

PLANNING APPLICATION FOR PROPOSED SOLAR FARM WITH ASSOCIATED INFRASTRUCTURE AND LANDSCAPING

LANDSCAPE AND VISUAL ASSESSMENT

LAND AT MUSKHAM WOOD, KNAPTHORPE, NEWARK

ON BEHALF OF MUSKHAM SOLAR LIMITED

TOWN & COUNTRY PLANNING ACT 1990 (AS AMENDED)
PLANNING AND COMPULSORY PURCHASE ACT 2004



Pegasus Group

Birmingham | Bracknell | Bristol | Cambridge | Cirencester | Dublin | East Midlands | Edinburgh | Leeds | Liverpool | London | Manchester | Newcastle | Peterborough | Solent

 **DESIGN**  **ENVIRONMENT**  **PLANNING**  **ECONOMICS**  **HERITAGE**

The contents of this document must not be copied or reproduced in whole or in part without the written consent of Pegasus Group.

Pegasus Group is a trading name of Pegasus Planning Group Limited (07277000) registered in England and Wales Registered Office: Pegasus House, Querns Business Centre, Whitworth Road, Cirencester, Gloucestershire, GL7 1RT

Copyright Pegasus Planning Group Limited 2011. The contents of this document must not be copied or reproduced in whole or in part without the written consent of Pegasus Planning Group Limited

CONTENTS:

Page No:

1	INTRODUCTION	1
2	METHODOLOGY	2
3	DESIGNATIONS AND PLANNING POLICY CONTEXT	5
4	DESCRIPTION OF THE SITE AND ITS ENVIRONS	12
5	PROPOSED DEVELOPMENT	15
6	LANDSCAPE BASELINE AND EFFECTS	17
7	VISUAL BASELINE AND EFFECTS	31
8	CUMULATIVE EFFECTS	48
9	SUMMARY AND CONCLUSIONS	54

FIGURES:

Figure 1	Landscape and Environmental Designations Plan
Figure 2	Landscape Masterplan
Figure 3	Landscape Features Plan
Figure 4	Landscape Character Areas Plan
Figure 5	ZTV/SZTV and Viewpoint Location Plan
Figure 6	Cumulative SZTV

APPENDICES:

Appendix A	Detailed Methodology
Appendix B	Photoviews
Appendix C	Photomontages

1 INTRODUCTION

- 1.1 This Landscape and Visual Assessment (LVA) has been prepared on behalf of Muskham Solar Limited by Pegasus Group. It relates to 69.5 hectares (ha) of agricultural land (the Site) located in a rural area to the south-east of the hamlet of Knapthorpe, to the north-west of Newark-on-Trent in Nottinghamshire – see Landscape and Environmental Designations Plan at **Figure 1**: Landscape and Environmental Designations Plan. The Site and its environs are described in detail in **Section 4**.
- 1.2 This LVA considers the Site and its environs in both landscape and visual terms to assess the potential effects of the proposed solar installation upon:
- landscape features and elements;
 - landscape character; and
 - visual amenity.

2 METHODOLOGY

2.1 This LVA has been undertaken by chartered members of the Landscape Institute (LI), using the methodology set out in **Appendix A**.

Guidance

2.2 The methodology and assessment criteria for the assessment have been developed with regard to the principles established in the published guidance for landscape and visual assessments, namely:

- *Guidelines for Landscape and Visual Impact Assessment (3rd edition)* - Landscape Institute/ Institute of Environmental Management and Assessment (2013) [GLVIA3]¹;
- *GLVIA3 Statement of Clarification 1/13* – Landscape Institute (2013)²;
- *An Approach to Landscape Character Assessment* – Natural England, (October 2014)³;
- *Landscape Institute Technical Guidance Note 06/19 – Visual Representation of Development Proposals* (September 2019)⁴; and
- *Landscape Institute Technical Guidance Note 02/21 – Assessing Landscape Value Outside National Designations* (February 2021)⁵.

2.3 It should be acknowledged that GLVIA3 establishes guidelines, not a specific methodology. The preface to GLVIA3 states:

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

Distinction between Landscape and Visual Effect

2.4 In accordance with the published guidance, landscape and visual effects were assessed separately, although the procedure for assessing each of these is closely

¹ Landscape Institute and Institute of Environmental Management & Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge

² Landscape Institute (2013) *GLVIA3 Statement of Clarification 1/13*, Landscape Institute

³ Natural England (2014) *An Approach to Landscape Character Assessment*, Natural England

⁴ Landscape Institute (2019) *Technical Guidance Note 06/19: Visual representation of Development Proposals*, Landscape Institute

⁵ Landscape Institute (2021) *Technical Guidance Note 02/21: Assessing Landscape Value Outside National Designations*, Landscape Institute

linked. A clear distinction has been drawn between landscape and visual effects as described below:

- Landscape effects relate to the effects of the indicative proposals on the physical and perceptual characteristics of the landscape and its resulting character and quality; and
- Visual effects relate to the effects on specific views experienced by visual receptors and on visual amenity more generally.

Types of Landscape and Visual Impacts Considered and Duration

- 2.5 The LVA assesses both the long-term effects of the development's 40-year life, and the temporary effects associated with its construction.
- 2.6 Consideration has been given to seasonal variations in the visibility of the development and these are described where necessary.
- 2.7 Both beneficial and adverse effects are identified in the assessment and reported as appropriate. Where effects are described as 'neutral' this is where beneficial effects are deemed to balance the adverse effects. Both the adverse and beneficial effects are communicated in each case so that the judgement is clear.
- 2.8 As part of the proposed development, new planting would be introduced. Newly planted vegetation takes a number of years to mature and average growth rates have been taken into consideration in this assessment. The effectiveness of vegetation would improve over time (both in terms of integrating the development into the surrounding landscape and in providing visual screening) and this has been taken into consideration where appropriate.
- 2.9 Therefore, permanent landscape and visual impacts of the project are assessed both in the winter of Year 1 (the year in which the development is completed) and also in the summer of Year 5 (5 years after completion of the development). In this second scenario it is assumed that vegetation planted as part of the development will have become established and be exhibiting a degree of maturity.

Study Area

- 2.10 The study area for this LVA covers a 3km radius from the Application Site. However, the main focus of the assessment was taken as a radius of 2km from the Application Site as it is considered that even with clear visibility it is considered that there

would be only very limited visibility of the Proposed Development beyond this distance.

Assessment Approach

2.11 The assessment has been prepared through a combination of:

- desk-based analysis of the Site and its environs, including Ordnance Survey (OS) base mapping, publicly available aerial imagery (Google Earth), published landscape character assessments, and local planning policy; and
- a field survey undertaken in December 2021.

2.12 The field survey therefore considered effects on landscape character and visual amenity during wintertime when deciduous vegetation was not in leaf. Views of the Proposed Development are therefore likely to be more restricted during the summer months when deciduous vegetation is in full leaf and therefore providing a greater degree of visual screening.

Assumptions and Limitations

2.13 The project proposals have been developed iteratively in conjunction with the production of the LVA, with the intention of incorporating mitigation into the project from the outset. The effects identified and described as part of this LVA are based on the landscape masterplan as shown in **Figure 2: Landscape Masterplan**.

2.14 The identification of likely landscape and visual receptors has been undertaken through the desk study and field survey. In particular, the locations used for photoviews are representative only and there may be other locations from where views of the Proposed Development would be possible. The potential receptors assessed are considered to cover an appropriate range of receptors within the local landscape such that an accurate assessment of the likely overall impacts of the Proposed Development can be undertaken.

3 DESIGNATIONS AND PLANNING POLICY CONTEXT

3.1 This section provides an overview of the policies and designations of particular relevance to landscape and visual matters. **Figure 1:** Landscape and Environmental Designations Plan) shows the relevant designations within the locality of the site. The Site and the wider study area lie within Newark and Sherwood District.

Designations

Landscape Designations

3.2 The Site lies outside of any statutory/national or non-statutory/local landscape designations. There are no such landscape designations within the 3km study area.

Other Relevant Designations

3.3 There are no cultural heritage or ecological designations within the Site.

3.4 The nearest cultural heritage designations within the study area include:

- a number of Listed Buildings (LBs) and a Conservation Area (CA) within the village of Caunton to the north of the Site, with the closest being approximately 1500m to the north of the Site;
- a Scheduled Monument (SMs) at Earshaw Farm, approximately 1100m to the north-west of the Site;
- two Listed Buildings at Bathleyhill Farm, approximately 2.7km to the north-east of the Site;
- an LB and a number of SMs at Manor House Farm, approximately 2.7km to the east of the Site;
- A CA within the village of Kelham, approximately 2.7km to the east-south-east of the Site;
- two LBs at Averham Park, approximately 950m to the south of the Site;
- a CA within Upton, approximately 2.7km to the south of the Site;
- a number of LBs within Hockerton, approximately 2.6km to the west-south-west of the Site;
- a number of LBs within Winkburn, approximately 2.7km to the west of the Site;

- an SM within Park Spring Wood, approximately 1300m to the west of the Site; and
- a number of LBs at Beesthorpe Hall, approximately 2.3km to the north-west of the Site.

3.5 Cultural heritage and ecological designations are considered to be beyond the scope of this LVA. They are therefore not considered further here, and are instead considered elsewhere in the application documentation.

Planning Policy

European Landscape Convention

3.6 The European Landscape Convention (ELC)⁶ promotes the protection, management and planning of European landscapes. The convention was adopted on 20 October 2000 and came into force on 1 March 2004. The ELC is designed to achieve improved approaches to the planning, management and protection of landscapes and organises cooperation on landscape issues. The convention defines landscape as:

"...an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."

3.7 The importance of this definition is that it focuses on landscape as a resource in its own right and moves beyond the idea that landscapes are only a matter of aesthetics and visual amenity.

National Planning Policy

National Planning Policy Framework

3.8 The revised National Planning Policy Framework (NPPF)⁷ was published by the Ministry of Housing, Communities and Local Government (MHCLG) in July 2018 (with further revisions in February 2019 and July 2021), setting out the Government's planning policies for England and providing a framework within which local planning authorities (LPAs) can produce local plans. The NPPF is a material consideration in planning decisions.

⁶ Council of Europe (2000) *European Landscape Convention*

⁷ Ministry of Housing, Communities and Local Government (2021) *National Planning Policy Framework*

- 3.9 The NPPF sets out three overarching objectives, one of which relates to specifically to the environment:

"...to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

- 3.10 These objectives are intended to guide and influence local authorities developing their local plans, demonstrating Government commitment to ensure the planning system does everything it can to support sustainable economic growth. The NPPF goes on to note that sustainable solutions should take account of local circumstances and reflect the character of each area. This underpins the strategic guidance set out in the NPPF in relation to landscape and visual matters.

- 3.11 In Section 15, 'Conserving and enhancing the natural environment', paragraph 174 sets out that:

'Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

...'

Planning Policy Guidance

- 3.12 In March 2014 the MHCLG launched a web-based resource of Planning Practice Guidance documents (PPG)⁸; these effectively supersede a series of previous advice and guidance documents. The website notes that the PPG will be updated as required.

⁸ Ministry of Housing, Communities and Local Government (accessed 2021) *Planning Practice Guidance*

- 3.13 Matters pertaining to 'landscape' are covered under the guidance for the Natural Environment. Paragraph 036 addresses how the character of landscapes can be assessed to inform plan-making and planning decisions. It states that:

"The National Planning Policy Framework is clear that plans should recognise the intrinsic character and beauty of the countryside, and that strategic policies should provide for the conservation and enhancement of landscapes. This can include nationally and locally designated landscapes but also the wider countryside.

Where landscapes have a particular local value, it is important for policies to identify their special characteristics and be supported by proportionate evidence. Policies may set out criteria against which proposals for development affecting these areas will be assessed. Plans can also include policies to avoid adverse impacts on landscapes and to set out necessary mitigation measures, such as appropriate design principles and visual screening, where necessary. The cumulative impacts of development on the landscape need to be considered carefully."

- 3.14 In relation to landscape character assessment, Paragraph 037 states:

"For a designated landscape, the relevant management plan will contain further information on the area's particular character and beauty.

Where appropriate, landscape character assessments can be prepared to complement Natural England's National Character Area profiles. Natural England provides guidance on undertaking these assessments.

To help assess the type and scale of development that might be able to be accommodated without compromising landscape character, a Landscape Sensitivity and Capacity Assessment can be completed.

To demonstrate the likely effects of a proposed development on the landscape, a Landscape and Visual Impact Assessment can be used."

- 3.15 The guidance relating to renewable energy developments states at Paragraph 013:

"The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.

Particular factors a local planning authority will need to consider include:

- ...
- *where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays.*
- *that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use;*
- *the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on neighbouring uses and aircraft safety;*
- *the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*
- *the need for, and impact of, security measures such as lights and fencing;*
- ...
- *the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;*
- ...

The approach to assessing cumulative landscape and visual impact of large-scale solar farms is likely to be the same as assessing the impact of wind turbines. However, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero."

Local Planning Policy

Newark and Sherwood District Council Amended Core Strategy 2019

3.16 The Newark and Sherwood District Council Core Strategy 2011 (adopted March 2011) has been reviewed and amended in 2019. Those policies of relevance to the site are considered below.

3.17 Spatial Policy 3 states [inter alia]:

"Beyond Principal Villages, proposals for new development will be considered

against the following criteria:

- *Character - new development should not have a detrimental impact on the character of the location or its landscape setting."*

3.18 Core Policy 6: Shaping our Employment Profile states [inter alia]:

"The economy of Newark and Sherwood District will be strengthened and broadened to provide a diverse range of employment opportunities by:

- *Helping the economy of Rural Areas by rural diversification that will encourage tourism, recreation, rural regeneration, and farm diversification, and complement new appropriate agriculture and forestry development. Development sustaining and providing rural employment should meet local needs and be small scale in nature to ensure acceptable scale and impact."*

3.19 Core Policy 9: Sustainable Design states [inter alia]:

"The District Council will expect new development proposals to demonstrate a high standard of sustainable design that both protects and enhances the natural environment and contributes to and sustains the rich local distinctiveness of the District. Therefore all new development should:

- *Achieve a high standard of sustainable design and layout that is capable of being accessible to all and of an appropriate form and scale to its context complementing the existing built and landscape environment."*

3.20 Core Policy 10: Climate Change states [inter alia]:

"The District Council is committed to tackling the causes and impacts of climate change and to delivering a reduction in the District's carbon footprint. The District Council will work with partners and developers to:

- *Promote energy generation from renewable and low-carbon sources, including community-led schemes, through supporting new development where it is able to demonstrate that its adverse impacts have been satisfactorily addressed. Policy DM4 'Renewable and Low Carbon Energy Generation' provides the framework against which the appropriateness of proposals will be assessed;"*

3.21 Core Policy 12: Biodiversity and Green Infrastructure states [inter alia]:

"The District Council will seek to conserve and enhance the biodiversity and geological diversity of the District by working with partners to implement the aims and proposals of the Nottinghamshire Local Biodiversity Action Plan, the Green Infrastructure Strategy and the Nature Conservation Strategy. The District Council will therefore:

- Expect proposals to take into account the need for continued protection of the District's ecological, biological and geological assets. With particular regard to sites of international, national and local significance, Ancient Woodlands and species and habitats of principal importance identified in Section 41 of the Natural Environment and Rural Communities Act 2006 and in the Nottinghamshire Local Biodiversity Action Plan;*
- Seek to secure development that maximises the opportunities to conserve, enhance and restore biodiversity and geological diversity and to increase provision of, and access to, green infrastructure within the District;*
- Promote the appropriate management of features of major importance for wild flora and fauna."*

3.22 Core Policy 13: Landscape Character states:

"Based on the comprehensive assessment of the District's landscape character, provided by the Landscape Character Assessment Supplementary Planning Document, the District Council will work with partners and developers to secure:

- New development which positively addresses the implications of relevant landscape Policy Zone(s) that is consistent with the landscape conservation and enhancement aims for the area(s) ensuring that landscapes, including valued landscapes, have been protected and enhanced."*

4 DESCRIPTION OF THE SITE AND ITS ENVIRONS

- 4.1 The Site and its immediate environs are shown at **Figure 3**: Landscape Features Plan, and **Appendix B**: Photoviews.

The Site

- 4.2 The Site lies to the south-east of the hamlet of Knapthorpe, and to the east of Cauntun Road. The Site comprises:
- the whole of two adjacent arable fields to the west of Muskham Woodhouse Farm; and
 - the majority of two further large arable fields between Muskham Woodhouse farm and the poultry farm adjacent to the north-western part of Muskham Wood.
- 4.3 The fields are medium to large in size and of irregular shape with a mixture of linear and more sinuous boundaries, the latter typically occurring where boundaries are formed by small watercourses. All of the fields were used for the production of oil seed rape at the time of the field survey.
- 4.4 The fields are bounded by tightly trimmed native hedgerows, often gappy and in places only remnant and/or made up of bramble. Hedgerow trees are generally limited, though the eastern boundary of the northern field has more hedgerow trees. The southern boundary of the southern field is formed by Muskham Wood, which is recorded as ancient woodland. A shallow ditch follows the boundary between the southern and eastern fields, and then along the eastern boundary of the northern field, with a small pond at the south-eastern corner of the northern field/the north-eastern corner of the southern field. Some sections of the Site boundaries are not demarcated on the ground as they do not coincide with existing field boundaries, notably the northern and north-western boundaries of the northern field, and the western boundary of the southern field.
- 4.5 The topography of the Site is gently sloping. The land slopes gently from approximately 65m Above Ordnance Datum (AOD) along the southern boundary close to Muskham Wood, down to approximately 45m AOD in the north-east corner of the Site. There is also an area of slightly higher ground a short distance to the north-east of the poultry farm.

4.6 Two Public Rights of Way (PRoWs) cross the Site:

- Footpath South Muskham FP5 follows a broadly north-south alignment starting from the eastern edge of Muskham Wood and running between the southern field and the two eastern fields. It then passes out of the Site and follows the eastern boundary of the northern field before passing back into the Site at the parish boundary and crossing the north-eastern corner of the Site as footpath Caunton FP2, heading north towards Caunton Road.
- Footpath South Muskham FP6 runs east from footpath Kelham FP1, passing through the western section of Muskham Wood and then along the southern edge of the poultry farm. It then continues east across the southern field, and then along the boundary between the two eastern fields towards Muskham Woodhouse Farm, and then on to the minor road to the east.

The Surrounding Landscape

- 4.7 The surrounding landscape comprises very gently undulating arable and pastoral farmland to the west of the River Trent floodplain. Field boundaries are predominantly formed by hedgerows with variable frequency of hedgerow trees – in places almost continuous, but barely present elsewhere. Small woodlands and copses are also common. Inter-visibility is often limited by this (field boundary) vegetation.
- 4.8 A network of main and minor roads links the various settlements in the surrounding area, including the A616 between Newark and Ollerton which lies approximately 950m to the north-east of the Site at its closest.
- 4.9 The settlement pattern comprises scattered farmsteads/individual properties and variable sized villages. The larger settlement of Newark-on-Trent lies approximately 5km to the south-east.
- 4.10 High voltage powerlines mounted on steel-lattice pylons cross the landscape on a broadly north-south alignment approximately 325m to the east of the Site. Further pylon-mounted high voltage powerlines cross the landscape approximately 1.3km to the west of the Site. There are three large wind turbines approximately 1.3km to the east of the Site, with further wind turbines approximately 8km to the west at Eakring.
- 4.11 The British Sugar sugarbeet processing plant at Newark is a dominant feature in

some views due to the large scale and height of the structures at the factory, including the stacks (which emit a (steam) plume when the plant is operational). The Bedmax wood shavings plant, which also has a prominent stack, lies approximately 500m to the west of the Site.

- 4.12 There are a number of PRowWs within the landscape surrounding the Site, some of which are considered further below. There are no National Cycle Network routes in the vicinity of the Site.

5 PROPOSED DEVELOPMENT

Proposed Development

5.1 The proposed development comprises a ground mounted solar farm together with associated equipment and infrastructure. The proposed development is likely to include the following:

- photovoltaic (PV) arrays mounted on a metal framework, pile driven into the ground (avoiding the need for substantive foundations). The solar arrays would have a maximum height of 4m. The panels are designed to move and track the movement of the sun across the day, increasing their efficiency;
- low voltage switchgear cabinet;
- high voltage transformer and substation;
- boundary fencing (deer fencing mounted on timber posts) around the edge of the site, with access gates into the site;
- associated access tracks connecting transformer and switchgear substations; and
- a pole mounted CCTV system located at strategic points around the site.

5.2 The solar panel rows would be set back from the existing and the proposed planting along the boundaries in order to minimise over shadowing of the solar panels, provide opportunities for biodiversity enhancements along the site boundaries and ensure conflicts with tree root protection areas are avoided.

Mitigation Proposals

5.3 In order to mitigate against landscape and visual impacts, the landscape masterplan, as illustrated at **Figure 2: Landscape Masterplan**, takes account of the identified areas of sensitivity by providing additional planting where required. Relevant maintenance notes for existing and proposed planting are also provided.

5.4 Care has been taken to retain existing trees and hedgerows where possible: to retain the character of the local area; to maintain existing visual buffers; and to maintain biodiversity value.

5.5 The landscape mitigation proposals include the following, where practicable:

- retention, protection and enhancement where appropriate of existing trees and hedgerows, using native tree and hedgerow species;

-
- provision of new native infill planting where gaps are present in the existing field boundary hedgerows, including unused field access points, to define site boundaries and provide additional visual enclosure;
 - provision of new native hedgerows to define field boundaries where none are present, or have been lost over time;
 - provision of new hedgerow tree planting where appropriate to break up the perceived massing of the proposed development and filter views from neighbouring areas;
 - existing and proposed native hedgerows managed to a height of 3m or over to enhance visual enclosure; and
 - ongoing management of all new planting during the lifetime of the solar farm.

6 LANDSCAPE BASELINE AND EFFECTS

- 6.1 The assessment of landscape effects considers the changes to the landscape as a resource. Different combinations of the physical, natural and cultural components (including aesthetic, perceptual and experiential aspects) of the landscape and their spatial distribution create the distinctive character of landscapes in different places.
- 6.2 Effects are considered in relation to both landscape features and elements, and landscape character, during construction, at Year 1 and at Year 5 and beyond. A summary of landscape effects is provided at **Table 6.2** at the end of this chapter.

Landscape Features and Elements

- 6.3 Direct effects on landscape features and elements would be limited to the Site itself.

Landform and Topography

- 6.4 The topography of the Site is gently sloping. The land slopes gently from approximately 65m AOD along the southern boundary close to Muskham Wood, down to approximately 45m AOD in the north-east corner of the Site. There is also an area of slightly higher ground a short distance to the north-east of the poultry farm.
- 6.5 The landform of the Site is typical for the local area and is therefore considered to be of low value. The Proposed Development would require only very limited changes to the topography of the Site due to the use of steel pile foundations for the solar arrays. The landform is therefore considered to be of low susceptibility to changes arising from development of the type proposed. The topography is therefore considered to be of low sensitivity.
- 6.6 Changes to the topography of the Site would be small in scale, and limited to within the Site itself. Such changes would be long-term, but reversible when the solar farm is decommissioned. The magnitude of change is therefore assessed as small, and with low sensitivity this would result in a **minor adverse** effect during both construction and operational phases of the Proposed Development.

Water Features and Drainage

- 6.7 A shallow ditch follows the boundary between the southern and eastern fields, and then along the eastern boundary of the northern field, with a small pond at the

south-eastern corner of the northern field/the north-eastern corner of the southern field.

- 6.8 This ditch and pond are considered to be of medium value as landscape features – occurring frequently, but not a defining characteristic of the landscape.
- 6.9 The proposed solar arrays and associated infrastructure would be fitted around these waterfeatures, and therefore in landscape terms the waterfeatures would not undergo any effects as a result of the Proposed Development. The watercourses are therefore considered to be of low susceptibility to changes arising from development of the type proposed. Overall, the streams are therefore considered to be of low sensitivity.
- 6.10 There would be no discernible change or effect on these watercourses as landscape features.

Land Use, Buildings and Infrastructure

- 6.11 The Site comprises a number of adjacent arable fields which are considered to be typical for the local area. The fields range in size from medium to large, and are of variable shape with more sinuous boundaries where these coincide with watercourses. Analysis of historic mapping (<https://maps.nls.uk/> - accessed January 2022) indicates a history of past field amalgamations, as well as the historic clearance of a large part of Muskham Wood and complete clearance of some other smaller woods, including Crow Rookery which previously occupied part of the Site, and Woodpigeon Plantation which previously occupied land immediately to the west of the Site. Modern intensive arable farming is clearly the main human influence on the Site itself, and is typical for the wider surrounding area.
- 6.12 There is no built form on the Site, with the nearest built form being Muskham Woodhouse Farm to the east of the Site, the poultry farm to the immediate west of the Site, and residential and farm buildings within the hamlet of Knapthorpe to the immediate north-west of the Site. Public access is restricted to the two PRoWs as described at Paragraph 4.6 above. High voltage powerlines cross the landscape a short distance to the east of the Site. There are three large wind turbines present in the local landscape, and the character of the Site is also influenced by the nearby presence of intensive poultry production units.
- 6.13 Being common in the local area, the land use of the Site is considered to be of low

value, but high susceptibility to changes arising from development of the type proposed. The overall sensitivity is therefore assessed as medium.

- 6.14 The proposals would represent a change to the current land use from predominantly agricultural fields to an operational solar farm with additional infrastructure, albeit in context of the nearby powerlines and existing renewable energy infrastructure, and with grassland managed by sheep grazing beneath the solar arrays. Changes in land use would be large in scale, but limited to within the Site itself. Such changes would be long-term, but reversible when the solar farm is decommissioned, with the land being capable of complete reversion to arable agriculture. The magnitude of change is therefore assessed as medium, and with medium sensitivity this would result in a **moderate adverse** effect, both during and post construction.

Public Rights of Way

- 6.15 There are two PROWs which cross the Site – see Paragraph 4.6 above. The physical nature and character of these two routes is of countryside routes crossing open arable farmland, albeit in the context of the existing wind turbines to the east and the intensive poultry production units to the west. The character of PROWs is an important component of users' enjoyment of the routes and is therefore considered to be of high value. The susceptibility of the character of these routes to development of the type proposed is high as the installation of solar arrays close to the routes would alter that character from crossing arable farmland to passing through relatively low-level renewable energy infrastructure. The overall sensitivity is therefore considered to be high.
- 6.16 The Proposed Development would result in changes to the surroundings of the routes, particularly during the construction phase. By setting the solar arrays back from the routes and maintaining and enhancing existing native vegetation (trees and hedgerows) in the vicinity of the routes, such changes would be limited, and would only affect limited sections of the routes (two separate sections of approximately 670m and 150m of South Muskham FP5, and approximately 840m of South Muskham FP6) – the remainder of the routes which lie outside of the Site would still be across open farmland. Existing retained and enhanced field boundary vegetation surrounding the Proposed Development would also help to limit visibility of the solar arrays and other infrastructure from elsewhere on these routes beyond the site boundaries. There would be no direct effects on the rest of the wider local PROW network.

- 6.17 Changes to the character of these routes would be medium in scale, and predominantly limited to within the Site. Such changes would be long-term, but reversible when the solar farm is decommissioned, and the land returned to agriculture. The magnitude of change to the character of these routes is assessed as medium during the construction phase and at Years 1 and 5. With high sensitivity, this would result in a **major adverse** effect.

Vegetation

- 6.18 Vegetation within the Site comprises (herbaceous) arable cropping within the main field areas, and native hedgerows and hedgerow trees on the field boundaries.
- 6.19 Crops within the fields are considered to be of low value as they are common in the local area and temporary, being harvested and replanted on an annual cycle. The solar arrays would be under-sown with species-rich grass mixes to be managed by sheep grazing. Herbaceous arable cropping is considered to be low value and medium susceptibility to change, resulting in overall medium sensitivity.
- 6.20 Although no formal tree and hedgerow survey has been undertaken, an informal assessment during the field survey for this LVA assessed the tree and hedgerow resource within the Site as being medium value. Being typical for the local area, the trees and hedgerows within the Site are considered to be of medium susceptibility to changes arising from development of the type proposed. Their overall sensitivity is therefore assessed as medium.
- 6.21 The careful design of the proposed solar farm means that there would be only very limited losses to the tree and hedgerow as the Proposed Development would make use of existing openings in the boundary vegetation to provide access to and within the Site. Furthermore, the proposed landscape masterplan includes extensive new hedgerow tree planting and the enhancement of the existing hedgerows through the infilling of any gaps in the hedgerows greater than 1m in length. All existing hedgerows would be grown and managed at a height of 3m in a **A**-shaped profile to maximise ecological benefits.
- 6.22 The replacement of intensive arable cropping with species-rich grassland managed by sheep grazing, together with new hedgerow tree planting and the enhancement of existing hedgerows would, in landscape terms, result in beneficial effects on the vegetation within the Site. Such changes would be medium in scale, and limited to

the Site itself. Changes would be long-term and permanent (although theoretically reversible). The overall magnitude of change is therefore assessed as medium beneficial at a site level and small beneficial for the local landscape as a whole. With medium sensitivity this would result in a **moderate beneficial** effect at the site level by the end of the construction phase which would remain in place post-construction. For the local landscape as whole, the effect would be **minor beneficial**.

Landscape Character

- 6.23 This section provides an overview of the landscape character of the site and its locality, based on published landscape character assessments and the field survey. It provides an indication of the sensitivity of local landscape character to the Proposed Development and assesses effects which would arise from the development proposals.
- 6.24 The national and district landscape character areas in which the Site is located are shown on **Figure 4: Landscape Character Areas Plan**.

National Character Area

- 6.25 The site is located within National Character Area (NCA) 48: Trent and Belvoir Vales⁹. The key characteristics of NCA 48 are as follows:
- "A gently undulating and low-lying landform in the main, with low ridges dividing shallow, broad river valleys, vales and flood plains. The mature, powerful River Trent flows north through the full length of the area, meandering across its broad flood plain and continuing to influence the physical and human geography of the area as it has done for thousands of years.
 - The bedrock geology of Triassic and Jurassic mudstones has given rise to fertile clayey soils across much of the area, while extensive deposits of alluvium and sand and gravel have given rise to a wider variety of soils, especially in the flood plains and over much of the eastern part of the NCA.
 - Agriculture is the dominant land use, with most farmland being used for growing cereals, oilseeds and other arable crops. While much pasture has

⁹ Natural England (2013) NCA48: Trent and Belvoir Vales, Natural England (NE429)

been converted to arable use over the years, grazing is still significant in places, such as along the Trent and around settlements.

- *A regular pattern of medium to large fields enclosed by hawthorn hedgerows, and ditches in low-lying areas, dominates the landscape.*
- *Very little semi-natural habitat remains across the area; however, areas of flood plain grazing marsh are still found in places along the Trent.*
- *Extraction of sand and gravel deposits continues within the Trent flood plain and the area to the west of Lincoln. Many former sites of extraction have been flooded, introducing new waterbodies and new wetland habitats to the landscape.*
- *Extensive use of red bricks and pantiles in the 19th century has contributed to the consistent character of traditional architecture within villages and farmsteads across the area. Stone hewn from harder courses within the mudstones, along with stone from neighbouring areas, also feature as building materials, especially in the churches.*
- *A predominantly rural and sparsely settled area with small villages and dispersed farms linked by quiet lanes, contrasting with the busy market towns of Newark and Grantham, the cities of Nottingham and Lincoln, the major roads connecting them and the cross-country dual carriageways of the A1 and A46.*
- *Immense coal-fired power stations in the north exert a visual influence over a wide area, not just because of their structures but also the plumes that rise from them and the pylons and power lines that are linked to them. The same applies to the gas-fired power station and sugar beet factory near Newark, albeit on a slightly smaller scale."*

6.26 The national level assessment gives a broad-brush description of a region and provides a useful contextual overview of the character of the wider landscape. However, the proposed development is not considered likely to result in any perceptible effects on landscape character at this national scale and to remain proportionate to the small scale of the site in relation to the NCA, focus is placed upon the local landscape character.

County and District Landscape Character

6.27 The Newark and Sherwood Landscape Character Assessment SPD¹⁰ places the Site within the Mid-Nottinghamshire Farmlands Landscape Character Area (LCA), and within the Village Farmlands with Ancient Woodlands landscape type (LT).

6.28 The key characteristics of the Village Farmlands with Ancient Woodlands LT are described as:

- *"Varied undulating topography*
- *Ancient woodlands, often prominently sited on hill tops*
- *Well-defined pattern of hedged fields*
- *Streams defined by lines of trees and permanent pasture*
- *Traditional pattern of farms and small rural villages*
- *Red brick buildings with pantile roofs*
- *Quiet country lanes*
- *Small remnant orchards and permanent pastures around villages."*

6.29 Within the Village Farmlands with Ancient Woodlands LT, the Site lies specifically within Policy Zone (PZ) MN30: Knapthorpe Village Farmlands with Ancient Woodland. Characteristic visual features are described as:

- *"Gently undulating topography.*
- *Medium distance views to frequently wooded skylines, although often enclosed by vegetation – hedgerows, woodland etc.*
- *Numerous blocks of mixed deciduous woodland.*
- *Mixture of intensive arable fields with strongly trimmed hedges and some low intensity farming with permanent improved pasture."*

6.30 The landscape of PZ MN30 is considered to be in very good condition, and of **medium** (moderate) sensitivity:

"The components of the landscape are characteristic to the Mid-Nottinghamshire LCA due to the number of components that have a connection to the landscape. The time depth is historic (post 1600) giving a moderate sense of place overall.

The landform is apparent with intermittent areas of woodland giving a generally

¹⁰ Newark and Sherwood District Council (2013) *Newark and Sherwood Landscape Character Assessment SPD*, Newark and Sherwood DC

moderate visibility value within the Policy Zone. Views are intermittent due to numerous blocks of woodland and hedgerows. A moderate sense of place and moderate visibility leads to a moderate landscape sensitivity overall."

6.31 Under an overall landscape action of "conserve", specific recommended landscape actions are noted as:

- *"Maintain existing historic field patterns.*
- *Conserve and enhance the ecological diversity of linear sections of riparian vegetation.*
- *Conserve existing deciduous blocks of woodland through careful management.*
- *Conserve hedgerows and prevent fragmentation (through lack of management and intensification of arable farming).*
- *Conserve historic field pattern by containing any new development within historic enclosed boundaries."*

6.32 The landscape character of the Site (intensive arable agriculture with managed hedgerow field boundaries) is typical for Policy Zone MN30. The Site is also indirectly influenced by nearby landscape detractors in the form of the nearby intensive poultry buildings, and to a lesser extent by the three wind turbines and the high voltage powerlines on steel-lattice pylons to the east. The published landscape sensitivity analysis for the Policy Zone of medium (moderate) is therefore considered to accurately reflect the landscape sensitivity of the Site and its immediate environs.

6.33 Direct effects on landscape character would be limited to the Site itself, with some perceptual/experiential effects extending out to approximately 1km beyond the Application Boundary. There may also be some more limited perceptual effects experienced from certain restricted locations up to 2.5km to the north of the Site and 1.5km to the west. Effects would be medium scale, predominantly experienced within the Site and its local setting, long-term in duration, but reversible following decommissioning of the site at the end of its life. The magnitude of change to Policy Zone MN30 is therefore assessed as medium. The short length of the construction phase means that although there would be greater levels of activity on the Site during this period, the overall level of change would be broadly the same during the construction phase and at Year 1. By Year 5, there would be a limited reduction in the magnitude of change to landscape character within the environs of the Site

as retained and enhanced boundary vegetation develops and grows, reducing the visibility of the Proposed Development. However, changes to the landscape character of those parts of the Policy Zone within the Site itself would remain the same at Year 5, and the overall magnitude of change to the character of the Policy Zone would not alter further by Year 5.

6.34 With moderate sensitivity, the Proposed Development would result in a **moderate adverse** scale of effect on Policy Zone MN30 in close proximity to the Site, reducing to **minor adverse** with increasing distance from the Site.

6.35 Analysis of the modelled Zone of Theoretical Visibility (ZTV – see **Figure 5**) and screened ZTV (SZTV) indicates that there may also be some limited perceptual/experiential effects on:

- PZ MN28: Caunton Village Farmlands with Ancient Woodland, within the Village Farmlands with Ancient Woodlands LT;
- PZ MN29: Caunton Meadowlands, within the Meadowlands LT;
- PZ MN34: Hockerton Village Farmlands, within the Village Farmlands with Ancient Woodlands LT; and
- PZ TW31: Battle Bridge River Meadowlands, within the Trent Washlands LCA and the Meadowlands LT.

6.36 The field survey has shown that any visibility of the Proposed Development from these other Policy Zones, and therefore any perceptual/experiential effects on the character of these Policy Zones, would be at worst very limited.

6.37 The key characteristics of the Meadowlands LT within the Mid-Nottinghamshire Farmlands LCA are described as:

- *"Flat, alluvial flood plains*
- *Sparingly settled with few buildings*
- *Permanent pasture and areas of mixed agriculture*
- *Small-scale, semi-irregular pattern of hedged fields*
- *Riparian trees and shrubs*
- *Tradition of willow pollarding*
- *Clumps of deciduous trees and small woods*
- *Ridge and furrow grassland."*

6.38 Within the Trent Washlands LCA, the key characteristics of the Meadowlands LT are

described as:

- *"Meandering river channels, often defined by flood banks*
- *Sparsely populated with few buildings*
- *Permanent pasture and flood meadow*
- *Steep wooded bluffs*
- *Willow holts*
- *Long sinuous hedges*
- *Pollarded willows*
- *Regular pattern of medium to large size arable fields, breaking down and becoming open in many areas*
- *Hedgerow trees main component of tree cover."*

6.39 Full descriptions of these Policy Zones and LTs that may be indirectly affected by the Proposed Development can be seen in the published landscape character assessment, but in summary:

- PZ MN28 is considered to be of medium (moderate) sensitivity;
- PZ MN29 is considered to be of high sensitivity;
- PZ MN34 is considered to be of medium (moderate) sensitivity; and
- PZ TW31 is considered to be of low sensitivity.

6.40 Indirect effects on the landscape character of these Policy Zones and LTs would be small in scale, limited to very restricted parts of these Policy Zones and LTs from where the Proposed Development would be visible, long-term in duration, but reversible following decommissioning of the site at the end of its life. The magnitude of change to all of these Policy Zones is therefore assessed as negligible, and with low, medium and high sensitivity, the scale of effect would be **negligible**. Effects would be similar during the construction phase and at Year 1, reducing further over time as the growth and development of intervening vegetation both on and off-site further restricts visibility.

Landscape Character of the Site and Its Immediate Environs

6.41 The landscape character of the Site and its immediate environs is dominated by its use for intensive arable agriculture, the variable field boundary hedgerows and hedgerow trees which often restrict the length of views, and the modern buildings of the two poultry farms to the immediate west and north-west of the Site. Small woodlands and tree belts to the north-east, south and south-west are also

important components of the local landscape. The landscape of the Site and its environs is undesignated at either national/statutory or local/non-statutory levels. The value of local landscape character has therefore been assessed in the context of GLVIA3 Box 5.1 and TGN 02/21 – see **Table 6.1** below.

Table 6.1: Assessment of Landscape Value (after GLVIA3 Box 5.1 and TGN 02/21)

Factor	Commentary
Natural Heritage	The Site is predominantly intensively managed arable farmland and therefore of limited ecological value. Existing field boundary vegetation (hedgerows and hedgerow trees) and the adjacent Muskham Wood have ecological and landscape value, but would not be adversely affected by the Proposed Development. No clearly identified landscape-related geological interests.
Cultural Heritage	No specific cultural or heritage designations within the Site.
Landscape Condition	The local landscape is generally considered to be in good or very good condition.
Associations	No well-known specific associations with notable people, events or the arts.
Distinctiveness	The local landscape is not noted for being distinctive, and the Site is not considered to be atypical for the local area.
Recreational	The local PRow network is variable – good in places (including two routes which cross the Site), but more sparse to the east and west.
Perceptual - Scenic	The Site and its environs are of good scenic quality. The intensive poultry buildings to the west/north-west and wind turbines and high voltage powerline to the east of the Site are noted as detracting from landscape character.
Perceptual - Wildness and Tranquillity	The local landscape is clearly managed for intensive agriculture and is not considered to be wild or remote. Tranquillity mapping undertaken by CPRE ¹¹ places the site and its environs in an area of moderate tranquillity.
Functional	The local landscape does not provide a particular function in relation to nearby settlements, and does not provide the setting for any statutory / national or non-statutory / local landscape designations.

6.42 Based on the above analysis, the landscape of the Site and its immediate environs is considered to be of medium value. The retention and enhancement of the existing field boundary vegetation is an integral part of the Proposed Development and would help to break up the perceived massing of the proposed solar arrays and reduce their visibility from the surrounding landscape. The landscape of the Site and its environs is therefore considered to be mainly of medium susceptibility to

¹¹ CPRE (2007), Tranquillity Map: England (Available at: https://www.cpre.org.uk/wp-content/uploads/2019/11/tranquillity_map_england_regional_boundaries_1.pdf – accessed December 2021).

development of the type proposed (a change from arable agriculture to a solar energy generation facility with associated infrastructure). Overall, the landscape of the Site and its immediate environs is therefore considered to be of medium sensitivity.

- 6.43 Direct effects on the landscape character of the Site would be large in scale, limited to the Site itself, long-term in duration, but reversible following decommissioning of the site at the end of its life. Effects on the field boundary vegetation within the Site would be very limited. The magnitude of change to the landscape character of the Site is therefore assessed as large. The short length of the construction phase means that although there would be greater levels of activity on the Site during this period, the overall level of change to landscape character would be broadly the same during the construction phase and at Years 1 and 5. With medium sensitivity, the scale of effect would be **major adverse** within the Site.
- 6.44 For the landscape immediately surrounding the Site, the effects would be indirect/perceptual, medium in scale, and predominantly experienced within close proximity to the Site. Effects would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The magnitude of change is therefore assessed as large immediately adjacent to the Site, decreasing to medium within increasing distance from, and decreasing visibility of, the Proposed Development. With medium to high sensitivity, the scale of effect would be **major adverse**, decreasing to **moderate adverse** with increasing distance from the Site. Again, the short length of the construction phase means that although there would be greater levels of activity on the Site during this period, the overall level of change to landscape character would be broadly the same during the construction phase and at Year 1.
- 6.45 Post-construction, the development of intervening (field boundary) vegetation would mean that the decrease in effect with increasing distance from the Site would become more noticeable over time. The magnitude of change would decrease to small by Year 5, resulting in a **minor to moderate adverse** effect within the more distant surroundings to the Site.

Summary of Landscape Effects

Table 6.2: Summary of Landscape Effects

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
Landscape Features and Elements				
Landform and Topography	Low	Construction	Small	Minor adverse
		Year 1	Small	Minor adverse
		Year 5	Small	Minor adverse
Water Features and Drainage	Low	Construction	No discernible change	No discernible effect
		Year 1	No discernible change	No discernible effect
		Year 5	No discernible change	No discernible effect
Land Use, Buildings and Infrastructure	Medium	Construction	Medium	Moderate adverse
		Year 1	Medium	Moderate adverse
		Year 5	Medium	Moderate adverse
Public Rights of Way	High	Construction	Medium	Major adverse
		Year 1	Medium	Major adverse
		Year 5	Medium	Major adverse
Vegetation	Medium	Construction	Medium (Site) Small (wider landscape)	Moderate beneficial (Site) Minor beneficial (wider landscape)
		Year 1	Medium (Site) Small (wider landscape)	Moderate beneficial (Site) Minor beneficial (wider landscape)
		Year 5	Medium (Site) Small (wider landscape)	Moderate beneficial (Site) Minor beneficial (wider landscape)
Landscape Character				
Policy Zone MN30: Knapthorpe Village Farmlands with Ancient Woodland	Medium	Construction	Medium	Moderate adverse, reducing to Minor adverse with increasing distance from the Site
		Year 1	Medium	Moderate adverse, reducing to Minor adverse with increasing distance from the Site

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
		Year 5	Medium	Moderate adverse, reducing to Minor adverse with increasing distance from the Site
Other Policy Zones Mid-Nottinghamshire Farmlands LCA: PZ MN28 PZ MN29	Medium High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Site	Medium	Construction	Large	Major adverse
		Year 1	Large	Major adverse
		Year 5	Large	Major adverse
Site Environs	Medium	Construction	Large, decreasing to Medium	Major adverse, decreasing to Moderate adverse with increasing distance from the Site
		Year 1	Large, decreasing to Medium	Major adverse, decreasing to Moderate adverse with increasing distance from the Site
		Year 5	Medium, decreasing to Small	Moderate adverse, decreasing to Minor to Moderate adverse with increasing distance from the Site

7 VISUAL BASELINE AND EFFECTS

- 7.1 An assessment of visual effects considers the potential for changes in views and therefore effects on visual amenity. The approach is to establish the area in which the development may be visible, the different groups of people who may experience views of the development, and the nature of the existing views and visual amenity (meaning the overall quality and pleasantness to a view). Effects on visual amenity that may arise from the Proposed Development are then assessed.
- 7.2 Effects are considered during construction, at Year 1 and at Year 5 and beyond. New planting takes a number of years to mature and average growth rates have been taken into consideration. The effectiveness of the vegetation both in terms of integrating the development into the surrounding landscape and in providing visual screening would improve over time and needs to be considered appropriately. A summary of visual effects is included in **Table 7.1** at the end of this chapter.

Zone of Theoretical Visibility

- 7.3 In line with best practice, both bare-earth and screened Zones of Theoretical Visibility have been modelled. The (S)ZTVs have been produced using ArcGIS Pro 2.9 and generated using OS Terrain 5 Digital Terrain Modelling (DTM) data. The Proposed Development was modelled at 4m Above Ground level (AGL) across the entire Site as this is the height of the tallest of the proposed structures, namely the top of the solar arrays.
- 7.4 For the SZTV, existing built development and larger blocks of woodland (as mapped on OS Open Map Local) were modelled (at 8m and 15m tall respectively) to take account of the screening effect that these would provide. However, the screening effect provided by small blocks of woodland, screen belts and hedgerows/hedgerow trees has not been modelled, and consequently the actual extent of the area from which the proposals are visible is likely to be much smaller than shown on the SZTV.
- 7.5 Following site investigation, it is apparent effects on visual amenity arising from the Proposed Development would be limited, and notable effects would be restricted to receptors within the immediate vicinity of the Site. More distant views of the site would be limited through a combination of topography and the screening and filtering effect of the un-modelled intervening vegetation. In more distant views, changes arising from of the Proposed Development would be assimilated into the wider landscape.

Receptor Sensitivity

7.6 The sensitivity of visual receptors within the landscape that surrounds the Site has been assessed using the methodology set out in Appendix A:

- High sensitivity – residential occupiers, users of PRowS and cycle routes;
- Medium sensitivity – users of minor roads, people engaged in outdoor sporting activities where the focus of the receptor is not on the surrounding landscape;
- Low sensitivity – people at places of work (e.g. industrial and commercial premises), people travelling through the landscape on main roads and motorways, and passengers on trains.

7.7 It should be noted that high voltage electricity transmission lines mounted on steel-lattice pylons are visible in many local views, as well as existing large-scale wind turbines located to the east of the Site and to the north-west at Eakring. (Renewable) energy generating and distribution infrastructure is therefore already present in many views of the local landscape.

Selection of Representative Viewpoints

7.8 The ZTV and SZTV for the Proposed Development were used to guide the selection of representative viewpoints for the visual assessment. The 12 selected viewpoints are not intended to cover every possible view, but rather are representative of a range of receptor types (e.g. residents, horse riders, walkers, cyclists and road users) from various directions and distances from the site boundary.

7.9 A visual assessment from the representative viewpoints was carried out in December 2021 to determine how the proposed development might influence the visual amenity for these typical receptors. The assessment was carried out as part of the site survey, with the photographic assessment recording the character of the view and the Site. The viewpoint photographs are provided at **Appendix B**, with the viewpoint locations shown on **Figure 5: ZTV/SZTV and Viewpoint Location Plan**. 2no. of the viewpoints have been presented as photomontages, which are set out in **Appendix C**.

7.10 The field survey was undertaken in winter when deciduous vegetation was not in leaf. It is therefore likely that the visibility of the site may be substantially reduced during the summer months when such deciduous vegetation is in full leaf.

Residential Receptors

- 7.11 For the purpose of this assessment, it is assumed as a worst-case scenario that all nearby dwellings are permanent residences.
- 7.12 Of the properties located within the landscape surrounding the site, analysis of the SZTV (**Figure 5**) shows that there are a number of residential properties from which the Proposed Development may be visible:
- properties within the hamlet of Knapthorpe (approx. 160-430m to the north-north-west of the Site) and on Caunton Road (approx. 460m to the north of the Site);
 - properties to the immediate north-west of the poultry farm adjacent to the Site;
 - properties on the A616 close to its junction with Caunton Road and Newark Road (approx. 1.1km to the north of the Site), and properties at Red Lodge on the A616 (approx. 1.1km to the north of the Site);
 - certain properties within the village of Caunton (approx. 1.5km or more to the north of the Site);
 - properties at Holme Farm to the east of Caunton (approx. 1.8km to the north-north-east of the Site);
 - properties at Flags Farm to south-west of Norwell (2.7km to the north-east of the Site);
 - property at Hunger Barn (2.1km to the north-east of the Site);
 - properties at Middlethorpe Grange (approx. 750m to the north-east of the Site);
 - properties at Dean Hall Farm (approx. 1km to the north-east of the Site);
 - properties at Muskham Woodhouse Farm (approx. 50m to the east of the Site);
 - properties at Averham Park (approx. 800m to the south of the Site);
 - properties at Park Spring Farm (approx. 900m to the west of the Site); and
 - properties at Lodge Farm and Lodge Cottages on A616 (approx. 2.7km to the north-west of the Site).

Properties within the hamlet of Knapthorpe and on Caunton Road

- 7.13 Properties within the hamlet of Knapthorpe (Knapthorpe Manor, Knapthorpe Grange, Little Manor Farm, Orchard House Farm – properties names appear to be

different depending on the map scale) would have variable levels of visibility of the Proposed Development depending on the orientation of the properties and their views, and the presence or absence of trees and other buildings in close proximity to the properties. Clearer views may be obtained from first floor windows. The two properties on Cauntton Road to the north-east of Knapthorpe are also likely to have clear views towards the Proposed Development – the views from these properties are partially represented by **VP2**.

- 7.14 The scale and geographic extent of changes to the view would be medium to large, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as medium to large. With high sensitivity, the scale of effect would be **major adverse**.

Properties to the immediate north-west of the poultry farm adjacent to the Site

- 7.15 Views towards the western part of the Proposed Development would be possible from these properties, seen in the context of the poultry farm buildings to the north-west and west of the Site. The view is partially represented by the photoview from **VP6** near the Bedmax plant.

- 7.16 The scale and geographic extent of changes to the view would be medium, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as medium during the construction phase and at Years 1 and 5. With high sensitivity, the scale of effect would be **major adverse**.

Properties on the A616 close to its junction with Cauntton Road and Newark Road, and properties at Red Lodge on A616

- 7.17 Views towards the Site are heavily filtered by consecutive layers of intervening field boundary vegetation, with the effect of the vegetation on views increased by the rising topography. Such views are partially represented by the photoview from **VP7**. There is likely to be some very limited visibility of the Proposed Development from some of these properties, particularly from first floor windows.

- 7.18 The scale and geographic extent of changes to the view would be small, and changes would be long-term in duration, but reversible following decommissioning

of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as very small during the construction phase and at Year 1, reducing further by Year 5 as intervening vegetation grows and develops. With high sensitivity, the scale of effect would be at worst **minor to moderate adverse** during the construction phase and at Year 1, reducing to **negligible** by Year 5.

Certain properties within the village of Caunton

- 7.19 Views towards the Site from properties within the village of Caunton are generally heavily restricted by consecutive layers of intervening vegetation – see **VPs 8 and 9**. There may be some very limited visibility of the Site from certain more elevated properties, such as at Hill House Farm on the north-west edge of the village and on Norwell Road on the north-east edge of the village.
- 7.20 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as very small to negligible, and with high sensitivity, the scale of effect would be **minor adverse** to **negligible**.

Properties at Holme Farm to the east of Caunton

- 7.21 The position of the large farm buildings in relation to the residential properties at Holme Farm means that there would be only very limited visibility towards the Proposed Development, and even these views would be heavily filtered by intervening vegetation – see **VPs 9 and 10**.
- 7.22 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as negligible, and with high sensitivity, the scale of effect would be **negligible**.

Properties at Flags Farm to south-west of Norwell

- 7.23 The orientation of the residential properties at Flags Farm, together with the positions of the other properties and the adjacent farm buildings, means that there

would be only very limited visibility towards the Proposed Development, and even these views would be heavily filtered by intervening vegetation. Such views are partially represented by **VP10** further to the south.

- 7.24 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as negligible, and with high sensitivity, the scale of effect would be **negligible**.

Properties at Hunger Barn

- 7.25 Although there is theoretical visibility of the Proposed Development from this property in slightly elevated positions, the orientation of the property and existing vegetation within and close to the curtilage means that any visibility would be very limited.
- 7.26 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as very small to negligible, and with high sensitivity, the scale of effect would be **minor adverse to negligible**.

Properties at Middlethorpe Grange

- 7.27 The orientation of the property and vegetation within the curtilage of the property combine with the woodland known as Doncaster's Plantation to heavily restrict views towards the Proposed Development.
- 7.28 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity is assessed as negligible. With high sensitivity, the scale of effect would be **negligible**.

Properties at Dean Hall Farm

- 7.29 The orientation of the property and vegetation within the curtilage of the property combine with intervening topography, the woodland known as Doncaster's

Plantation, and the vegetation along the north-eastern boundary of the Site to heavily restrict views towards the Proposed Development.

- 7.30 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity is assessed as negligible. With high sensitivity, the scale of effect would be **negligible**.

Properties at Muskham Woodhouse Farm

- 7.31 Views would be possible towards the eastern part of the Proposed Development from these slightly elevated properties, though vegetation within the curtilages of the various properties would filter such views – see **VP1**.
- 7.32 The scale and geographic extent of changes to the view would be large, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as large during construction and at Years 1 and 5. With high sensitivity, the scale of effect would be **major adverse**.

Properties at Averham Park

- 7.33 The SZTV indicates theoretical visibility of the Proposed Development from a number of properties at Averham Park, mainly those located on the south side of footpath Averham FP2. However, the field survey has shown that such views are heavily restricted by consecutive layers of intervening field boundary vegetation and visibility would at worst be limited to the upper parts of solar arrays in the south-eastern corner of the Site – see **VP5**.
- 7.34 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as negligible, and with high sensitivity, the scale of effect would be **negligible**.

Properties at Park Spring Farm

- 7.35 The SZTV indicates limited theoretical visibility from certain buildings within the Park Spring Farm curtilage, but tree cover around the perimeter of the Bedmax

plant is likely to prevent such visibility. As a result, there is unlikely to be any discernible effect on the view.

Properties at Lodge Farm and Lodge Cottages on A616

- 7.36 Vegetation lining the A616 and on intervening field boundaries means that although the Proposed Development may be visible, such views would be restricted and filtered – see **VP11**.
- 7.37 The scale and geographic extent of changes to the view would be small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these properties is assessed as very small, and with high sensitivity, the scale of effect would be **minor adverse**.

Recreational Receptors

- 7.38 Analysis of the SZTV (**Figure 5**) shows that there are a number of PRowS from which the Proposed Development may be visible.

South Muskham FP5 and FP6 (within the Site)

- 7.39 The view from the junction of these two footpaths, which is located in the middle of the Site, is shown by the photoview from **VP1**. There would be clear visibility of the Proposed Development from the majority of these routes. The layout for the solar arrays maintains some separation between the routes and the arrays, but the nature of the view from these routes would be noticeably changed from the current situation, though it should be noted that the existing views include the nearby buildings and silos of the poultry farms.
- 7.40 The scale and geographic extent of changes to the view from these routes overall would be large. Changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes is assessed as very large during construction and at Years 1 and 5. With high sensitivity, the scale of effect would be **major adverse**.

Kelham FP1/Caunton FP4

- 7.41 Views towards the Site from Kelham FP1 would be prevented by the intervening

woodland and the buildings of the poultry farm, but views towards the western part of the Proposed Development would be possible from the majority of Caunton FP4 to the south of Knapthorpe, seen in the context of the poultry farm buildings to the north-west and west of the Site. The view is partially represented by the photoview from **VP6** near the Bedmax plant.

- 7.42 The scale and geographic extent of changes to the view would be medium, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes is assessed as medium during the construction phase and at Years 1 and 5. With high sensitivity, the scale of effect would be **major adverse**.

Footpath Caunton FP2 and FP3

- 7.43 Caunton FP2 runs north from the northern end of South Muskham FP5 towards Caunton Road, and the northern part of the footpath lies within the Site – see **VP2**. There would be clear views of much of the Proposed Development from the southern part of the footpath, especially when travelling south. There would also be visibility of the Proposed Development from Caunton FP3 when travelling south.
- 7.44 The scale and geographic extent of changes to the view would be large within the Site, reducing to medium further to the north. Changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes within the Site is assessed as medium to large during the construction phase and at Years 1 and 5. With high sensitivity, the scale of effect would be **major adverse**.

Caunton FP1 and FP10

- 7.45 Views towards the Site from these routes would be heavily restricted by consecutive layers of intervening vegetation, both alongside the A616 and on field boundaries between the A616 and the Site – see **VP9**. The Site is not discernible in the view from these footpaths.
- 7.46 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change

to visual amenity as experienced from these routes is assessed as negligible during the construction phase and at Years 1 and 5, and with high sensitivity, the scale of effect would be **negligible**.

Various routes to north of Caunton

7.47 Views towards the Site from these routes to the north of Caunton are heavily restricted by consecutive layers of intervening (field boundary) vegetation – see **VP8**. As a result, the Proposed Development is unlikely to be easily discernible in such views.

7.48 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes is assessed as negligible during the construction phase and at Years 1 and 5, and with high sensitivity, the scale of effect would be **negligible**.

Bathley FP1

7.49 Although there is theoretical visibility of the Proposed Development from the western part of this route (a section approximately 650m in length), intervening vegetation, particularly Doncaster's Plantation to the north-east of the Site and at Middlethorpe Grange, is likely to restrict visibility. The Proposed Development would not be visible from the majority of the route to the east of Hunger Barn.

7.50 The scale and geographic extent of changes to the view would be small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from the western part of the route is assessed as small, while the magnitude of change for the route overall is assessed as very small. With high sensitivity, the scale of effect would be **moderate adverse** for the western section and **minor to moderate adverse** for the route overall.

Kelham BW3

7.51 Although there is theoretical visibility of the south-eastern part of the Proposed Development from much of this bridleway, the strong hedgerows alongside the bridleway and on the intervening field boundaries mean that visibility would be

much more limited than suggested by the SZTV – see **VP4**.

- 7.52 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes is assessed as very small during construction and at Years 1 and 5. With high sensitivity, the scale of effect would be **minor to moderate adverse**.

Averham FP2/Kelham FP7

- 7.53 The SZTV indicates theoretical visibility of the Proposed Development from much of these two routes. However, the field survey has shown that such views are heavily restricted by consecutive layers of intervening field boundary vegetation and even where views are available, visibility would at worst be limited to the upper parts of solar arrays in the south-eastern corner of the Site – see **VP5**.
- 7.54 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from these routes is assessed as negligible during the construction phase and at Years 1 and 5. With high sensitivity, the scale of effect would be **negligible**.

Winkburn FP6

- 7.55 Although there is theoretical visibility of the Proposed Development from a short section of this route to the north-west of Hockerton, the field survey has shown that the Site is not discernible in the view – see **VP12**. The Proposed Development would not therefore result in discernible changes to or effects on the view from this route.

Road Users

Cauntton Road

- 7.56 The Site to the east of Cauntton Road, and there would be theoretical visibility of the Proposed Development from a section of the road approximately 2km in length between the Bedmax plant and the A616 – see **VPs 6 and 7**. Both construction activities and the proposed solar arrays and other infrastructure would be visible

from the road, seen above the roadside hedgerows at least one field away from the road.

- 7.57 The scale and geographic extent of changes to the view would be medium. Changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from Cauntton Road is assessed as medium during the construction phase and at Years 1 and 5. With medium sensitivity, the scale of effect would be **moderate adverse**.

A616 Ollerton Road

- 7.58 Undulating topography (including cuttings and false cuttings) and variable but frequently strong roadside vegetation mean that views towards the Site from the busy A616 are generally very limited – see **VPs 7 and 11**.
- 7.59 Where views are possible, the scale and geographic extent of changes to the view would be at worst small. Changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from the A616 is assessed as negligible, and with low sensitivity, the scale of effect would be **negligible**.

Norwell Road to east of Cauntton

- 7.60 Views towards the Site are heavily restricted by consecutive layers of intervening field boundary and roadside vegetation – see **VP10**. As a result, the Site is not discernible in the view from this road.
- 7.61 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from this section of Norwell Road is assessed as negligible, and with medium sensitivity, the scale of effect would be **negligible**.

Unnamed minor road between Norwell and Norwell Road to east of Cauntton

- 7.62 Visibility towards the Site from this road is heavily restricted by consecutive layers of intervening field boundary and roadside vegetation.
- 7.63 The scale and geographic extent of changes to the view would be at worst small,

and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from this section of road is assessed as negligible, and with medium sensitivity, the scale of effect would be **negligible**.

Caunton Road between Mousehole Corner and Norwell Road to east of Caunton

7.64 Although there would be theoretical visibility of the Proposed Development from some sections of this road to the east of Bathleyford Bridge, such views towards the Site are heavily restricted by consecutive layers of intervening field boundary and roadside vegetation.

7.65 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from this section of road is assessed as negligible, and with medium sensitivity, the scale of effect would be **negligible**.

Unnamed minor road between A616 (near Dean Hall Farm) and Averham Park

7.66 Views towards the Site from this road are generally restricted by intervening topography and vegetation. Restricted views towards the Proposed Development would however be possible from a short section of road to the north and south of the reservoir – see **VP3**.

7.67 The scale and geographic extent of changes to the view would be at worst small, and changes would be long-term in duration, but reversible following decommissioning of the site at the end of its life. The overall magnitude of change to visual amenity as experienced from this road overall is assessed as very small during the construction phase and at Year 1, reducing to negligible by Year 5 once the intervening boundary hedgerows have grown to a height of 3m. With medium sensitivity, the scale of effect would be **minor adverse**, reducing to **negligible** by Year 5.

Table 7.1: Summary of Effects on Visual Amenity

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
Residential Receptors				
Properties within	High	Construction	Medium to large	Major adverse

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
the hamlet of Knapthorpe and on Cauntun Road		Year 1		
		Year 5		
Properties to the immediate north-west of the poultry farm adjacent to the Site	High	Construction	Medium	Major adverse
		Year 1		
		Year 5		
Properties on the A616 close to its junction with Cauntun Road and Newark Road, and properties at Red Lodge on A616	High	Construction	Very small	Minor to moderate adverse
		Year 1		
		Year 5	Less than very small	Negligible
Certain properties within the village of Cauntun	High	Construction	Very small to negligible	Minor adverse to negligible
		Year 1		
		Year 5		
Properties at Holme Farm to the east of Cauntun	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Properties at Flags Farm to south-west of Norwell	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Properties at Hunger Barn	High	Construction	Very small to negligible	Minor adverse to negligible
		Year 1		
		Year 5		
Properties at Middlethorpe Grange	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Properties at Dean Hall Farm	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
Properties at Muskham Woodhouse Farm	High	Construction	Large	Major adverse
		Year 1		
		Year 5		
Properties at Averham Park		Construction	Negligible	Negligible
		Year 1		
		Year 5		
Properties at Park Spring Farm		Construction	No discernible change	No discernible effect
		Year 1		
		Year 5		
Properties at Lodge Farm and Lodge Cottages on A616	High	Construction	Small	Minor adverse
		Year 1		
		Year 5		
Recreational Receptors				
South Muskham FP5 and FP6 (within Site)	High	Construction	Large	Major adverse
		Year 1		
		Year 5		
Kelham FP1/ Caunton FP4	High	Construction	Medium	Major adverse
		Year 1		
		Year 5		
Footpath Caunton FP2 and FP3	High	Construction	Medium to large	Major adverse
		Year 1		
		Year 5		
Caunton FP1 and FP10	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
Various routes to north of Caunton	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Bathley FP1	High	Construction	Very small to small	Minor to moderate adverse to moderate adverse
		Year 1		
		Year 5		
Kelham BW3	High	Construction	Very small	Minor to moderate adverse
		Year 1		
		Year 5		
Averham FP2/Kelham FP7	High	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Winkburn FP6	High	Construction	No discernible change	No discernible effect
		Year 1		
		Year 5		
Road Users				
Caunton Road	Medium	Construction	Medium	Moderate adverse
		Year 1		
		Year 5		
A616 Ollerton Road	Medium	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Norwell Road to east of Caunton	Medium	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Unnamed minor road between Norwell and Norwell Road to east of Caunton	Medium	Construction	Negligible	Negligible
		Year 1		
		Year 5		
Caunton Road between Mousehole Corner and Norwell Road to east of Caunton	Medium	Construction	Negligible	Negligible
		Year 1		
		Year 5		

Receptor	Sensitivity	Development Phase	Magnitude of Change	Scale of Effect
Unnamed minor road between A616 (near Dean Hall Farm) and Averham Park	Medium	Construction	Very small	Minor adverse
		Year 1		
		Year 5	Negligible	Negligible

8 CUMULATIVE EFFECTS

- 8.1 The Applicant has also submitted planning applications for two other solar farms in the vicinity of Muskham Wood – at Foxholes Farm (approximately 3.3km to the north-east of the Site) and Knapthorpe Lodge, immediately to the north of the Site. It is therefore considered appropriate to assess the likely cumulative landscape and visual effects that might arise from the Proposed Development in conjunction with these other two proposed solar farms.
- 8.2 The assessment of cumulative effects has been undertaken with regard to the principles set out in Chapter 7 of GLVIA3. It is important to note in particular that at GLVIA3 Paragraph 7.5 states that such an assessment is to be kept *"reasonable and in proportion to the nature of the project under consideration"*.
- 8.3 The assessment of cumulative effects has been undertaken on the basis of the other two sites having been granted planning permission and built out, with effects arising from the Muskham Wood solar farm being in addition to those that would arise from the other two sites.
- 8.4 A cumulative SZTV has been modelled to aid the assessment of cumulative effects – see **Figure 6**: Cumulative SZTV. The cumulative SZTV shows that there a number of areas where there would be theoretical visibility of both the Proposed Development and one or both of the other schemes, including:
- land within the Site;
 - land to the north-east of the Site towards Hunger Barn;
 - land to the north, north-east and east of Caunton;
 - land to the north of the Site (including within the Knapthorpe Lodge site);
 - land to the east and west of the Site;
 - land to the north/north-west of Beesthorpe Hall on the south-west side of the A616; and
 - land to the north/north-east of Caunton Common Farm on the north-east side of the A616.
- 8.5 However, the field survey has shown that field boundary and other vegetation within the landscape which is not modelled in the cumulative SZTV means that there are only very limited, if any, locations from where the Muskham Wood site and the Foxholes Farm would be visible. Where there may be visibility of both sites, the separation distance between the sites themselves, and between potential

cumulative receptors and the sites, means that any cumulative effects on landscape character and visual amenity would be very limited.

- 8.6 Being located immediately adjacent to each other, there would be more notable cumulative visibility (and therefore potential effects on landscape character and visual amenity) of the Muskham Wood and Knapthorpe Lodge sites.

Landscape Features and Elements

- 8.7 As the three proposed solar farms all occupy distinct and separate sites (albeit two of the sites are adjacent to each other), there would be no cumulative effects on landscape features and elements within the three Application Boundaries.

Landscape Character

Village Farmlands with Ancient Woodland LT/PZ MN30

- 8.8 All three sites lie within the Mid-Nottinghamshire Farmlands LCA, the Village Farmlands with Ancient Woodland LT, and Policy Zone MN30: Knapthorpe Village Farmlands with Ancient Woodland. As a result, there is potential for cumulative effects on the character of Policy Zone MN30, though any such effects would be indirect and perceptual/experiential only.
- 8.9 The Proposed Development would result in an increase in the area within PZ MN30 which is occupied by solar farms, but the relatively large size of the Policy Zone means that this increase would be only marginal. The perceived effect of this marginal increase would be further reduced by the limited inter-visibility between the Foxholes Farm and Knapthorpe Lodge solar farms, though the perceived effect of the increase would be more noticeable in relation to the Muskham Wood and Knapthorpe Lodge solar farms due to their proximity to each other. The long-term but fully reversible presence of the Proposed Development alongside the Knapthorpe Lodge site would not result in a notable change in the overriding landscape character of the Policy Zone as a whole, i.e. intensively managed farmland with views often enclosed by (field boundary) vegetation. The cumulative magnitude of change to Policy Zone MN30 is assessed as small, and with medium sensitivity, the cumulative scale of effect would be **minor to moderate adverse**.

Visual Amenity

- 8.10 Cumulative effects on visual amenity can occur in a number of ways:

- Combined or simultaneous visibility – where both the application sites are visible in the same arc or field of view from a fixed representative receptor/viewpoint;
- Successive visibility – where both the application sites are visible from a fixed representative receptor/viewpoint but where the observer needs to turn around in order to view the different sites;
- Sequential visibility – where the two application sites are not visible from a single fixed representative receptor/viewpoint but could be viewed consecutively when an observer moves along a linear route such as a public highway or public right of way.

Foxholes Farm

- 8.11 The cumulative SZTV indicates very few locations from where both the Foxholes Farm and the Muskham Wood sites would be visible, and field boundary and other vegetation within the landscape which is not modelled in the cumulative SZTV reduces any such cumulative visibility even further. It is therefore considered very unlikely that there are any locations within the 3km study area from where there would be discernible cumulative visibility of both these sites.

Knapthorpe Lodge

- 8.12 Lying immediately adjacent to each other, the cumulative SZTV shows that there are a number of locations from where there would be theoretical cumulative visibility of the Proposed Development and the Knapthorpe Lodge site – see Paragraph 8.4 above. However, the field survey has shown that the locations from which there may be cumulative visibility is considerably reduced by unmodelled intervening vegetation and is likely to be limited to:

- properties at Muskham Woodhouse Farm;
- properties to the immediate north-west of the poultry farm adjacent to the Site;
- properties at Middlethorpe Grange and Dean Hall Farm;
- properties at Lodge Farm and Lodge Cottages on the A616;
- sections of Caunton Road between the Bedmax plant and the A616, and certain properties on Caunton Road;
- footpath Caunton FP2 and very limited parts of Caunton FP3 (within the Knapthorpe Lodge site);

- footpaths South Muskham FP5 and FP6 (within the Site);
- footpath Caunton FP4; and
- footpath Bathley FP1.

Properties at Muskham Woodhouse Farm

- 8.13 Views to the west from these properties would be dominated by the Proposed Development, and solar arrays within the Proposed Development may in fact reduce the visibility of the Knapthorpe Lodge solar farm to the north-west. The cumulative magnitude of change arising from the Proposed Development in combination with the Knapthorpe Lodge solar farm would be no greater than that arising from the Proposed Development on its own, i.e. large. The cumulative effect is therefore assessed as **major adverse**.

Properties to the immediate north-west of the poultry farm adjacent to the Site

- 8.14 Views to the east from these properties would be dominated by the Proposed Development, and solar arrays within the Proposed Development may in fact reduce the visibility of the Knapthorpe Lodge solar farm to the north. The cumulative magnitude of change arising from the Proposed Development in combination with the Knapthorpe Lodge solar farm would be no greater than that arising from the Proposed Development on its own, i.e. medium. The cumulative effect is therefore assessed as **major adverse**.

Properties at Middlethorpe Grange and Dean Hall Farm

- 8.15 There would be visibility of the proposed Knapthorpe Lodge solar farm from both of these properties. The orientation of the properties and intervening vegetation combine to limit such visibility of the Proposed Development as set out previously. The cumulative magnitude of change arising from the Proposed Development would be no greater than that arising from the Proposed Development on its own, i.e. negligible. The cumulative effect is therefore assessed as **negligible**.

Properties at Lodge Farm and Lodge Cottages on the A616

- 8.16 Where there may be restricted partial visibility of both sites, the distance from the two sites means that the cumulative effect would not be notably greater than that arising from the Proposed Development on its own. The cumulative magnitude of change arising from the Proposed Development in combination with the Knapthorpe

Lodge solar farm is therefore assessed very small, resulting in a **minor adverse** cumulative effect.

Caunton Road and properties on Caunton Road

- 8.17 Both solar farms would be visible from much of Caunton Road to the north and south of Knapthorpe, and also from the two properties on Caunton Road adjacent to the Site.
- 8.18 For occupiers of the two residential properties and users of Caunton Road to the north of Knapthorpe, the cumulative effect would not be notably greater than that arising from either the Proposed Development on its own as the Knapthorpe Lodge solar farm would be more prominent in the view than the Proposed Development. The cumulative magnitude of change arising from the Proposed Development in combination with the Muskham Wood solar farm is therefore assessed as large, and the cumulative effect would be **major adverse**.
- 8.19 The cumulative SZTV indicates very limited, if any, visibility of the Proposed Development from the various other residential properties within the hamlet of Knapthorpe due to the presence of other buildings within the hamlet. Where the Proposed Development is visible, the Knapthorpe Lodge solar farm would generally be more dominant in the view due to its proximity to these properties. The cumulative magnitude of change arising from the Proposed Development in combination with the Muskham Wood solar farm would be no greater than that arising from the Proposed Development on its own, i.e. at worst large. The cumulative effect is therefore assessed as **major adverse**.
- 8.20 For users of Caunton Road to the south Knapthorpe, both sites would be visible to the east of the road. The Proposed Development would be closer and therefore more visible, and visibility would reduce by Year 5 as the intervening hedgerows are managed to a height of 3m. The cumulative magnitude of change arising from the Proposed Development with the Knapthorpe Lodge site would not be notably greater than that arising from the Proposed Development on its own, i.e. medium, resulting in a **moderate adverse** cumulative effect.

Footpaths Caunton FP2 and Caunton FP3

- 8.21 Although there would be theoretical visibility of both sites from all of Caunton FP2 and from limited parts of Caunton FP3, the proposed solar arrays within the

Knapthorpe Lodge solar farm would themselves tend to limit visibility of the Proposed Development from these paths where they lie within the Knapthorpe Lodge site. The cumulative magnitude of change would therefore not be notably greater than that arising from the Proposed Development on its own, i.e. medium to large. The cumulative effect would be **major adverse**.

Footpaths South Muskham FP5 and FP6

- 8.22 Although there would be theoretical visibility of both sites from the sections of South Muskham FP5 and FP6 that are within the Site, the solar arrays within the Proposed Development would themselves tend to limit visibility of the Knapthorpe Lodge solar farm. The higher elevation (compared to the Knapthorpe Lodge site) of these routes would however mean that there would be some cumulative visibility of both solar farms. The cumulative magnitude of change would not be notably greater than that arising from the Proposed Development on its own, i.e. very large. The cumulative effect would be **major adverse**.

Footpath Caunton FP4

- 8.23 For users of Caunton FP4, both sites would be clearly visible to the east of the path, with the Proposed Development more prominent in the view. Visibility would reduce slightly by Year 5 as the intervening field boundary hedgerow is managed to a height of 3m. The cumulative magnitude of change would be large, resulting in a **major adverse** cumulative effect.

Footpath Bathley FP1

- 8.24 For users of Bathley FP1 to the west of Hunger Barn there would be visibility of both the Knapthorpe Lodge solar farm and the Proposed Development. The Proposed Development is likely to be more visible than the Proposed Development due to its slightly higher elevation and the associated reduced screening effect of vegetation at Middlethorpe Grange. Where visible, the Proposed Development would therefore be seen in the context of the Knapthorpe Lodge solar farm. The cumulative magnitude of change is therefore assessed as small, and with high sensitivity the cumulative scale of effect would be **moderate adverse**.

9 SUMMARY AND CONCLUSIONS

- 9.1 This assessment considers the potential landscape and visual effects of a proposed solar farm on 69.5ha of gently sloping arable farmland to the south-east of the hamlet of Knapthorpe, to the north-west of Newark-on-Trent, Nottinghamshire.

The Site and its Environs

- 9.2 The Site lies outside of any statutory/national or non-statutory/local landscape designations. There are no such landscape designations within the 3km study area.
- 9.3 The Site lies to the east of Cauntton Road. The Site comprises:
- the whole of two adjacent arable fields to the west of Muskham Woodhouse Farm; and
 - the majority of two further large arable fields between Muskham Woodhouse farm and the poultry farm adjacent to the north-western part of Muskham Wood.
- 9.4 The fields are medium to large in size, and are of irregular shape. The topography of the Site is gently sloping – the land slopes gently from approximately 65m AOD along the southern boundary close to Muskham Wood, down to approximately 45m AOD in the north-east corner of the Site. There is also an area of slightly higher ground a short distance to the north-east of the poultry farm.
- 9.5 The fields are bounded by tightly trimmed native hedgerows, often gappy and in places only remnant and/or made up of bramble. Hedgerow trees are generally limited, though the eastern boundary of the northern field has more hedgerow trees. The southern boundary of the southern field is formed by Muskham Wood, which is recorded as ancient woodland. Some sections of the Site boundaries are not demarcated on the ground as they do not coincide with existing field boundaries, notably the northern and north-western boundaries of the northern field, and the western boundary of the southern field.
- 9.6 There are two PRoWs crossing the right, one running east-west and one running north-south. Both routes connect to other parts of the local PRoW network.
- 9.7 The surrounding landscape comprises very gently undulating arable and pastoral farmland to the west of the River Trent floodplain. Field boundaries are predominantly formed by hedgerows with variable frequency of hedgerow trees –

in places almost continuous, but barely present elsewhere. Small woodlands and copses are also common. Inter-visibility is often limited by this (field boundary) vegetation.

- 9.8 The settlement pattern comprises scattered farmsteads/individual properties and variable sized villages. The larger settlement of Newark-on-Trent lies approximately 5km to the south-east. A network of main and minor roads links the various settlements in the surrounding area, including the A616 between Newark and Ollerton which lies approximately 950m to the north-east of the Site at its closest.
- 9.9 High voltage powerlines mounted on steel-lattice pylons cross the landscape on a broadly north-south alignment approximately 325m to the east of the Site. Further pylon-mounted high voltage powerlines cross the landscape approximately 1.3km to the west of the Site. There are three large wind turbines approximately 1.3km to the east of the Site, with further wind turbines approximately 8km to the west at Eakring.
- 9.10 The British Sugar sugarbeet processing plant at Newark is a dominant feature in some views due to the large scale and height of the structures at the factory, including the stacks (which emit a (steam) plume when the plant is operational). The Bedmax wood shavings plant, which also has a prominent stack, lies approximately 500m to the west of the Site.

The Proposed Development

- 9.11 The Proposed Development comprises a ground mounted solar farm together with associated equipment and infrastructure.
- 9.12 Solar arrays would be a maximum height of 4m AGL and would be mounted on piles driven into the ground. The arrays would track the movement of the sun through the day to maximise solar gain. The solar farm would also include inverters, transformers, sub-stations, boundary fencing, access gates and tracks, and a CCTV system for security.
- 9.13 Landscape mitigation proposals include the retention and enhancement of all existing field boundary vegetation (trees and hedgerows), including the management of existing hedgerows to a height of 3m to reduce the visibility of the Proposed Development; and enhancement of site boundary margins and areas underneath solar panels through the creation of species rich grassland (managed

by sheep grazing).

Effects on Landscape Features and Elements

9.14 As landscape features and elements, the Proposed Development would result in:

- a minor adverse effect on on-site topography;
- no discernible effect on on-site water features;
- a moderate adverse effect on land use within the Site;
- a major adverse effect on the character of the PRoWs which cross the Site; and
- a moderate beneficial effect on on-site vegetation (hedgerows, trees and cropped vegetation).

Effects on Landscape Character

9.15 The Proposed Development would result in the conversion of the fields within the Site from intensively farmed arable farmland to a solar farm (with species-rich grassland managed by sheep grazing beneath the solar arrays). This would result in a long-term major adverse effect on the landscape character of the Site and its immediate environs, reducing to moderate adverse with increasing distance from the Site. By Year 5, the growth and development of retained, enhanced and newly planted hedgerows and trees within the Site would reduce the visibility of the Proposed Development from the landscape surrounding the Site, with a corresponding reduction in the scale of effect on this landscape to moderate or minor to moderate adverse.

9.16 For Policy Zone MN30: Knapthorpe Village Farmlands with Ancient Woodland, within the Mid-Nottinghamshire Farmlands LCA, the overall scale of effect on landscape character would be moderate adverse, reducing to minor adverse with increasing distance from the Site.

9.17 For other nearby LCAs, LCTs and Policy Zones which may undergo indirect perceptual/experiential effects, the scale of effect would be negligible.

9.18 All adverse effects on landscape character would be fully reversed following decommissioning of the proposed solar farm at the end of its life, with all site infrastructure being removed. Any enhancements to field boundary vegetation would remain after the decommissioning of the Site.

Effects on Visual Amenity

- 9.19 Major effects on visual amenity would be limited to receptors within the Site or within approximately 500m of the Site boundary (or within approximately 750m to the north):
- residential receptors within approximately 500m of the Site:
 - on Cauntton Road/within the hamlet of Knapthorpe;
 - at Muskham Woodhouse Farm; and
 - to the north-west of the poultry farm adjacent to the western edge of the Site.
 - PRoWs users on routes within the Site or on certain routes up to approximately 750m from the Site.
- 9.20 While the Proposed Development would be visible from some other locations within the surrounding landscape, it would generally be seen as a small component within a complex landscape and would not be prominent in the view.

Cumulative Effects

- 9.21 The Applicant has also submitted planning applications for two other solar farms in the vicinity of Muskham Wood – at Foxholes Farm (approximately 3.3km to the north-east of the Site) and Knapthorpe Lodge, immediately to the north of the Site. An assessment of potential cumulative effects has also therefore been undertaken, including the modelling of a cumulative SZTV.
- 9.22 All three sites lie within Policy Zone MN30: Knapthorpe Village Farmlands with Ancient Woodland. Cumulative effects on this Policy Zone would be minor to moderate adverse.
- 9.23 The cumulative SZTV indicates very few locations from where both the Foxholes Farm and the Muskham Wood sites would be visible, and field boundary and other vegetation within the landscape which is not modelled in the cumulative SZTV reduces any such cumulative visibility even further. It is therefore considered very unlikely that there are any locations within the 3km study area from where there would be discernible cumulative visibility of both these sites.
- 9.24 Lying immediately adjacent to each other, the cumulative SZTV shows that there are a number of locations from where there would be theoretical cumulative

visibility of the Proposed Development and the Knapthorpe Lodge site. However, the field survey has shown that the locations from which there may be cumulative visibility is considerably reduced by unmodelled intervening vegetation. Cumulative effects on visual amenity would generally not be notably greater than those which would arise from the Proposed Development on its own.

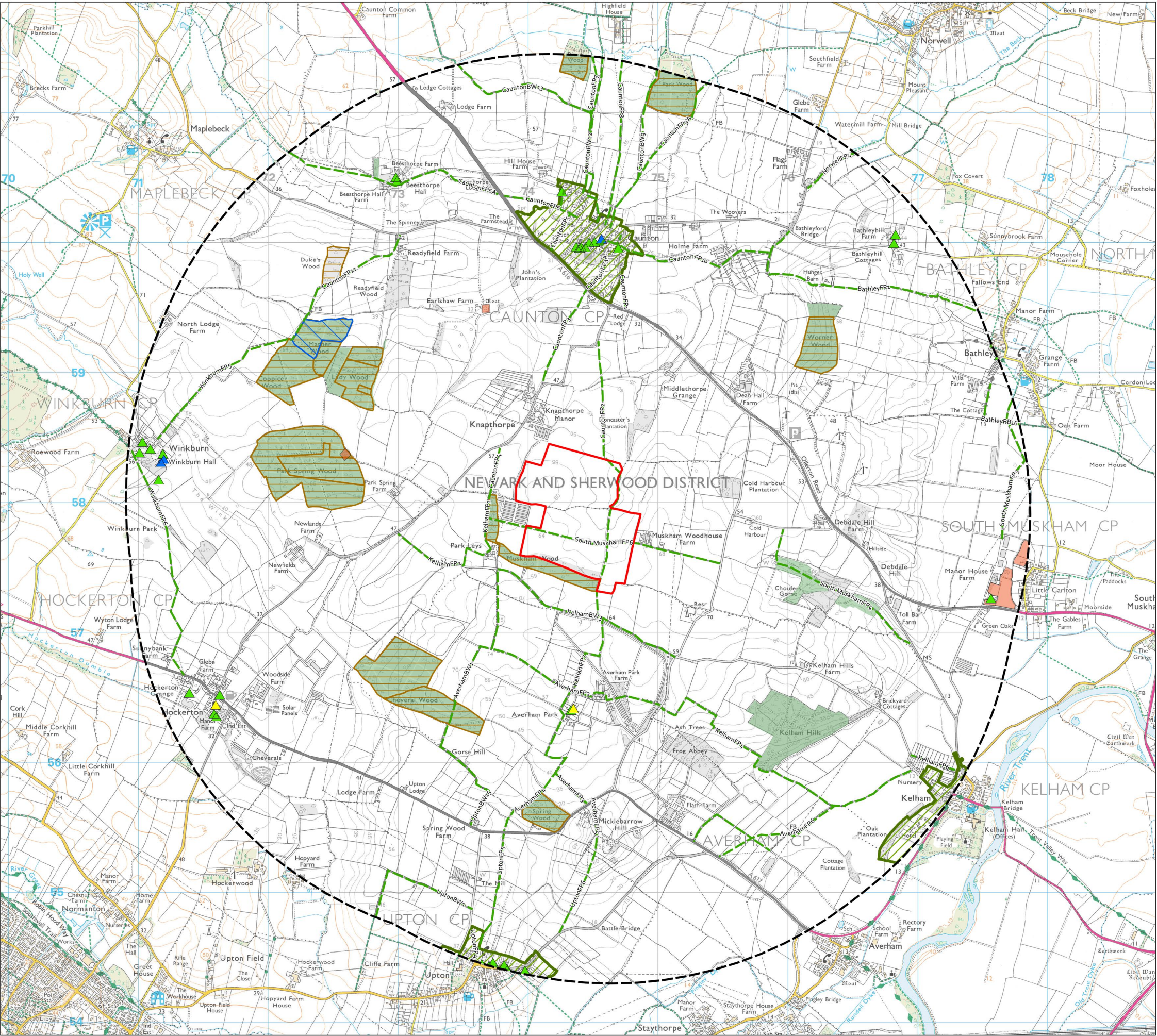
Conclusion

9.25 From a landscape and visual perspective, notable effects which would arise from the Proposed Development would be limited to:

- long-term effects on the nature and character of the two PRoWs which cross the Site;
- long-term effects on the landscape character of the Site;
- short to medium-term effects on the character of landscape within the immediate environs of the Site;
- long-term effects on visual amenity experienced by receptors occupying residential properties within approximately 500m of the Site
- long-term effects on visual amenity experienced by users of the two PRoWs which cross the Site and certain other PRoWs within up to approximately 750m of the Site.

9.26 Overall, notable adverse effects on landscape character and visual amenity would be limited to the Site and its immediate environs. Such effects are not considered to be in conflict with current local or national planning policy.

FIGURES



- KEY
- Site Boundary
 - 3km Site Boundary Buffer
 - Grade I Listed Building
 - Grade II* Listed Building
 - Grade II Listed Building
 - Scheduled Monument
 - Site of Special Scientific Interest (SSSI)
 - Ancient Woodland
 - Conservation Areas
 - Local Wildlife Sites
 - Public Right of Way

Revisions:
First Issue- 14/11/2021 DB

FIGURE 1: LANDSCAPE & ENVIRONMENTAL DESIGNATIONS PLAN

Muskham Wood

Client: Muskham Solar Limited
DRWG No: P21-1380.101 Sheet No: - REV:
Drawn by: DB Approved by: RP
Date: 14/11/2021
Scale: 1:30,000 @ A3



KEY

- Red line boundary
- Public Right of Way
- Existing hedges, trees, woodland and tree groups
- Road
- Fence
- Vehicular access

PROPOSED

- Emorsgate EM1 - Basic General Purpose Meadow Mixture, or similar & approved
- Native mixed hedgerow

Indicative plant list

Native mixed hedgerow

SPECIES	%
Crataegus monogyna	50%
Cornus sanguinea	5%
Corylus avellana	10%
Ilex aquifolium	2.5%
Prunus spinosa	10%
Rosa canina	15%
Viburnum opulus	7.5%

All existing and proposed hedgerows to be managed at a height of 3 metres or above.

Rev	Date	By	Note

FIGURE 2:
LANDSCAPE MASTERPLAN
Land at Muskham Wood

Client: Muskham Solar Limited REV: -
DRWG No: P21-1380.003 Approved by: HS
Drawn by : VR
Date: 11/03/2022
Scale: 1:2,500 @ A1





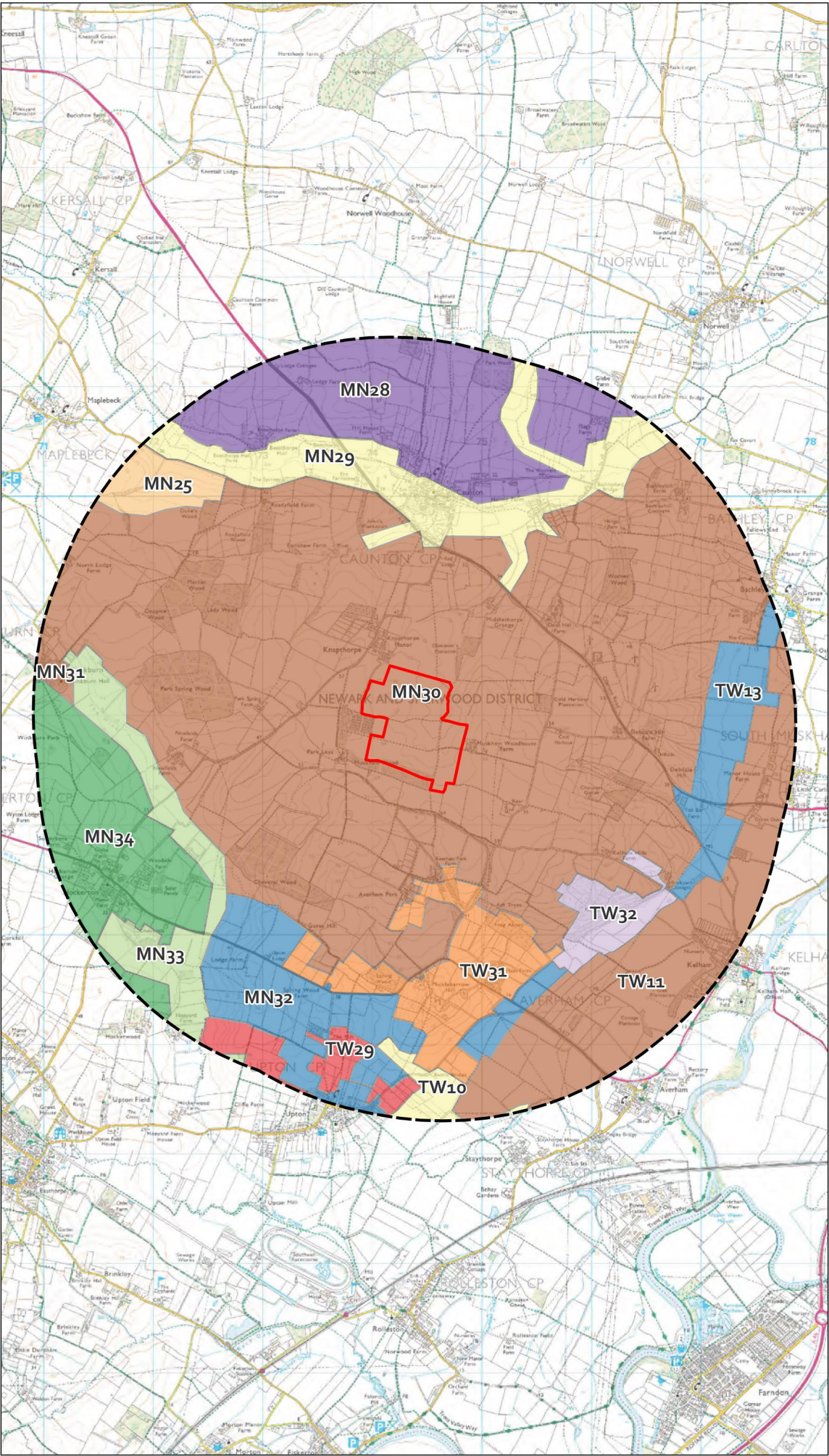
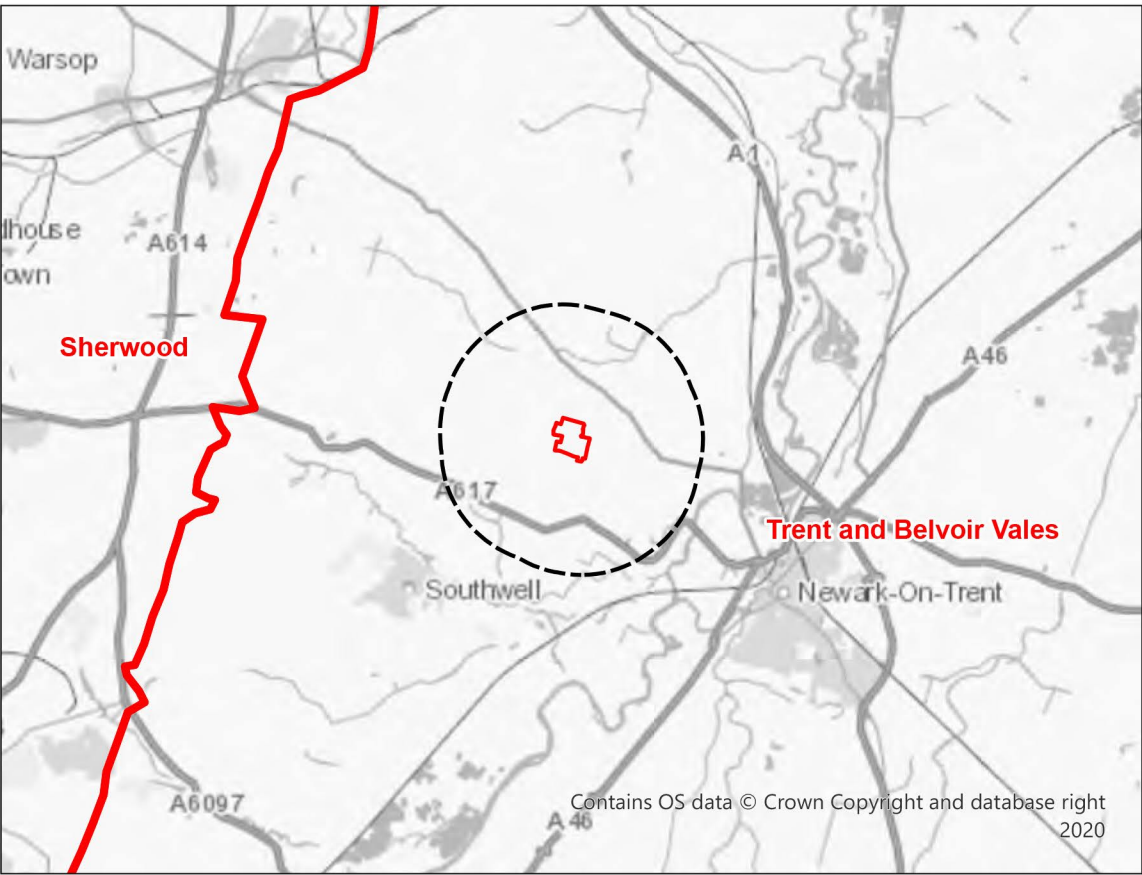
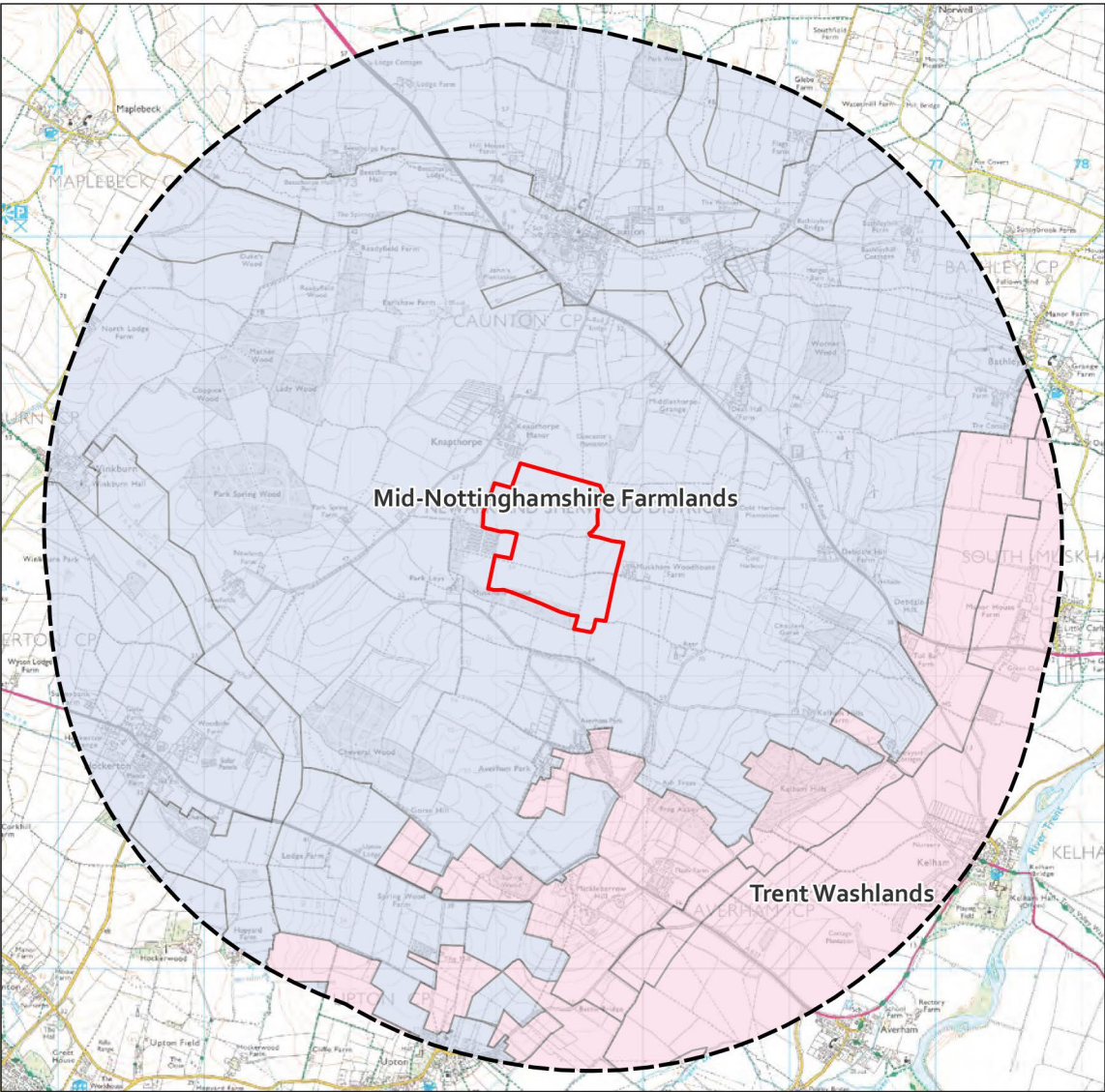
KEY

- Site Boundary
- Public Right of Way
- Electricity Transmission Lines
- A Road
- General fall of the land

Revisions:
First Issue- 14/11/2021 DB

FIGURE 3: LANDSCAPE
FEATURES PLAN
Muskham Wood

Client: Muskham Solar Limited
DRWG No: P21-1380.105 Sheet No: - REV:
Drawn by: DB Approved by: RP
Date: 14/11/2021
Scale: 1:10,000 @ A3



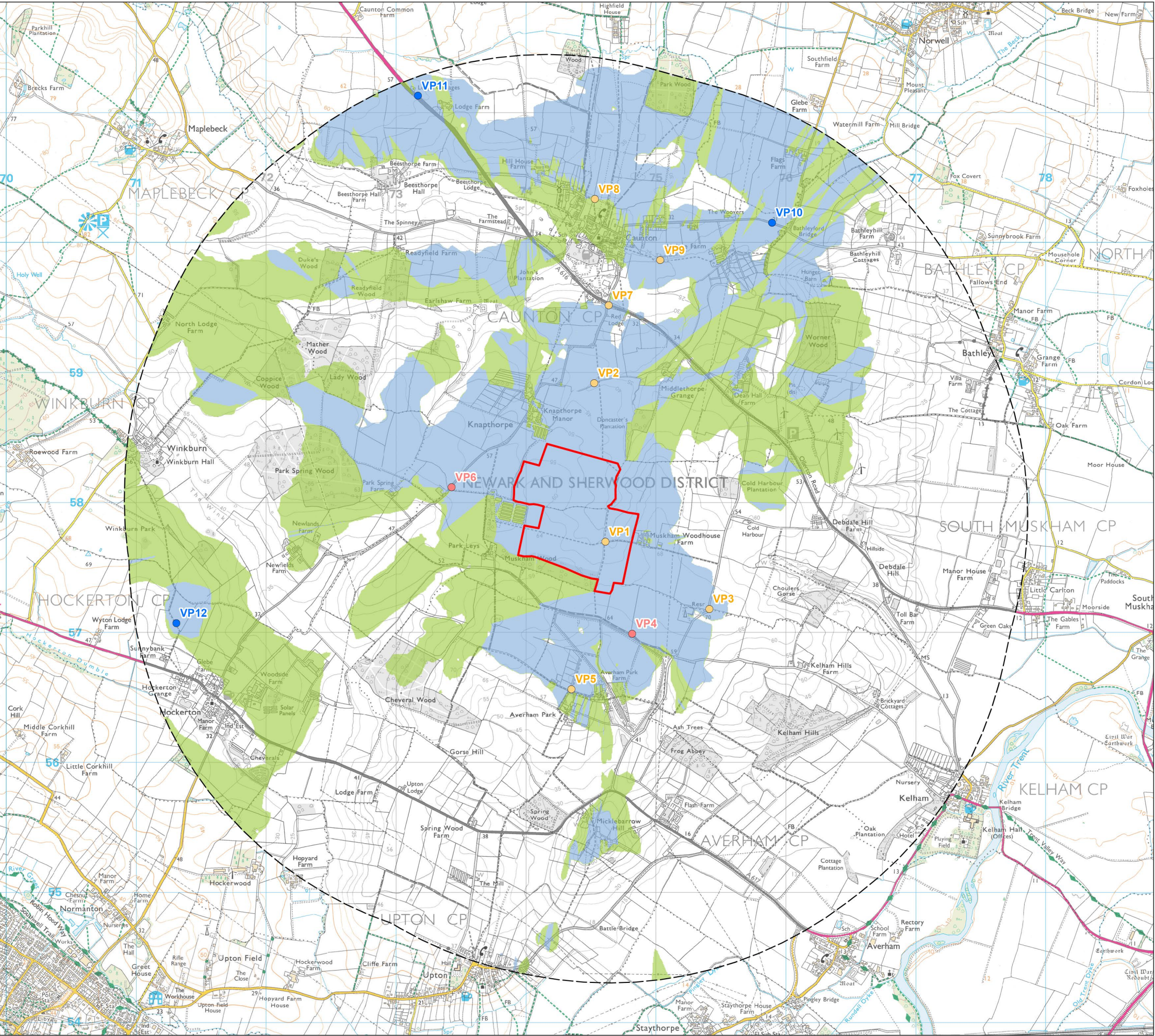
- KEY
- Site Boundary
 - 3km Site Boundary Buffer
- Newark and Sherwood Landscape Character Assessment (2013)
- Landscape Character Areas
- Mid-Nottinghamshire Farmlands
 - Trent Washlands
- Newark and Sherwood Landscape Character Assessment (2013)
- LCA Policy Zones
- MN25: MAPLEBECK VILLAGE FARMLANDS WITH ANCIENT WOODLAND
 - MN28: CAUNTON VILLAGE FARMLANDS WITH ANCIENT WOODLAND
 - MN29: CAUNTON MEADOWLANDS
 - MN30: KNAPTHORPE VILLAGE FARMLANDS WITH ANCIENT WOODLAND
 - MN31: EAKRING VILLAGE FARMLANDS WITH ANCIENT WOODLAND
 - MN32: UPTON VILLAGE FARMLANDS
 - MN33: HOCKERTON MEADOWLANDS
 - MN34: HOCKERTON VILLAGE FARMLANDS
 - TW10: River Greet Meadowlands
 - TW11: Cromwell, North and South Muskham, Kelham, Averham, Staythorpe and Rolleston Village Farmlands
 - TW13: Manor Farm River Meadowlands
 - TW29: Upton Hall River Meadowlands
 - TW31: Battle Bridge River Meadowlands
 - TW32: Kelham Hills River Meadowlands
- National Character Areas

Revisions:
First Issue- 14/11/2021 DB

Landscape Character Areas Plan

Muskham Wood

Client: Muskham Solar Limited
DRWG No: **P21-1380.102** Sheet No: - REV:
Drawn by: DB Approved by: RP
Date: 14/11/2021
Scale: 1:50,000 @ A3



KEY

- 3km Site Boundary Buffer
- Site Boundary

Screening Features

- Building (Ordnance Survey, Open Map Local)
- Woodland (Ordnance Survey, Open Map Local)

Zones of Theoretical Visibility (4m max height)

- Screened
- Bare Earth

Viewpoint

- Long Range
- Medium Range
- Short Range

Screened ZTV Production Information -

- DTM data used in calculations is OS Terrain 5 that has been combined with OS Open Map Local data for woodland and buildings to create a Digital Surface Model (DSM).
- Additional Woodland and Buildings within study area are modelled at 15m and 8m respectively.
- Viewer height set at 1.7m
- Calculations include earth curvature and light refraction

N.B. This Screened Zone of Theoretical Visibility (SZTV) image illustrates the theoretical extent of where the development will be visible from, assuming 100% visibility, and includes the screening effect from vegetation and buildings, based on the assumptions stated above.

ZTV Production Information -

- DTM data used in calculations is OS Terrain 5m
- Calculations based on a bare earth survey
- Viewer height set at 1.7m
- Calculations include earth curvature and light refraction

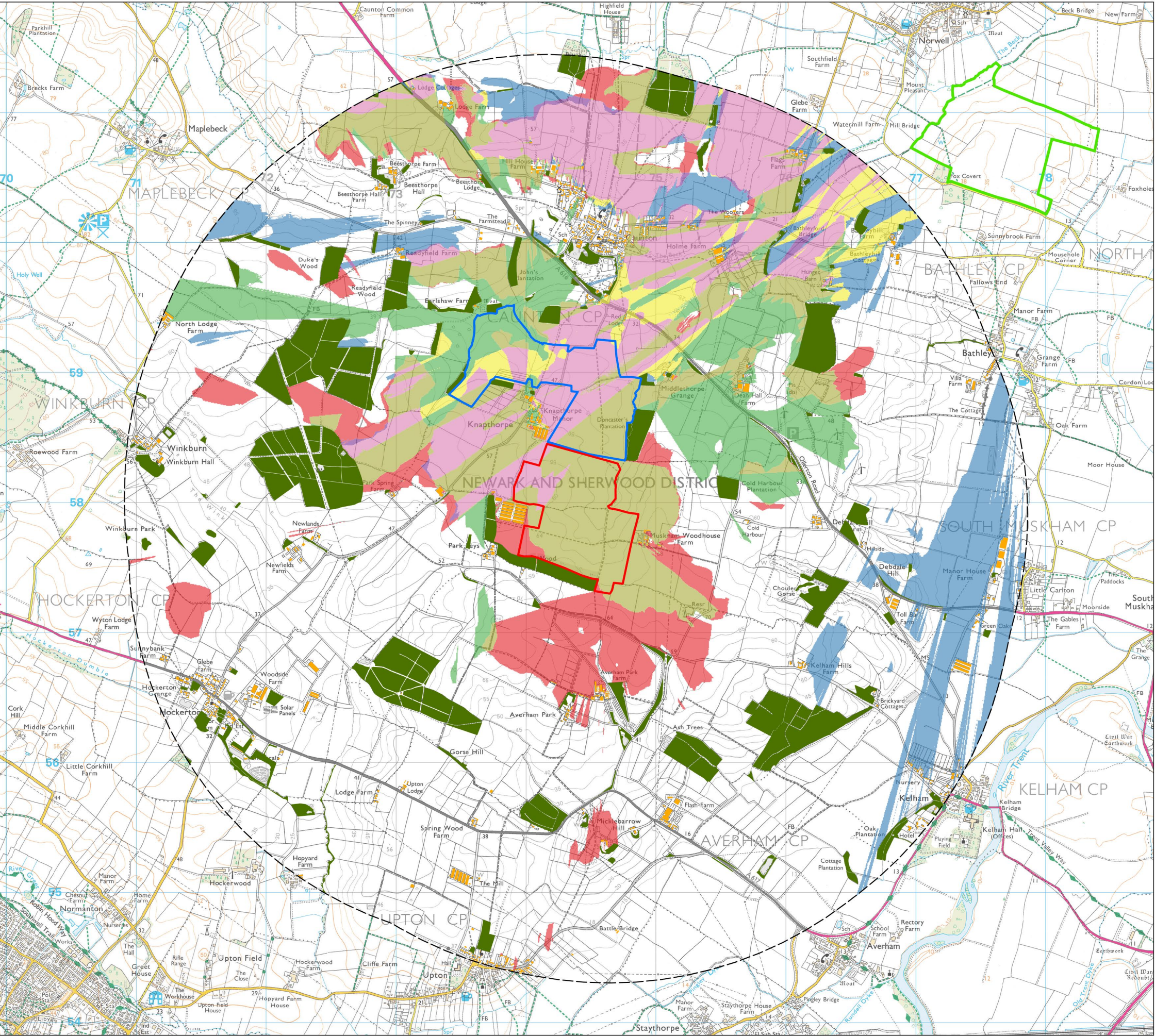
N.B. This Zone of Theoretical Visibility (ZTV) image illustrates the theoretical extent of where the development will be visible from, assuming 100% visibility. It is generated using terrain data only and does not account for any screening that vegetation or the built environment may provide. It is, as such, 'a worst case' ZTV and the actual extents of visibility are likely to be less extensive.

Revisions:
First Issue- 14/11/2021 DB

FIGURE 5: ZTV/SZTV & VIEWPOINT LOCATION PLAN Muskham Wood

Client: Muskham Solar Limited
DRWG No: **P21-1380.103** Sheet No: - REV:
Drawn by: DB Approved by: RP
Date: 14/11/2021
Scale: 1:30,000 @ A3





KEY

- 3km Site Boundary Buffer
- Site Boundary
- Foxholes Farm Solar Farm Site Boundary
- Knapthorpe Lodge Solar Farm Site Boundary

Screening Features

- Building (Ordnance Survey, Open Map Local)
- Woodland (Ordnance Survey, Open Map Local)

Cumulative Zones of Theoretical Visibility (4m max height)

- Muskham Wood Visible Only
- Foxholes Farm Visible Only
- Knapthorpe Lodge Visible Only
- Muskham Wood & Foxholes Farm Visible
- Muskham Wood & Knapthorpe Lodge Visible
- Knapthorpe Lodge & Foxholes Farm Visible
- All Schemes Visible

Screened ZTV Production Information -

- DTM data used in calculations is OS Terrain 5 that has been combined with OS Open Map Local data for woodland and buildings to create a Digital Surface Model (DSM).
- Additional Woodland and Buildings within study area are modelled at 15m and 8m respectively.
- Viewer height set at 1.7m
- Calculations include earth curvature and light refraction

N.B. This Screened Zone of Theoretical Visibility (SZTV) image illustrates the theoretical extent of where the development will be visible from, assuming 100% visibility, and includes the screening effect from vegetation and buildings, based on the assumptions stated above.

ZTV Production Information -

- DTM data used in calculations is OS Terrain 5m
- Calculations based on a bare earth survey
- Viewer height set at 1.7m
- Calculations include earth curvature and light refraction

N.B. This Zone of Theoretical Visibility (ZTV) image illustrates the theoretical extent of where the development will be visible from, assuming 100% visibility. It is generated using terrain data only and does not account for any screening that vegetation or the built environment may provide. It is, as such, 'a worst case' ZTV and the actual extents of visibility are likely to be less extensive.

Revisions:
First Issue- 14/11/2021 DB
RevA- 27/01/2022 DB

FIGURE 6: CUMULATIVE SZTV WITH KNAPTHORPE LODGE & FOXHOLES FARM

Muskham Wood

Client: Muskham Solar Limited
DRWG No: **P21-1380.104** Sheet No: - REV: A
Drawn by: DB Approved by: RP
Date: 27/01/2022
Scale: 1:30,000 @ A3

APPENDIX A

DETAILED METHODOLOGY

Introduction

- A.1 This assessment has been undertaken with regard to best practice, as outlined in published guidance:
- Guidelines for Landscape and Visual Impact Assessment (3rd edition) - Landscape Institute/ Institute of Environmental Management and Assessment (2013) [GLVIA3]¹²;
 - GLVIA3 Statement of Clarification 1/13 – Landscape Institute (2013)¹³;
 - An Approach to Landscape Character Assessment – Natural England, (October 2014)¹⁴;
 - Landscape Institute Technical Guidance Note – Visual Representation of Development Proposals (September 2019)¹⁵; and
 - Landscape Institute Technical Guidance Note – Assessing Landscape Value Outside National Designations (February 2021)¹⁶.
- A.2 GLVIA3 states within paragraph 1.1 that “Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right, and on people’s views and visual amenity.”
- A.3 GLVIA3 also states within paragraph 1.17 that when identifying landscape and visual effects there is a “need for an approach that is in proportion to the scale of the project that is being assessed and the nature of the likely effects. Judgement needs to be exercised at all stages in terms of the scale of investigation that is appropriate and proportional.”
- A.4 GLVIA3 recognises within paragraph 2.23 that “professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters much of the assessment must rely on qualitative judgements” undertaken by a landscape consultant or a Chartered Member of the Landscape Institute (CMLI).
- A.5 The effects on cultural heritage and ecology are not considered within this LVIA but where relevant are considered elsewhere in the ES.

¹² Landscape Institute and Institute of Environmental Management & Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Routledge

¹³ Landscape Institute (2013) *GLVIA3 Statement of Clarification 1/13*, Landscape Institute

¹⁴ Natural England (2014) *An Approach to Landscape Character Assessment*, Natural England

¹⁵ Landscape Institute (2019) *Technical Guidance Note 06/19: Visual representation of Development Proposals*, Landscape Institute

¹⁶ Landscape Institute (2021) *Technical Guidance Note 02/21: Assessing Landscape Value Outside National Designations*, Landscape Institute

Study Area

- A.6 The study area for this LVA covers a 3km radius from the Application Site. However, the main focus of the assessment was taken as a radius of 2km from the Application Site as it is considered that even with clear visibility it is considered that there would be only very limited visibility of the Proposed Development beyond this distance, seen as a relatively small component in the wider landscape.

Effects Assessed

- A.7 Landscape and visual effects are assessed through professional judgements on the sensitivity of landscape elements, landscape character, visual receptors and representative viewpoints combined with the predicted magnitude of change arising from the proposals. The landscape and visual effects have been assessed in the following sections:
- Effects on landscape features and elements;
 - Effects on landscape character; and
 - Effects on visual amenity.
- A.8 Sensitivity is defined in GLVIA3 as “a term applied to specific receptors, combining judgments of susceptibility of the receptor to a specific type of change or development proposed and the value related to that receptor.” Various factors in relation to the value and susceptibility of landscape elements, landscape character, visual receptors or representative viewpoints are considered below and are cross referenced, in combination with professional judgement, to determine the overall sensitivity as shown in Table 2.3.
- A.9 Magnitude of change is defined in GLVIA3 as “a term that combines judgements about the size and scale of the effect, the extent over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.” Various factors contribute to the magnitude of change on landscape elements, landscape character, visual receptors and representative viewpoints.
- A.10 Professional and reasoned judgements on the sensitivity of the landscape and visual receptor and the magnitude of change arising from the proposals are cross referenced in **Table 2.18** to determine the overall degree of landscape and visual effects.
-

Effects on Landscape Character and Landscape Features and Elements

A.11 Landscape character is defined in GLVIA3 as the “distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.” The assessment of effects on landscape character considers how the introduction of new landscape elements physically alters the landform, landcover, landscape pattern and perceptual attributes of the Application Site or how visibility of the proposals changes the way in which the surrounding landscape character is perceived.

A.12 The effects on landscape features and elements are limited to within the Application Site and includes the direct physical change to the fabric of the land, such as the removal of woodland, hedgerows or grassland to allow for the proposals.

Sensitivity of Landscape Character and Landscape Features and Elements

A.13 Sensitivity of landscape character and landscape features and elements is determined by a combination of the value that is attached to landscape character or a particular landscape feature or element and the susceptibility of the landscape character, feature or element to changes that would arise as a result of the proposals – see pages 88-90 of GLVIA3. Both value and susceptibility are assessed on a scale of high, medium or low.

A.14 The criteria for assessing the value of landscape character and landscape features and elements are shown in **Table A.1** below. These criteria also relate to those identified in Box 5.1 of GLVIA3 (Page 84) and TGN 02/21, namely:

- natural heritage;
 - cultural heritage;
 - landscape condition;
 - associations;
 - distinctiveness;
 - recreational;
 - perceptual – scenic;
 - perceptual – wildness and tranquillity; and
 - functional.
-

Table A.1: Criteria for Assessing the Value of Landscape Features and Elements and Landscape Character

High	Landscapes falling under statutory landscape designations including, but not limited to, World Heritage Sites, National Parks, Areas of Outstanding Natural Beauty, and considered to be an important component of the country's character experienced by a high number of people. Landscape condition is good, and components are generally maintained to a high standard. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has an elevated level of tranquillity. Rare or distinctive landscape elements and features are key components that contribute to the landscape character of the area. Recognised associations with people or events.
Medium	Undesignated landscapes or those falling under local (non-statutory) designations, including urban fringe and rural countryside, considered to be a distinctive component of the local landscape character. Landscape condition is fair, and components are generally well maintained. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has a moderate level of tranquillity. Rare or distinctive landscape elements and features are notable components that contribute to the character of the area.
Low	Undesignated landscape including urban fringe and rural countryside considered to be of unremarkable character. Landscape condition may be poor, and components poorly maintained or damaged. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has limited levels of tranquillity. Rare or distinctive elements and features are not notable components that contribute to the landscape character of the area.

A.15 The criteria for assessing the susceptibility of landscape character and landscape features and elements are shown in **Table A.2:**

Table A.2: Criteria for Assessing Susceptibility of Landscape Character and Landscape Features and Elements

High	Scale of enclosure – landscapes with a low capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form etc. Nature of land use – landscapes with no or little existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are not easily replaced or substituted (e.g. ancient woodland, mature trees, historic parkland etc.). Nature of existing features – landscapes where detracting features, major infrastructure or industry is not present or where present has a limited influence on landscape character.
Medium	Scale of enclosure – landscapes with a medium capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form etc. Nature of land use – landscapes with some existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are easily replaced or substituted. Nature of existing features – landscapes where detracting features, major infrastructure or industry is present and has a noticeable influence on landscape character.
Low	Scale of enclosure – landscapes with a high capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with extensive existing reference or context to the type of development being proposed. Nature of existing features – landscapes where detracting features or major infrastructure is present and has a dominating influence on the landscape.

A.16 The relationship between the value of landscape character and landscape features and elements and their susceptibility to changes likely to arise from the Proposed Development is then used to determine the overall sensitivity, as shown in **Table A.3.**

Table A.3: Overall Sensitivity of Landscape and Visual Receptors

	Value			
Susceptibility		High	Medium	Low
	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

A.17 Indicative landscape sensitivity criteria are then described in Table A.4:

Table A.4: Overall Sensitivity of Landscape Receptors

Criteria Level	Sensitivity Description
High	Key characteristic(s) of landscape very vulnerable and could be adversely affected by development; and/or Areas of very strong positive character that are highly valued by virtue of their scenic quality (including most statutorily designated landscapes); and/or Distinctive perceptual/ aesthetic aspect that is often a signature feature of a landscape and that is vulnerable to adverse change; and/or Elements/features that could be described as unique; or are nationally scarce; or mature vegetation with provenance such as ancient woodland or mature parkland trees.

Medium	Some key characteristics may exhibit vulnerability to adverse effects from inappropriate or unsympathetic development that may lead to wider effects on character; and/or Areas that exhibit positive character but may have some evidence of alteration to/ degradation of/ erosion of features resulting in areas of more mixed character. Can also apply to areas with evidence of degraded character that remain valued by local communities; and/or Perceptual/ aesthetic aspect 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	Key characteristics are robust and unlikely to be adversely affected by development; and/or Areas that are relatively bland or neutral in character with few/no notable features; and/or Evidence of alteration to/ degradation of /erosion of features; and/or Perceptual/ aesthetic aspect is either robust and unlikely to be affected by development, or is in the main negative; and/or Elements/features that are regionally and/or nationally ubiquitous; or make little contribution to local distinctiveness; and/or Elements/features that might be considered to detract from landscape character such as obtrusive man-made artefacts (e.g. power lines, large areas of hard-standing etc).

Magnitude of Change on Landscape Character and Landscape Features and Elements

A.18 Reasoned professional judgement has been used to determine the magnitude of change on landscape character and landscape features and elements. The following separate factors are considered:

- size/scale;
- geographical extent;
- duration; and
- reversibility.

A.19 The assessment of size and scale of change is based on the indicative criteria set out in **Table A.5**:

Table A.5: Indicative Size/Scale Criteria

Criteria Level	Feature/Element	Aesthetic/Perceptual Aspect	Key Characteristics/ Overall Character
Large	All, or a large proportion of the feature/element is lost or altered, with its integrity compromised or greatly enhanced.	Change wholly or largely alters an aesthetic/ perceptual aspect, such that it becomes difficult/ impossible to appreciate, when considered against the baseline.	Very obvious/intensive change in the balance of landscape characteristics, with a resulting change in overall character.
Medium	Partial change to the element/feature in question, which may in some cases diminish or enhance its overall integrity.	Change is such that the development has an influence upon an aesthetic/ perceptual aspect, but said aspect remains appreciable.	Obvious change to one/more key characteristics, but overall character does not fundamentally change.
Small	Only a small proportion of the feature/element is affected, with no effect on its integrity.	Change has little tangible effect upon an aesthetic/ perceptual aspect.	Unremarkable change to key characteristics; and/or little/no effect upon the wider character

A.20 The geographical extent of a change is determined by the indicative criteria set out in **Table A.6**:

Table A.6: Geographical Extent Criteria

Criteria Level	Description
Site	The effect would be experienced only within the development site itself
Immediate setting/localised	The effect would be experienced in the immediate setting or surroundings of the site only, and would not be experienced within the wider landscape; or

Landscape character type/landscape character area	Localised change that would affect only a part of a landscape type/character area.
Wider landscape	The effect would be experienced wholly/largely within the landscape type/character area within which the development is located.

A.21 The duration of a change is determined by the indicative criteria set out in **Table A.7:**

Table A.7: Duration Criteria

Criteria Level	Description
Permanent	Permanent or more than 25 years/a generation.
Long-term	10-25 years; or the change could not reasonably be considered temporary in nature.
Medium-term	3-10 years; or the limited duration of the change can be inferred by any reasonably informed person.
Short-term	0-3 years; or the change would be considered as temporary in nature by any reasonable person.

A.22 The reversibility of a change relates to the prospects and practicality of a change being able to be reversed, and is determined by the indicative criteria set out in **Table A.8:**

Table A.8: Reversibility Criteria

Criteria Level	Description
Reversible	Change can be wholly or largely reversed. For example, the removal of a wind farm development following decommissioning.

Partially reversible	Change is partially reversible. For example, the restoration of an unsightly quarry to something similar to the baseline.
Irreversible	Change cannot realistically be reversed, i.e., it is permanent.

A.23 These four factors are then considered together to derive an overall magnitude of change for each receptor, which is determined by use of professional judgement, based on the indicative criteria set out in **Tables A.9 & A.10** below.

Table 2.9: Indicative Criteria for Magnitude of Change upon Landscape Character

Criteria Level	Description
Very large	Fundamental change in the make-up and balance of landscape characteristics over an extensive area.
Large	Very obvious change in the balance of landscape characteristics over an extensive area ranging to particularly intensive change over a more limited area.
Medium	Changes in an extensive area which whilst notable do not alter the balance of the landscape characteristics ranging to moderate changes in the localised area which whilst obvious do not fundamentally change local character.
Small	Limited change in any components of the wider landscape with modest and unremarkable changes in the localised area.
Very small	Very small and unremarkable change in any components of the landscape.
Negligible	Change, which whilst occurring would be virtually imperceptible within the wider landscape.

Table A.10: Indicative Criteria for Magnitude of Change upon Landscape Features and Elements

Criteria Level	Description
Very large	Permanent removal of, or a significant change to, the characteristics of the landscape element in question that cannot be replaced, reinstated or otherwise mitigated against.

Large	Permanent removal of, or a significant change to, the characteristics of the landscape element in question. Limited scope for replacement, reinstatement or other mitigation.
Medium	Partial removal of or moderate changes to the characteristics of the landscape element in question. Also applies to complete removal that can be suitably mitigated against.
Small	Small scale changes to a landscape element or loss of/change to a small proportion of an extensive feature. Larger scale losses that can be fully mitigated against through provision of equivalent replacement features.
Very small	Very small-scale changes to a landscape element or loss of/change to a very small proportion of an extensive feature. The changes can be fully mitigated against through provision of equivalent replacement features.
Negligible	Changes to a landscape element that would have no impact on the integrity of the element as a whole and that can be fully mitigated against through provision of equivalent replacement features.

Effects on Visual Amenity

A.24 The assessment of effects on visual amenity considers the changes in views arising from the proposals in relation to visual receptors including settlements, residential properties, transport routes, recreational facilities and attractions; including detailed assessments from the representative viewpoints within the study area.

Sensitivity of Visual Receptors

A.25 Sensitivity is determined by a combination of the value that is attached to a view and the susceptibility of the visual receptor to changes in that view that would arise as a result of the proposals – see pages 113-114 of GLVIA3. Both value and susceptibility are assessed on a scale of high, medium or low.

A.26 The criteria for assessing the value of views are shown in **Table A.11**.

Table A.11: Criteria for Assessing the Value of Views

High	Views with high scenic value within landscapes falling under statutory landscape designations including, but not limited to, World Heritage Sites, National Parks, Areas of Outstanding Natural Beauty etc. Likely to include key viewpoints on OS maps or reference within guidebooks, provision of facilities, presence of interpretation boards, etc.
Medium	Views with moderate scenic value within undesignated landscapes or those falling under local (non-statutory) designations, including urban fringe and rural countryside.
Low	Views with unremarkable scenic value within undesignated landscape with partly degraded visual quality and detractors.

A.27 The criteria for assessing the susceptibility of views are shown in **Table A.12**.

Table A.12: Criteria for Assessing Visual Susceptibility

High	Includes occupiers of residential properties, and people engaged in recreational activities in the countryside including using public rights of way (PRoWs).
Medium	Includes people engaged in outdoor sporting activities where the focus of the receptor is not on the surrounding landscape, and people travelling through the landscape on minor roads and trains.
Low	Includes people at places of work (e.g. industrial and commercial premises), and people travelling through the landscape on major roads and motorways.

A.28 The relationship between the value of the view and the susceptibility of visual receptors to changes likely to arise as a result of the Proposed Development is then used to determine the overall sensitivity, as shown in **Table 2.3** above.

Magnitude of Change on Visual Receptors

A.29 Reasoned professional judgement has been used to determine the magnitude of change on the views experienced by visual receptors. The following separate factors are considered:

- size/scale;
- geographical extent;
- duration; and
- reversibility.

A.30 The assessment of size and scale of change is based on the indicative criteria set out in **Table A.13**:

Table A.13: Indicative Size/Scale Criteria

Criteria Level	Description
Large	A marked change in the balance of features visible in the view; a marked change in the composition of the view; change would affect a significant proportion of the view; change/new features would represent an obvious contrast with existing features; views of the change would be clear and unencumbered by screening features; the development would occupy the foreground of the view.
Medium	The balance of features in the view would change, but not to such a degree that the existing composition of the view would fundamentally change; the change would, whilst obvious, be subordinate to existing features; the development would occupy the middle ground of the view.
Small	The balance and composition of the view would not change greatly from baseline; change would affect only a small proportion of the view; change/new features would not contrast strongly with existing features; views of the change would be screened/filtered or otherwise encumbered by existing foreground features; the development would occupy the background of the view.

A.31 The geographical extent of an effect is determined by the indicative criteria set out in **Table A.14**:

Table A.14: Indicative Geographic Extent Criteria

Criteria Level	Description
Large	Views would be direct from the receptor; views would generally be at short-range; change in view would be evident over a wide area.
Medium	The change in view would be experienced at an oblique angle to the main view available to the receptor; views would generally be at medium range.
Small	The change in view would not fall within the main angle of the view available to the receptor; views would generally be at long-range; change would be evident over a small area only.

A.32 The duration of a change is determined by the indicative criteria set out in **Table A.15**:

Table A.15: Duration Criteria

Criteria Level	Description
Permanent	Permanent or more than 25 years/a generation.
Long-term	10-25 years; or the change could not reasonably be considered temporary in nature.
Medium-term	3-10 years; or the limited duration of the change can be inferred by any reasonably informed person.
Short-term	0-3 years; or the change would be considered as temporary in nature by any reasonable person.

A.33 The reversibility of a change relates to the prospects and practicality of a change being able to be reversed, and is determined by the indicative criteria set out in **Table A.16**:

Table A.16: Reversibility Criteria

Criteria Level	Description
Reversible	Change can be wholly or largely reversed. For example, the removal of a wind farm development following decommissioning.
Partially reversible	Change is partially reversible. For example, the restoration of an unsightly quarry to something similar to the baseline.
Irreversible	Change cannot realistically be reversed, i.e., it is permanent.

A.34 These four factors are then considered together to derive an overall magnitude of change for each receptor, determined through professional judgement based on the indicative criteria set out in **Tables A.17**:

Table A.17: Indicative Criteria for Magnitude of Change upon the View

Criteria Level	Description
Very large	Fundamental change in the character, make-up and balance of the view. The proposals would be dominant; a controlling feature within the view.
Large	Very obvious changes in the character, make-up and balance of the view. The proposals would be a prominent feature. The nature of the existing view would change.
Medium	Moderate changes in the character, make-up and balance of the view, with the proposals noticeably distinct. This may lead to an overall change in the nature of the view depending upon the type and nature of change.
Small	The proposals would be visible as a new feature. Change would be limited and would be unlikely to affect the nature of the existing view as a whole.
Very small	Minor change in the nature of the view. Lacking sharpness of definition, not obvious, indistinct, not clear, obscure, blurred, indefinite.
Negligible	No discernible change in the view.

Assessment of Scale of Landscape and Visual Effects

A.35 The likely scale of effects is dependent on all of the factors considered in the sensitivity and the magnitude of change upon the relevant landscape and visual receptors. These factors are assimilated to assess the likely scale of effect which would arise from the Proposed Development. The variables considered in the evaluation of the sensitivity and the magnitude of change are reviewed holistically to inform the professional judgement of the scale of effect. The cross referencing of the sensitivity and magnitude of change on the landscape and visual receptor determines the scale of effect as shown in **Table A.18** below.

Table A.18: Scale of Landscape and Visual Effects

		Sensitivity		
		High	Medium	Low
Magnitude of Change	Very large	Major	Major	Moderate to Major
	Large	Major	Major	Moderate
	Medium	Major	Moderate	Minor to Moderate
	Small	Moderate	Minor to Moderate	Minor
	Very small	Minor to Moderate	Minor	Minor to Negligible
	Negligible	Negligible	Negligible	Negligible

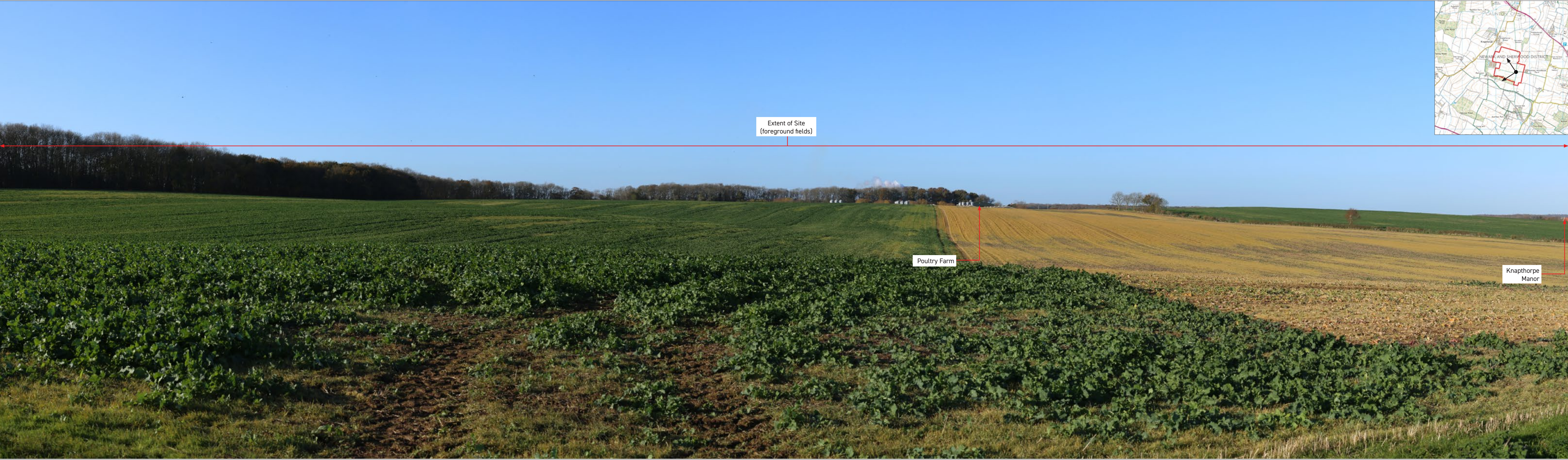
Nature of Effects

A.36 GLVIA3 includes an entry that states “effects can be described as positive or negative (or in some cases neutral) in their consequences for views and visual amenity.” GLVIA3 does not, however, state how negative or positive effects should be assessed and therefore becomes a matter of subjective judgement rather than reasoned criteria. Due to inconsistencies with the assessment of negative or positive effects, a precautionary approach is applied to this LVIA that assumes all landscape and visual effects are considered to be negative or adverse unless otherwise stated.

APPENDIX B

PHOTOVIEWS







Extent of Site
(foreground fields)

Knapthorpe
Manor

Poultry farm

Red Lodge

Doncaster's
Plantation

High voltage
powerlines

Wind turbines















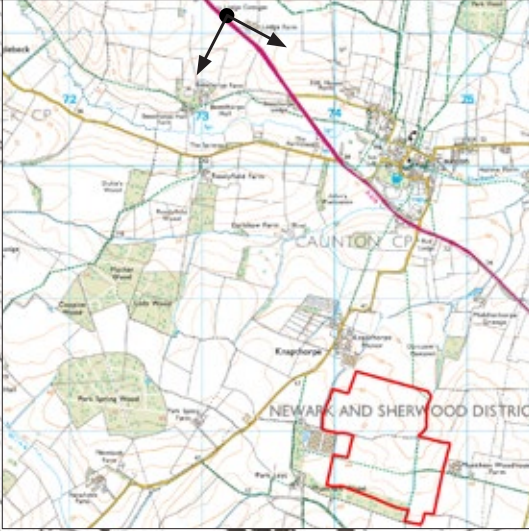


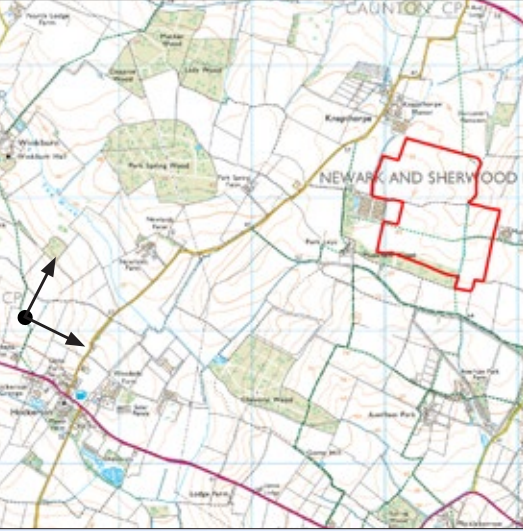


VIEWPOINT 10 - LOOKING SOUTH-WEST

Norwell Road between Caunton and Bathleyford Bridge

P21-1380.107 | Muskham Wood |





APPENDIX C

PHOTOMONTAGES





VIEWPOINT 3 - PHOTOMONTAGE (YEAR 1)

Unnamed minor road between A616 and A617, near reservoir to south-east of Muskham Woodhouse Farm



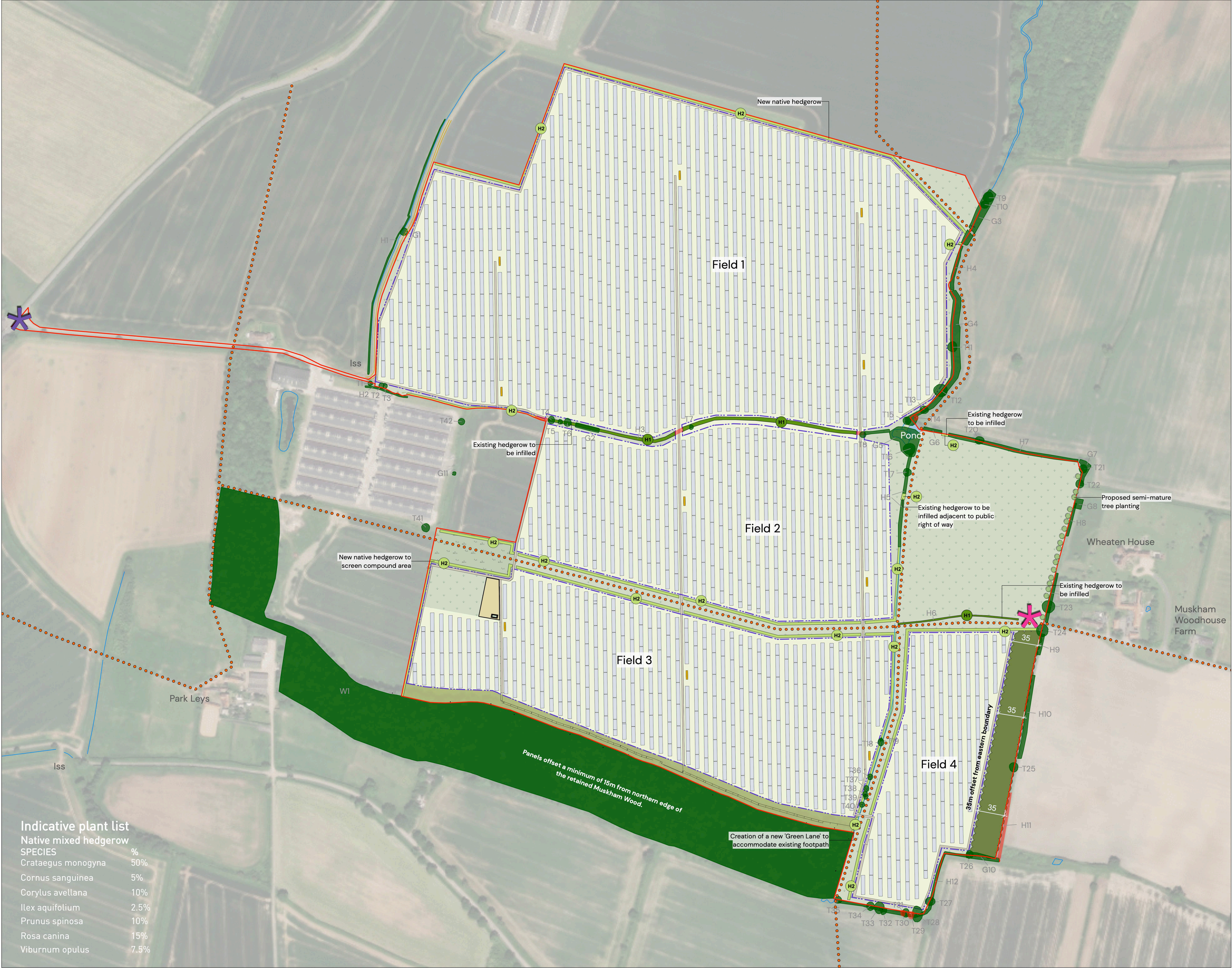
VIEWPOINT 3 - PHOTOMONTAGE (YEAR 5)

Unnamed minor road between A616 and A617, near reservoir to south-east of Muskham Woodhouse Farm









Indicative plant list

Native mixed hedgerow	
SPECIES	%
Crataegus monogyna	50%
Cornus sanguinea	5%
Corylus avellana	10%
Ilex aquifolium	2.5%
Prunus spinosa	10%
Rosa canina	15%
Viburnum opulus	7.5%

KEY

- Site Boundary
- Existing PRoW – Footpath
- Existing vegetation to be retained
– Refer to Brindle & Greenway's Arboricultural Impact Survey and Report (ref: BG21.212.15) for details on tree protection fencing and categories
Existing hedgerows to be grown to and managed at a height of circa 3m
- Existing vegetation to be removed
- Retained neutral grassland
- Existing pond to be retained
- Existing watercourse

SOFT LANDSCAPE PROPOSALS

- Proposed modified grassland**
– Cotswold Seeds solar park permanent grassland intermixed with Emorsgate EHIF or similar
- Proposed wildflower field margins**
– Game bird mix (for wild birds)
- Proposed neutral grassland**
– Emorsgate EM3 mix or similar
- Proposed native structural buffer planting**
– Allowed to grow and be maintained at 3m in height. Based on slightly acid, but base-rich loamy and clayey soils, suitable species include Hawthorn, Hazel, Blackthorn and Holly
- Proposed semi-mature tree planting**
– To be located along eastern boundary amongst existing vegetation. New planting to be implemented at approx. 4.5–5m in height. Species could include Hornbeam or Beech, planted with spacing of no more than 10m
- Existing hedgerow to be infilled**
– Gap up and infill @ approx. 30% rate
– To be maintained at 3m+
- Proposed native hedgerow planting**
– To be maintained at 3m+

HARD LANDSCAPE PROPOSALS

- Fence line
- Indicative solar PV array
- Proposed access track
- Substation
- Power station
- Proposed vehicular access
- Agricultural field access

Note:
For further details relating to the ecological proposals, refer to Brindle & Green's Biodiversity Management Plan (ref. BG21.211.3).

J	260424	LAB	Graphics amended
I	140324	TH	Removal of panels in field to west of Wheaten House
H	290823	TH	Additional trees added along eastern boundary
G	270623	TH	Layout updates
F	130323	TH	Ecological enhancements added
E	100123	TH	Hedgerow amendment
D	260123	TH	Tree survey addition
C	090522	TH	Layout amends
B	140422	TH	Layout amends
A	100422	TH	Layout amends

Rev	Date	By	Note
-----	------	----	------

LANDSCAPE & ECOLOGICAL MASTERPLAN

Land at Muskham Wood

Client: Muskham Solar Limited REV: J
DRWG No: P21-1380.003 Approved by: IBD
Drawn by : TH/ LAB
Date: 26/04/2024
Scale: 1:2,500 @ A1

