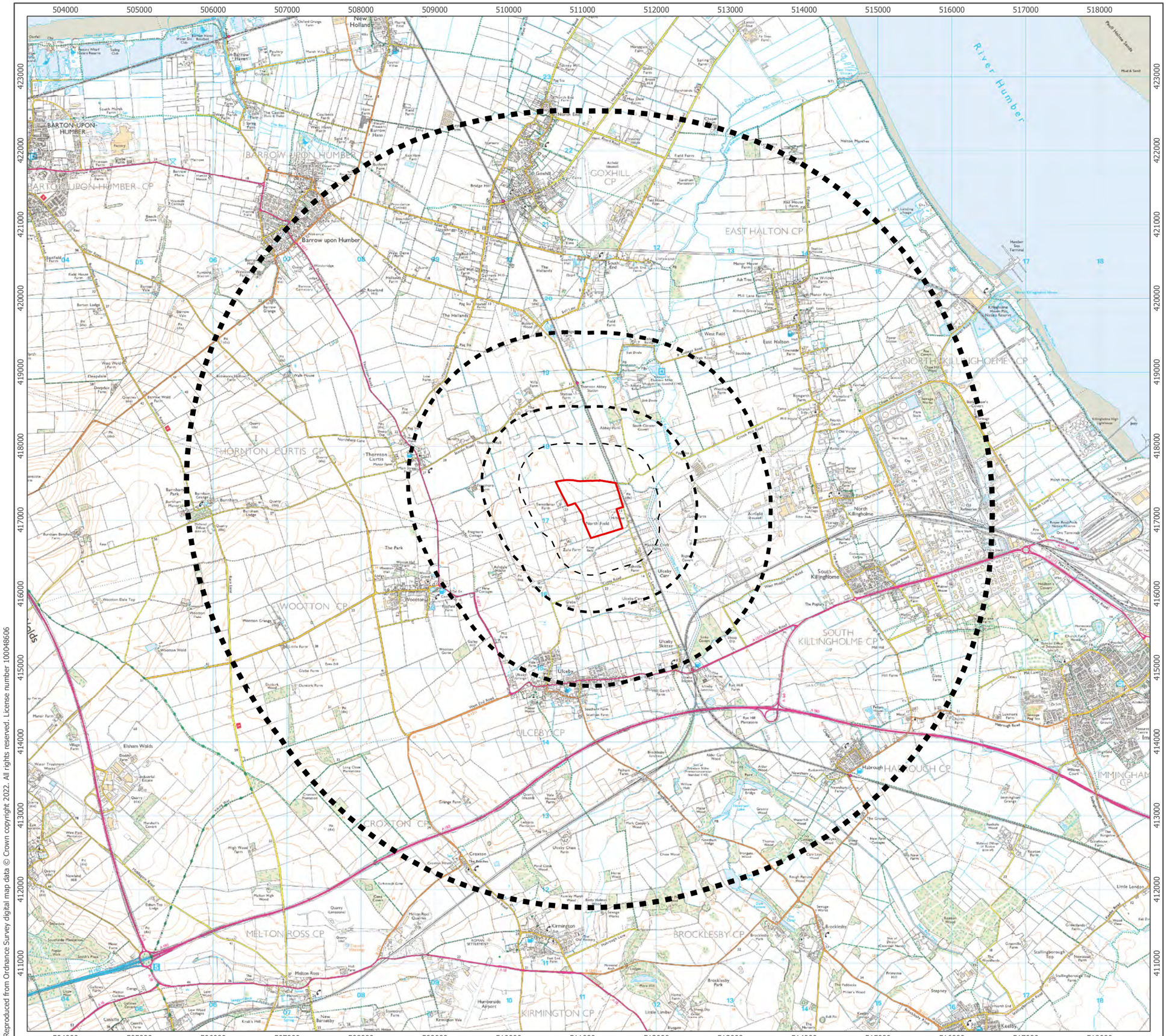
Ordnance Survey Terrain 5 dataset was used as the Digital Terrain Model (DTM) for the Bare Earth ZTV. This DTM is a 5 m by 5 m raster dataset that is representative of the land form across Great Britain.

The ZTV was produced using ArcGIS Pro 2.1 software, and the calculations were based on the proposed infrastructure. The ZTV is created by highlighting areas on the DTM where a potential piece of infrastructure may be visible, based on the DTM. The height value given to the infrastructure was dependent on the flood depth value per field within the solar panels, plus the height of solar panels.

Arcus has developed additional methodology to supplement the "bare earth ZTV" which enables a more accurate representation of viewpoint assessment and a greater understanding of the visual baseline. The ZTV has been refined using the topographic survey of the site, LiDAR and DTM data, and stereo-photography modelling of trees, to enable a better understanding of the likely visual footprint of the Development. This will still represent theoretical visibility and will be considered in line with fieldwork to ground truth the findings of the data.

[13] Landscape Institute, 2019, *Technical Guidance Note 06/19 Visual representation of development proposals* https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

APPENDIX B – FIGURES



N:\GIS\Landscape\Projects\4157 Sweet Briar Farm\4157 Sweet Briar Farm.aprx\4157-REP-021 Fig1.1 Site Location

LIGHTROCKPOWER

ARCUS

- Site Boundary
- 0.5 km Study Area
- 1 km Study Area
- 2 km Study Area
- 5 km Study Area

1:50,000 Scale @ A3

0 1 2 km

NORTH

Produced By: MJ	Ref: 4157-REP-012
Checked By: WW	Date: 26/01/2022

Site Location
Figure 1.1

Sweetbriar Solar Farm
Landscape and Visual Appraisal

LIGHTROCKPOWER

ARCUS

- Site Boundary
- 0.5 km Study Area
- 1 km Study Area
- 2 km Study Area
- 5 km Study Area

1:50,000 Scale @ A3

0 1 2 km

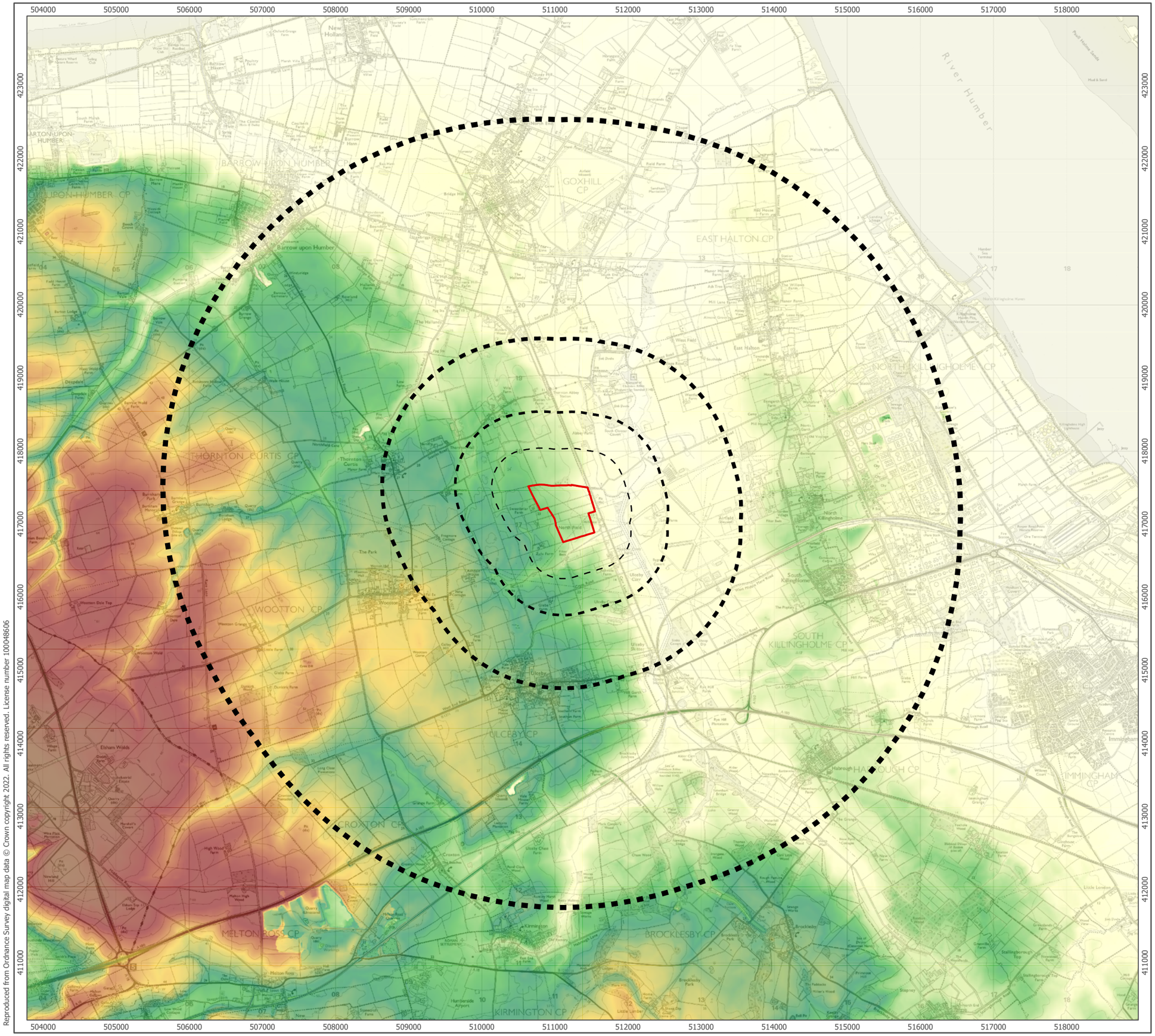
NORTH

Produced By: MJ	Ref: 4157-REP-022
Checked By: WW	Date: 26/01/2022

Aerial Mapping
Figure 1.2

Sweetbriar Solar Farm
Landscape and Visual Appraisal

N:\GIS\Landscape\Projects\4157 Sweet Briar Farm\4157 Sweet Briar Farm.aprx\4157-REP-022 Fig1.2 Aerial Mapping



LIGHTROCKPOWER

ARCUS

- Site Boundary
- 0.5 km Study Area
- 1 km Study Area
- 2 km Study Area
- 5 km Study Area

OS Terrain 5 Digital Model

93.87 AOD(m)

-2.25 AOD(m)

1:50,000 Scale @ A3

0 1 2 km

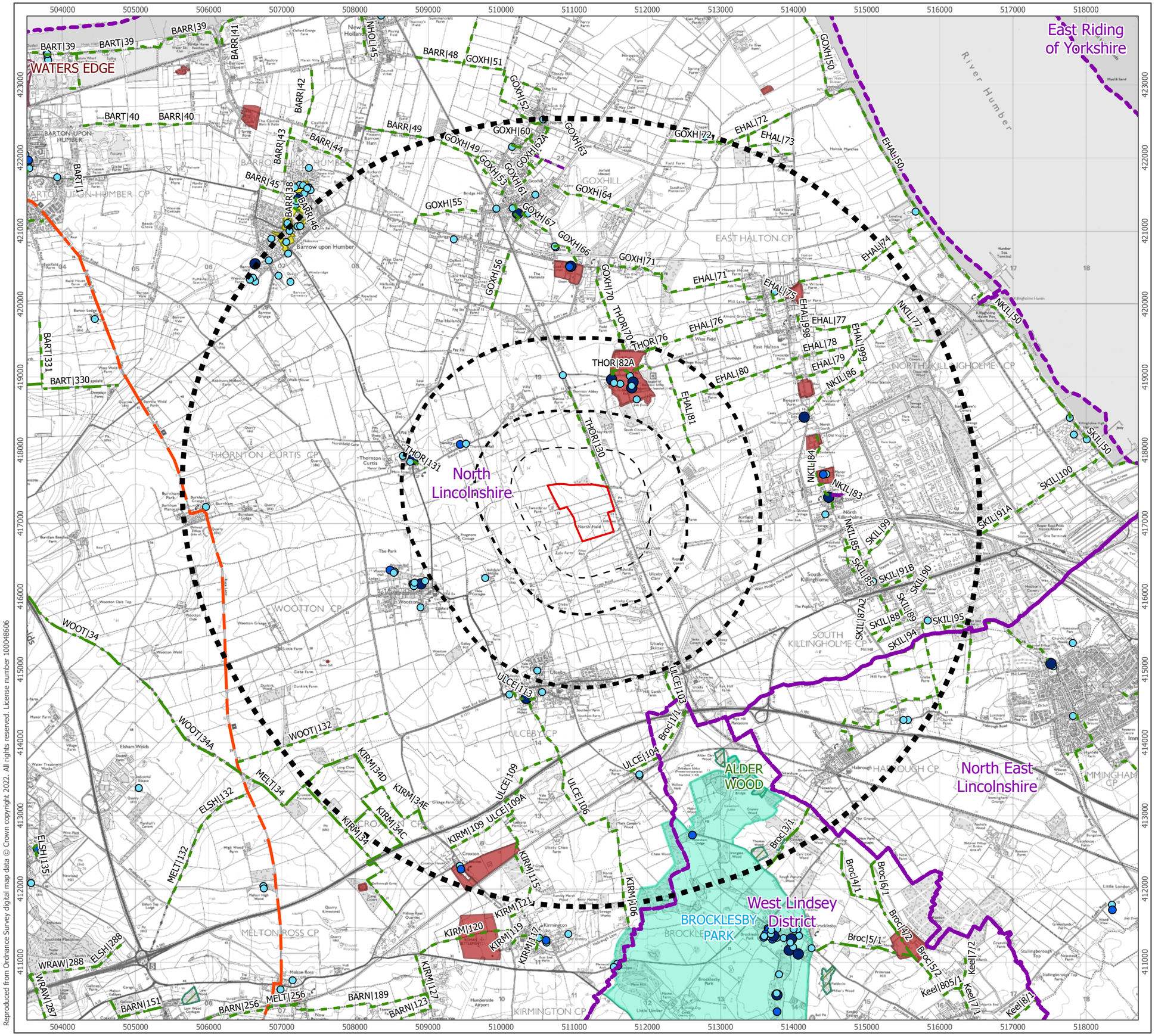
NORTH

Produced By: MJ	Ref: 4157-REP-023
Checked By: WW	Date: 26/01/2022

Topography
Figure 1.3

Sweetbriar Solar Farm
Landscape and Visual Appraisal

N:\GIS\Landscape\Projects\4157 Sweet Briar Farm\4157 Sweet Briar Farm.aprx\4157-REP-023 Fig1.3 Topography



LIGHTROCKPOWER

ARCUS

- Site Boundary
- 0.5 km Study Area
- 1 km Study Area
- 2 km Study Area
- 5 km Study Area
- Local Planning Authorities

Public Rights of Way

- Footpath
- Bridleway
- Restricted Byway
- BOAT
- National Cycle Route

Listed Buildings

- I
- II*
- II

- Conservation Area (England)
- Registered Parks and Gardens
- Ancient Woodland
- Scheduled Monuments
- Country Parks

1:50,000 Scale @ A3

0 1 2 km

NORTH

Produced By: AK	Ref: 4157-REP-024
Checked By: WW	Date: 26/01/2022

Landscape Baseline
Figure 1.4

Sweetbriar Solar Farm
Landscape and Visual Appraisal

N:\GIS\Landscape\Projects\4157 Sweet Briar Farm\4157 Sweet Briar Farm.aprx\4157-REP-024 Fig1.4 Landscape Baseline