



# TECHNICAL APPENDIX 3: CULTURAL HERITAGE IMPACT ASSESSMENT

Longhedge Solar Farm

30/11/2022



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## EXECUTIVE SUMMARY

- 3.1. This Cultural Heritage Impact Assessment (CHIA) has been prepared by Neo Environmental Limited, on behalf of Renewable Energy Systems (RES) Ltd in support of a planning application submitted to Rushcliffe Borough Council for a proposed 49.9MW solar farm development on lands between Hawksworth and Thoroton, circa 15.5km east of Nottingham, Nottinghamshire the approximate centre point of which can be found at Grid Reference E476129 N343467.
- 3.2. As no designated heritage assets lie inside the Application Site, no direct effects will occur on these resources. However, several non-designated cropmark sites within the Nottinghamshire HER lie inside the boundary, represented by two distinct areas of archaeological potential (see **Figure 3.2: Appendix 3A**). These comprise an **enclosure complex (NB15 & NB88) and group of pits, trackway and other features (NB32 & NB92)**. In addition, the Application Site is considered to contain a **high probability for sub-surface remains of potential significance, particularly in relation to the prehistoric and medieval periods**. A geophysical survey was undertaken to evaluate the specific potential for sub-surface features, which found numerous anomalies likely to relate to settlement activity from the prehistoric period onwards.
- 3.3. An appropriate programme of archaeological works, to include **test trenching designed to target anomalies of archaeological interest and otherwise 'blank' areas**, is recommended to be undertaken at the post-determination stage in the event of achieving consent, in order to investigate the anomalies as well as the possibility of further features being present, which may have been obscured from the magnetometry survey by alluvium deposits. Following the implementation of an appropriate archaeological programme of works, measures will be in place for the further evaluation of the specific archaeological potential of the Application Site, as well as the full recording and preservation of any sub-surface remains of significance that are identified during this or any further work as necessary, in accordance with the instruction of qualified archaeologists and the archaeological advisors of NCC and RBC. In addition, the **use of non-intrusive construction methods at locations to be specified by qualified archaeologists** following the results of the test trenching will help to minimise the potential direct impacts upon sub-surface remains at both the construction and decommissioning stages. As such, residual direct effects upon hitherto-unknown archaeology as a result of the Proposed Development are anticipated to be **Low to negligible**, on the assumption that the above measures are implemented.
- 3.4. Indirect effects upon the surrounding heritage assets have been assessed as **Moderate to low** for the Grade I listed Church of St Helena (NA18), while overall ranging between **Low and Negligible** for all other heritage assets within the calculated ZTV of the Proposed Development. Therefore, **no specific mitigation is considered to be required for the reduction of any visual impacts**, but vegetative planting proposed as part of proposal will help ensure that visual impacts upon heritage assets will be kept minimal throughout the operational phase of the development.

## INTRODUCTION

### Background

- 3.5. This Cultural Heritage Impact Assessment (CHIA) has been prepared by Neo Environmental Limited, on behalf of Renewable Energy Systems (RES) Ltd (the “Applicant”) in support of a planning application submitted to Rushcliffe Borough Council for a proposed 49.9MW solar farm development (the “Proposed Development”) on lands between Hawksworth and Thoroton, circa 15.5km east of Nottingham, Nottinghamshire (the “Application Site”); the approximate centre point of which can be found at Grid Reference E476129 N343467.

### Development Description

- 3.6. The Proposed Development will consist of the construction of a c. 49.9MW solar farm. It will involve the construction of bi-facial ground mounted solar photovoltaic (PV) panels, new access tracks, underground cabling, perimeter fencing with CCTV cameras and access gates, 2x temporary construction compounds, substation and all ancillary grid infrastructure and associated works.
- 3.7. Please see **Figures 4 and 5 of Volume 2** for the layout of the proposed Development.

### Site Description

- 3.8. The Application Site is located in a semi-rural setting on lands between the settlements of Hawksworth (0.1km west) and Thoroton (0.2km southeast), circa 15.5km east of Nottingham, Nottinghamshire. (See **Figure 1 of Volume 2: Planning Application Drawings** for further detail).
- 3.9. Centred at approximate Grid Reference E476129, N343467, the Proposed Development Site comprises nine fields covering a total area of c. 94.24hectares (ha), although only 37.7ha of this area is required to accommodate the solar arrays themselves, with the remaining area being used for ancillary infrastructure and mitigation and enhancement measures. The Proposed Development Site covers low lying lightly undulating agricultural land with an elevation range of c. 20m to 25m AOD. Internal field boundaries comprise, hedgerows, tree lines and several linear strips of woodland shelter belt. External boundaries largely consist of mature to lower hedgerows with individual trees and some evident gaps. In terms of existing infrastructure; electricity pylons extend north-south through fields 5, 6 & 8, whilst electricity lines pass northwest to southwest through fields 4, 5, 6 & 9.
- 3.10. The Application Site will be accessed via the creation of a new entrance off the linear public highway Thoroton Road. The vegetation is set back from the road verge by a few metres and therefore visibility will not be an issue. Appropriate visibility splays are included within the CTMP.

- 3.11. The haul route will be from the A46 to the southwest of the Application Site. The vehicles will exit the A46, signposted A6097 (Mansfield), take the 4th exit at the roundabout onto Bridgford Street followed by the 1st exit at the next roundabout onto Fosse Way. Vehicles will travel along this road for approximately 1.5km to the next roundabout, where they will take the 2nd exit onto Tenman Lane. This road will be travelled on in an eastern direction for approximately 3.2km before taking a left hand turn onto Hawksworth Road and vehicles will travel along here for approximately 2km before taking a right hand turn onto Thoroton Road. Vehicles will travel in a southeast direction for approximately 0.9km before turning left into the Application Site.
- 3.12. There is one recreational route located within the Proposed Development Site (Bridleway 1 & 6 that pass through the northern fields), and several located close by (**See Figure 3 of Vol 2: Planning Drawings**). National Cycle Network (NCN) route 64 shares the minor road on the east side of the Proposed Development Site.
- 3.13. The Proposed Development Site is mostly contained within Flood Zone 1 (at little or no risk of fluvial or tidal / coastal flooding), however there are some areas of Flood Zone 2 and 3a which follow the watercourse/drains within the site and have been carefully considered during the design phase.

## Scope of the Assessment

- 3.14. The assessment has been produced to evaluate the cultural heritage assets and archaeological remains relevant to the Application Site. A search of high-grade designated heritage assets such as Scheduled Monuments, World Heritage Sites, Registered Parks and Gardens of Special Historic Interest (PGSHI), Registered Battlefields and Heritage Coasts has been carried out within a 5km study zone of the Proposed Development. Architectural heritage assets such as Listed Buildings and Conservation Areas have been assessed within a 2km study zone. These study zones are in line with previous similar assessments produced by Neo Environmental and allow heritage assets to be appropriately considered for indirect impacts, both on the assets themselves and their settings.
- 3.15. Non-designated archaeology and heritage sites within the local Historic Environment Record have been assessed within a 1km study zone. These sites are usually of a lower sensitivity to visual impacts but both features and events within the record can be a good indication of the likely archaeological potential of land within the Application Site.
- 3.16. Where appropriate, sites of exceptional value or sensitivity outside the study zones have also been assessed. The aims of the assessment are as follows:
- To identify all known heritage assets within the study zone based on all available public resources;
  - To identify the archaeological potential of the Application Site;
  - To determine what if any level of recording will be required for any extant remains;

- To assess the significance of any direct or indirect effect of the Proposed Development on cultural heritage assets and their settings and potential archaeological remains within the study zone, from construction through to decommissioning;
- To identify mitigation measures where possible and aid in the design process to reduce the potential impacts of the proposed scheme;
- To provide recommendations for any further archaeological/heritage assessment work that should be undertaken as part of the Proposed Development.

3.17. The report is supported by the following Figures and Technical Appendices:

- Appendix 3A: Figures
  - Figure 3.1 – Designated Heritage Assets
  - Figure 3.2 – Historic Environment Record
  - Figure 3.3 – Henry Stevens 1820 Map of Newark-on-Trent
  - Figure 3.4 – 1883 Historic Map
  - Figure 3.5 – 1921 Historic Map
  - Figure 3.6 – Lidar Data (1m DTM)
- Appendix 3B: Tables
- Appendix 3C: Walkover Survey Report
- Appendix 3D: Geophysical Survey Report

## Statement of Authority

3.18. The assessment has been conducted by registered archaeologists with the Chartered Institute for Archaeologists (CIfA), of Associate (ACIfA) level or above. The assessment has been conducted in accordance with the appropriate professional guidance outlined in the Code of Conduct<sup>1</sup> and Standards and Guidance for Desk-based Assessment<sup>2</sup> from the Chartered Institute for Archaeologists (CIfA).

3.19. Michael Briggs BSc (Hons) MSc ACIfA MIAI was the primary author of this assessment. He has undertaken a large number of cultural heritage and archaeological impact assessments for developments across the UK and Ireland, with a particular focus on renewable projects,

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<sup>1</sup> CIfA (2014) *Code of Conduct*. Chartered Institute for Archaeologists.

<sup>2</sup> CIfA (2014) *Standards and Guidance for desk-based assessment*. Chartered Institute for Archaeologists.



including numerous solar farms throughout the Republic of Ireland and Northern Ireland. He has over nine years of professional experience, including assessments for the initial stages of feasibility and heritage impacts through to a wide variety of fieldwork and mitigation measures.

- 3.20. Paul Neary BA H.Dip MA MSc MIEEnvSc MIAI ACIFA CEnv was the primary editor of this report. Paul is dual-qualified as a Chartered Environmentalist and archaeologist. Paul has over 16 years of archaeology and heritage experience, the majority of which relates to Ireland. Paul has worked on large road projects, EIA developments and energy projects across Ireland and the UK. He is licensed to direct archaeology work in the Republic of Ireland and has also held archaeology director licenses in Northern Ireland.

## Consultation

- 3.21. Pre-application consultation was undertaken with various authorities and stakeholders within a period between January 2021 and June 2022. A summary of key comments and conclusions from these consultations is contained below.

**Table 1: Table of Consultation**

Consultee	Comments	Actions
Deirbhile Blair Principal Area Planning Officer – Rushcliffe Borough Council  March 2021  Pre-application response	<i>“Hawksworth Manor and adjoining Pigeoncote are Grade II Listed and are located directly to the west of the application site. The church of St Helena in Thoroton is Grade 1 listed and a number of other buildings in the village are also Listed buildings. The site is also in the vicinity of Conservation Areas of Hawksworth and Thoroton and parts of the site are acknowledged to have potential archaeological interest.”</i>	Listed buildings and conservation areas have been identified within a 2km study area around the Application Site and assessed for potential visual impacts that may occur from the proposal.
David Littlewood Historic Environment Record Manager – Nottinghamshire County Council  January 2022	<i>HER data within 1km study area provided.  The study area was identified to contain data from the National Mapping Programme and some events contained grey literature reports.</i>	HER sites appraised within 1km study area.  National Mapping Programme consulted in addition to HER data.  Archive at Archaeology Data Service consulted to identify grey literature report.

<p>Email consultation and HER Search</p>		
<p>Ursilla Spence Senior Practitioner Archaeology – Nottinghamshire County Council February 2022 Initial consultation</p>	<p><i>“As you have already identified, there is a fair bit of archaeology already known within your redline boundary, and from a quick look some of it could be significant. My concern in such cases is that it is not necessarily the construction of the solar farm that causes the problems, when we have consideration taken of the archaeological issues as in your case (and thank you for that!), but it is the decommissioning in 20 or 30 years’ time. My preference would be to have areas that should be clearly excluded because of archaeological interest identified as soon as possible. Therefore I would recommend you do the geophys survey predetermination, so 1. We can see if it works on this geology, and 2. We go to determination with a plan for keeping some areas obviously excluded from development. Do take professional geophysical advice on which method would be likely to work best on the geology.”</i></p>	<p>A geophysical survey (magnetometry) was undertaken throughout the Application Site following the comments. The survey is attached to this assessment as <b>Appendix 3D</b> and identified areas of archaeological potential, the most significant of which was subsequently excluded from the development design.</p> <p>Mitigation measures have been provided within this assessment to outline a programme aimed at identifying and preserving sub-surface remains within the Application Site, building on the results of the geophysical survey.</p>
<p>Ursilla Spence Senior Practitioner Archaeology – Nottinghamshire County Council May 2022 Email consultation after geophysical survey</p>	<p><i>“The geophysical investigation results are pretty impressive, that is a fair bit of archaeology in there. Thank you also for the detail you have provided on the non-intrusive construction methods. I assume you will make it clear in the planning submission which parts of the site will use these methodologies? Do you foresee any need for archaeological works in the areas which will not be subject to these constructions methods? I am thinking of the small number of areas of potential archaeology in the heavily moled fields.”</i></p>	<p>The potential for using non-intrusive construction methods on areas of potentially significant archaeology was discussed and will be incorporated as part of a wider programme of archaeological mitigation, which is outlined in the relevant section of this assessment.</p>

## LEGISLATION AND PLANNING POLICY CONTEXT

3.22. This Cultural Heritage Impact Assessment has been considered with regard to all relevant national, regional and local planning policy and guidance:

- National Planning Policy Framework 2021, paragraphs 194 & 199 – 203<sup>3</sup>;
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Schedule 4<sup>4</sup>;
- Ancient Monuments and Archaeological Areas Act 1979 (as amended)<sup>5</sup>;
- Historic England: The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)<sup>6</sup>;
- Historic England’s Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12 (2019)<sup>7</sup>;
- National Heritage Act 1983 (amended 2002)<sup>8</sup>;
- Planning (Listed Buildings and Conservation Areas) Act 1990<sup>9</sup>;
- Hedgerows Regulations 1997: Schedule 1 – Additional Criteria for Determining “Important” Hedgerows<sup>10</sup>; and
- Rushcliffe Local Plan Parts 1 and 2 (adopted 2014)<sup>11</sup>.

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<sup>3</sup> Ministry of Housing, Communities & Local Government (2019) *National Planning Policy Framework*. HM Government, London.

<sup>4</sup> HM Government (2017) *The Town and Country Planning (Environmental Impact Assessment) Regulations*. HM Government, London.

<sup>5</sup> HM Government (1979) *Ancient Monuments and Archaeological Areas Act*. HM Government, London.

<sup>6</sup> Historic England (2017) *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)*. Historic England.

<sup>7</sup> Historic England (2019) *Statement of Heritage Significance: Analysing Significance in Heritage Assets*. Historic England Advice Note 12. Historic England.

<sup>8</sup> HM Government (1983) *National Heritage Act (Amended 2002)*. HM Government, London.

<sup>9</sup> HM Government (1990) *Planning (Listed Buildings and Conservation Areas) Act*. HM Government, London.

<sup>10</sup> HM Government (1997) *The Hedgerows Regulations*. HM Government, London.

<sup>11</sup> Rushcliffe Borough Council (2016) *Rushcliffe Local Plan: Adopted Policies Map*. RBC.

- 3.23. The most relevant policy documents to this impact assessment are discussed in more detail below.

### National Planning Policy Framework (NPPF) 2021

- 3.24. The overarching policy and guidance for the conservation and enhancement of the historic environment have been formulated within Chapter 16 of the NPPF 2021 and build upon the core planning principle for the appropriate conservation of heritage assets. The framework classifies the historic environment as: *“all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora”* (NPPF, Glossary).
- 3.25. Under this reviewed policy document archaeological sites, buildings, parks and gardens, conservation areas, battlefields or other aspects of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest are considered heritage assets. These heritage assets include both designated sites and non-designated sites identified by the Local Planning Authority and must be a consideration in the planning process due to their heritage interest.
- 3.26. Policies outlined in the document consider both the treatment of the assets themselves and their setting in the landscape, which are the primary material considerations for heritage assets involved in the development planning process. Key paragraphs from this document that are relevant to this project are detailed below.

#### Paragraph 194

*“In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.”*

#### Paragraph 199

*“When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.”*

### Paragraph 200

*“Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

- a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*
- b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II\* listed buildings, grade I and II\* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.”*

### Paragraph 201

*“Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

- a) the nature of the heritage asset prevents all reasonable uses of the site; and*
- b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*
- c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*
- d) the harm or loss is outweighed by the benefit of bringing the site back into use.”*

### Paragraph 202

*“Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use”.*

### Paragraph 203

*“The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.”*

- 3.27. This report includes a detailed assessment of both designated and non-designated heritage assets in order to determine their significance and sensitivity to the proposed development. Where non-designated assets are of high significance they will be considered and assessed as equivalent to scheduled monuments.

## The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)

3.28. This document mainly offers guidance and advice regarding consideration of the setting of heritage assets. The guidance was produced by Historic England and is contextualised by NPPF and the related guidance in the National Planning Practice Guide.

3.29. There are useful concepts regarding setting illustrated in the document, and it lays out the recommended procedure for assessing the effects a development proposal may have on the surrounding assets and their settings. The document defines setting as the surroundings in which an asset is experienced, and discusses the effects that developments can have on the different types of setting heritage assets have.

*“The contribution of setting to the significance of a heritage asset is often expressed by reference to views, a purely visual impression of an asset or place which can be static or dynamic, long, short or of lateral spread, and include a variety of views of, across, or including that asset.”* (Paragraph 10)

3.30. As a result, this assessment takes into account the setting of all identified heritage assets and determines the impact that the proposed development may have on them. It is understood that views to and from the heritage asset, as well as any meaningful intervisibility that it shares with its surrounding landscape, can constitute significance. Detailed consideration of these views has been undertaken and any relevant impacts, with mitigation measures where appropriate, have been highlighted.

*“Settings of heritage assets change over time. Understanding this history of change will help to determine how further development within the asset’s setting is likely to affect the contribution made by setting to the significance of the heritage asset. Settings of heritage assets which closely resemble the setting in which the asset was constructed or formed are likely to contribute to significance but settings which have changed may also themselves enhance significance, for instance where townscape character has been shaped by cycles of change and creation over the long term. Settings may also have suffered negative impact from inappropriate past developments and may be enhanced by the removal of the inappropriate structure(s).”* (Paragraph 9)

3.31. As part of this assessment, the changes to an asset’s setting over time will be considered where appropriate. This will allow the significance of the setting’s contribution to the heritage value of an asset to be understood.

*“Conserving or enhancing heritage assets by taking their settings into account need not prevent change; indeed, change may be positive, for instance where the setting has been compromised by poor development. Many places coincide with the setting of a heritage asset and are subject to some degree of change over time. NPPF policies, together with the guidance on their implementation in the Planning Policy Guidance (PPG), provide the framework for the consideration of change affecting the setting of undesignated and designated heritage assets as part of the decision-taking process.”* (Paragraph 18)

- 3.32. Historic England, therefore, are not seeking to ensure that heritage assets do not preclude development and their protection should not prevent change. However, the more important a designated asset, the greater the weight should be given to its conservation. This assessment will identify the significance of designated and non-designated heritage assets and apply appropriate weight to the potential impact on them as a result of the Proposed Development.

## Hedgerows Regulations 1997

- 3.33. Part II of Schedule 1 within the Hedgerows Regulations 1997 states the additional criteria for determining “important” hedgerows in an archaeological and historic context. This can be important for a site where hedgerows may require alteration or removal to accommodate the design of a proposal.

*“1. The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose, “historic” means existing before 1850.*

*2. The hedgerow incorporates an archaeological feature which is-*

*(a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Scheduled Areas Act 1979; or*

*(b) recorded at the relevant date in a sites and Monuments Record.*

*3. The hedgerow-*

*(a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and*

*(b) is associated with any monument or feature on that site.*

*4. The hedgerow-*

*(a) marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a sites and Monuments Record or on a document held at that date at a Record Office; or*

*(b) is visibly related to any building or feature of such an estate or manor.*

*5. The hedgerow-*

*(a) is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure acts; or*

*(b) is part of, or visibly related to, any building or other feature associated with such a system, and that system-*

- (i) *is substantially complete; or*
- (ii) *is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act(b), for the purposes of development control within the authority's area, as a key landscape characteristic."*

## Rushcliffe Local Plan Parts 1 (adopted December 2014) and 2 (adopted October 2019)

3.34. The approach to heritage and archaeology within the planning and development control processes for the Rushcliffe Borough Council area is summarised within Policy 11 of Part 1 (Core Strategy) and Policies 28 and 29 of Part 2 (Land and Planning Policies).

### Policy 11: Historic Environment (Part 1)

- "1. Proposals and initiatives will be supported where the historic environment and heritage assets and their settings are conserved and/or enhanced in line with their interest and significance. Planning decisions will have regard to the contribution heritage assets can make to the delivery of wider social, cultural, economic and environmental objectives.*
- 2. The elements of Rushcliffe's historic environment which contribute towards the unique identity of areas and help create a sense of place will be conserved and, where possible, enhanced with further detail set out in later Local Development Documents. Elements of particular importance include:*
  - a) industrial and commercial heritage such as the textile heritage and the Grantham Canal;*
  - b) Registered Parks and Gardens including the grounds of Flintham Hall, Holme Pierrepont Hall, Kingston Hall and Stanford Hall; and*
  - c) prominent listed buildings.*
- 3. A variety of approaches will be used to assist in the protection and enjoyment of the historic environment including:*
  - a) the use of appraisals and management plans of existing and potential conservation areas;*
  - b) considering the use of Article 4 directions;*
  - c) working with partners, owners and developers to identify ways to manage and make better use of historic assets;*
  - d) considering improvements to the public realm and the setting of heritage assets within it;*



- e) *ensuring that information about the significance of the historic environment is publicly available. Where there is to be a loss in whole or in part to the significance of an identified historic asset then evidence should first be recorded in order to fully understand its importance; and*
  - f) *considering the need for the preparation of local evidence or plans.*
4. *Particular attention will be given to heritage assets at risk of harm or loss of significance, or where a number of heritage assets have significance as a group or give context to a wider area.”*

#### **Policy 28: Conserving and Enhancing Heritage Assets (Part 2)**

- “1. *Proposals that affect heritage assets will be required to demonstrate an understanding of the significance of the assets and their settings, identify the impact of the development upon them and provide a clear justification for the development in order that a decision can be made as to whether the merits of the proposals for the site bring public benefits which decisively outweigh any harm arising from the proposals.*
2. *Proposals affecting a heritage asset and/or its setting will be considered against the following criteria:*
- a) *the significance of the asset;*
  - b) *whether the proposals would be sympathetic to the character and appearance of the asset and any feature of special historic, architectural, artistic or archaeological interest that it possesses;*
  - c) *whether the proposals would conserve or enhance the character and appearance of the heritage asset by virtue of siting, scale, building form, massing, height, materials and quality of detail;*
  - d) *whether the proposals would respect the asset’s relationship with the historic street pattern, topography, urban spaces, landscape, views and landmarks;*
  - e) *whether the proposals would contribute to the long-term maintenance and management of the asset; and*
  - f) *whether the proposed use is compatible with the asset.”*

#### **Policy 29: Development Affecting Archaeological Sites**

- “1. *Where development proposals affect sites of known or potential archaeological interest, an appropriate archaeological assessment and evaluation will be required to be submitted as part of the planning application. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the*

*remains present and the degree to which the proposed development is likely to affect them.*

2. *Where archaeological remains of significance are identified permission will only be granted where:*

*a) The archaeological remains will be preserved in situ through careful design, layout and siting of the proposed development; or*

*b) When in-situ preservation is not justified or feasible, appropriate provision is made by the developer for excavation, recording and for the post-excavation analysis, publication, and archive deposition of any findings (to be undertaken by a suitably qualified party), provided that it can be clearly demonstrated that there are wider public benefits of the development proposal which outweigh harm to heritage assets of archaeological interest in line with NPPF requirements."*

- 3.35. This impact assessment will therefore consider all designated and non-designated heritage assets identified within the above local policies in order to identify whether the proposed development may substantially harm any heritage assets or their settings in relation to policies in both the local plan and the NPPF.

## ASSESSMENT METHODOLOGY

### Desk Based Assessment

- 3.36. The desk-based assessment was conducted to ascertain all historical and archaeological information relevant to the Application Site and the local area. A search of high-grade designated heritage assets such as Scheduled Monuments, World Heritage Sites, Registered Parks and Gardens of Special Historic Interest (PGSHI), Registered Battlefields and Heritage Coasts has been carried out within a 5km study zone of the Proposed Development, while Listed Buildings and Conservation Areas have been assessed within a 2km study zone. Non-designated sites within the local Historic Environment Record (HER) and similar sources have also been identified within a 1km study zone.
- 3.37. Study zones were implemented around the extent of all proposed construction works and do not include any existing access routes that do not require additional construction. The sizes of these study zones were selected to ensure that comprehensive and informative data was collated to characterise the direct and indirect impacts that the Proposed Development may have on historical and archaeological assets within the local area. Due to the nature of the records, some degree of overlap is possible (for example a site that has been recorded within both the HER and as a Listed Building) and some assets may therefore have been repeated.
- 3.38. Where appropriate, sites of exceptional value or sensitivity outside the study zones have also been assessed.
- 3.39. Historical databases and various archives were consulted to identify the designated assets and undertake the assessment. The main sources which were consulted include the:
- The National Heritage List for England (NHLE);
  - The Nottinghamshire Historic Environment Record (HER);
  - Published sources available in the HER;
  - Register of Parks and Gardens of Special Historic Interest (Historic England);
  - Register of Historic Battlefields (Historic England);
  - GIS shapefiles hosted via UK Government and Local Authority links;
  - Defra Data Services Platform (Lidar data);
  - Historic England National Mapping Programme;
  - Aerial imagery via Google Earth, Bing Maps, World Imagery Wayback and ArcGIS Pro global mapping;

- National Collection of Aerial Photography;
- Cambridge University Collection of Aerial Photography;
- <http://www.britainfromabove.org.uk/>;
- Excavation reports hosted by Archaeology Data Service and OASIS; and
- Historic Maps accessible via the OS and National Library of Scotland.

## Professional Guidance

- 3.40. The assessment has been conducted in accordance with the appropriate professional guidance, which includes:
- Code of Conduct, Chartered Institute of Field Archaeologists (CIfA) (2014)<sup>12</sup>
  - Standards and Guidance for Archaeological Desk Based Assessment, CIfA (2014)<sup>13</sup>

## Map Regression Analysis

- 3.41. Analysis of historic maps can reveal the changes in landuse and field boundaries in the area and can highlight potential areas of archaeological interest that may have been lost in the subsequent years. Relevant maps were consulted to undertake this analysis as part of the desk-based assessment and site walkover survey.

## Aerial Photography

- 3.42. To identify potential archaeological features within the Application Site that are not recorded within the relevant databases, aerial photography of the land was examined in order to identify any cropmarks or markings within the Application Site that may be indicative of previously unknown features. This includes both modern and historical aerial imagery.

## Assessment of Direct Effects

- 3.43. Potential direct effects during the construction phase are considered as physical disturbance of known or associated archaeological remains. These impacts can be caused through the construction processes within the footprint of the Development, including ancillary works such as access tracks. Direct impacts can affect both above ground and subsurface remains, which will both be considered within this assessment. The presence and character of any existing archaeological features will be identified within the site boundary, and the

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<sup>12</sup> CIfA (2014) *Code of Conduct*. Chartered Institute for Archaeologists.

<sup>13</sup> CIfA (2014) *Standards and Guidance for desk-based assessment*. Chartered Institute for Archaeologists.

archaeological potential of the site assessed through a desk-based assessment of the surrounding archaeological resource and landscape. The significance of any impacts will be determined by considering the construction methodology within the Application Site and to what extent this would disturb any sub-surface remains.

## Assessment of Indirect Effects

3.44. The assets that were identified through the sources previously listed were assessed for their significance using the criteria presented in **Table 1: Appendix 3B**. The magnitude of the visual impacts upon these assets was determined by considering the views and intervisibility shared with the Proposed Development, as well as the nature, character, date, extent, setting and surviving remains of the feature where relevant. Indirect effects were then assigned using this information on the following scale:

- Major
- Major to moderate
- Moderate
- Moderate to low
- Low
- Low to negligible
- Negligible

3.45. Indirect effects of 'moderate' or above are considered significant and appropriate mitigation measures have been recommended where appropriate to lower the potential impact.

## Zone of Theoretical Visibility

3.46. A Zone of Theoretical Visibility (ZTV) was produced to identify sites with a greater potential for being indirectly impacted by the Proposed Development. The ZTV has been overlaid on the heritage assets within the study zones, to identify those that will potentially be visually impacted by the Proposed Development during the operational phase.

3.47. Digital Terrain Modelling sourced from digital height data derived from Ordnance Survey Ireland, with the viewer height set at 2m high was used to calculate the ZTV. The produced ZTV was 'bare earth' and therefore did not account for any elements in the landscape such as trees, hedgerows, walls or buildings that may help screen views, nor account for the influences of the weather upon any views.

## The Importance of Setting

- 3.48. Setting can be important to the way in which historic assets or places are understood, appreciated and experienced. The Historic England document 'The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)' is used as guidance for determining the contributions made by settings to the heritage value of their assets, and how these settings may be sensitive to indirect impacts.
- 3.49. Where development is proposed it is important to identify and define the setting of the heritage asset and to assess how development might impact upon this resource. Setting often extends beyond the property boundary, or 'curtilage', of an individual historic asset into a broader landscape context. Less tangible elements can also be important in understanding the setting. These may include function, sensory perceptions or the historical, artistic, literary and scenic associations of places or landscapes. In the light of this guidance, development proposals should seek to avoid or mitigate detrimental impacts on the settings of historic assets.

## Site Visit

- 3.50. A walkover survey was conducted at the Application Site on the 24<sup>th</sup> and 25<sup>th</sup> January 2022. The primary aim of the survey was to identify any potential archaeological or historical features within the Application Site that are not recorded. The land and fields within the Application Site were documented photographically along with any possible features identified. The results of this survey also considered available information on the known designated and non-designated sites within and close to the Application Site. Possible views and intervisibility with surrounding heritage assets were therefore also considered during the visit.

## Assessment Limitations

- 3.51. The consulted sources contain records of known archaeological and historic features. The record is not an exhaustive record of all surviving historic environment features and does not preclude the possible existence of archaeological remains of significance within the study zone, which are at present unknown or have been added to the records recently. It was assumed that official data provided by public bodies was accurate and up-to-date.
- 3.52. Views and effects were carefully assessed, but restrictions due to accessibility because of private land ownership or issues regarding Health and Safety may have limited assessment. However, no significant issues were encountered during the walkover survey.

## BASELINE CHARACTERISATION

3.53. The following section outlines the historical and archaeological background within the extent of the study zones and the local area. This provides a clear depiction of the context and significance of the heritage assets that could potentially be impacted by the Proposed Development. The report outlines an assessment of the direct and indirect impacts of the Proposed Development and proposed mitigation measures. The potential for disturbing any remains within the footprint of the Proposed Development has been assessed and recommendations produced for any further investigative work.

### Archaeological Period Classifications

3.54. The period classifications below provide chronological context for the archaeological assets which are discussed as part of this report.

- Mesolithic (10,000 – 4,000BC)
- Neolithic (4,000 – 2,500BC)
- Bronze Age (2,500 - 700BC)
- Iron Age (700BC – AD43)
- Roman (AD43 – AD450)
- Early Medieval (AD450 - AD1066)
- Medieval (AD1066 - AD1540)
- Post Medieval & Modern (AD1540 onwards)

### Archaeological and Cultural Heritage Assets

3.55. Both designated and non-designated heritage assets have been identified within the relevant study zones, and are considered along with the results of previous archaeological work, the site visit and map regression analysis, in order to assess the archaeological potential within the Application Site. These results inform part of the direct impacts assessment. Designated heritage assets are also considered for indirect impacts resulting from the Proposed Development.

3.56. The full list of designated heritage assets identified within their respective study zones is presented within **Table 2: Appendix 3B**. A total of eight scheduled monuments, one historic garden and designed landscape and one historic battlefield were identified within the 5km study zone (**Figure 3.1: Appendix 3A**), while 34 Listed Buildings (including four Grade I, two

Grade II\* and 28 Grade II) and three Conservation Areas were identified within the 2km study zone (**Figure 3.1: Appendix 3A**).

- 3.57. In addition to the above, 144 sites within the Nottinghamshire HER were also identified within a 1km study area, including 78 point features and 66 polygon features (**Figure 3.2: Appendix 3A**). The full list of these features is presented within **Table 3: Appendix 3B**. Nottinghamshire HER uses a monument/element structure where many sites have two entries associated with them, one describing the evidence of a site ('L' references) and one describing what they represent ('M' references). As such, some sites have more than one entry within the assets table and some labelling overlap on the maps is common for sites within the HER.
- 3.58. The Application Site itself does not contain any designated heritage assets, but a total of seven non-designated entries within the Nottinghamshire HER, representing five separate sites, lie inside this boundary. These are:
- NB05 – 'Enclosure at Thoroton' (HER L10764) – cropmark remains identified from National Mapping Programme Data. This site may also be considered part of the below enclosure complex (HER L1502);
  - NB15 / NB88 – 'Enclosure Complex, Thoroton' (HER L1502) – cropmark remains identified from Pickering aerial imagery and National Mapping Programme Data, as well as a 'personal comment' from 1974. The HER entry states: *"5 small enclosures, 2 pairs, and a fifth which may be part of a pair, and some linear features, W of the Thoroton – Shelton road. The single enclosure has an entrance. Pickering 70 shows another pair of enclosures, and another very doubtful enclosure to the W. In NE corner of the field to the S, a possible ring ditch. This field is heavily pitted and might have other features in it. The site is level arable land, to the N of the bisecting hedgerow under dense uncut barley and weeds. The S part has been cleared of crop but nothing of interest was seen."*
  - NB16 – 'IA Sherds, Thoroton' (HER L1503) – Approximate findspot for Iron Age pottery sherds, recorded adjacent to the NB15/NB88 enclosure complex. The HER entry states: *"3 IA sherds found whilst walking field with cropmark L1502. Not related to it. Dark black gritty fabric. One sherd with scored decoration. Flat land near ditch draining to Back Dyke."*
  - NB17 – 'Small Flint Scatter, Thoroton' (HER L1504) – Approximate findspot for flint scatter, recording in the HER entry as: *"A small flint scatter, discovered whilst walking cropmark L1502. Probably unrelated to the cropmark. 53 implements plus waste material. 12 blades, high proportion of scrapers, including 2 flat cores with scraping edges worked on them. 4 borers or piercers. 4 cores. Approx 4 Ha, grid ref centred."*



*Located on the E slope below the ridge between the River Smite and Red Gutter. It probably extends onto fields to W and S."*

- NB32 / NB92 – ‘Pit Alignment, Trackway & Other Features, Hawksworth’ (HER L1738) – cropmark remains identified from Pickering aerial imagery and National Mapping Programme Data. The HER entry states: *"Pit alignment? ditched trackway. Other cropmarks."*
- 3.59. In consideration of the above, the Application Site appears to contain potential for significant sub-surface remains associated with the prehistoric period. This potential is reinforced by a number of further prehistoric records within the local HER data, although no nearby scheduled monuments are ascribed to this period, with the closest being the ‘timber circle 430m north east of Stoke Fields Farm’ (NA08) located c. 4.65km to the north of the Application Site.
- 3.60. The Romano-British period is less well represented within the local HER data, but there are nonetheless several records near to the Application Site which denote Roman pottery scatters (NB36, NB48, NB56 & NB58), as well as a scheduled monument denoting a Romano-British villa (NA07) c. 3.4km to the west. Combined with the presence of the Fosse Way Roman Road within the wider landscape to the west and northwest, the region contains some degree of evidence for Roman period occupation.
- 3.61. The majority of scheduled monuments identified within the 5km study area are associated with the medieval period, while a number of further records within both the local HER and listed buildings database are similarly ascribed to this period. This includes churches, moats, dovecotes, deserted medieval settlements, motte castles and various other structures and remains. These records represent the medieval fabric of the region and particularly the villages in the landscape surrounding the Application Site. Thoroton, Hawksworth, Sibthorpe and Orston each appear in the 1086 Domesday Book and have ecclesiastical architecture dating to the medieval periods.
- 3.62. Most sites within the local HER and listed buildings database relate to the post-medieval and modern periods. These sites illustrate the predominant land uses of the landscape over the last few hundred years and include residences, agricultural farmsteads and land use features, and various types of industrial activity. No post-medieval features are recorded inside the Application Site, but the land is assumed to have been in relatively consistent agricultural usage during this period.

## Local Archaeological Fieldwork / Previous Excavations

- 3.63. A search of archaeological events within the HER data was undertaken within 1km of the Application Site boundary. No such events are recorded within the site boundary itself, although a total of 14 events are present within the 1km study area, including 12 fieldwork/assessment events and two unprocessed grey literature entries. These include:

- ENT1359 – ‘Field observation at Sibthorpe by Samuels’;
- ENT1363 – ‘Casual find at Glebe Farm, Hawksworth’ (stone axehead);
- ENT1364 – ‘Casual find at Thoroton’ (flint scraper);
- ENT1365 – ‘Casual find at Thoroton’ (worked flint flakes);
- ENT1374 – ‘Field observation at Thoroton by Seaman’;
- ENT2876 – ‘Casual find from Hawksworth’ (Anglo-Saxon cruciform brooch);
- ENT3122 – ‘Cartographic survey of Sibthorpe by Senior’;
- ENT3125 – ‘Fieldwalking survey, Sibthorpe’;
- ENT3131 – ‘Field observation at St Mary & All Saints Church’;
- ENT3186 – ‘Field walking at Thoroton’;
- ENT3203 – ‘Metal detecting, Thoroton’;
- ENT4606 – ‘Drawn, photographic and timber sampling survey of the bellframe at St Mary and All Saints' Church Hawksworth’;
- 1054702/1054901 – ‘An archaeological watching brief was maintained on excavations for a sewage works and associated pipeline. Two undated wall bases were recorded, one of which had associated medieval and Saxo-Norman finds. Medieval ridge and furrow were also recorded.’

3.64. The above HER events within the 1km study area have therefore resulted in subsequent monument entries being added to the Nottinghamshire HER, and are therefore incorporated into the scope of the HER monuments.

## Map Regression Analysis

3.65. **Figure 3.3: Appendix 3A** contains the 1820 Henry Stevens map of the Application Site, while **Figures 3.4 & 3.5: Appendix 3A** contain the 1883 and 1921 OS historic maps of the Application Site respectively. These maps show the progression of land use and field boundaries in the area, and can highlight potential areas of archaeological interest that may have been lost in the subsequent years.

3.66. The 1820 Henry Stevens map shows that the site was largely within agricultural usage, divided into fields of different shapes and sizes. A footpath is depicted running through the site in an approximate west-southwest to east-northeast direction, connecting the village of Hawksworth to the road junction at the northeast corner of the Application Site. It is noted

that this footpath intersects with a group of geophysical anomalies (see **Illus 12 – 14: Appendix 3D**) adjacent to a probable crossing point of the watercourse between Fields 4 and 5, which is indicative of a possible settlement at this location within the eastern extent of Field 4 (**Figure 3 of Volume 2: Planning Application Drawings**). However, as no structures are depicted here on the 1820 map any settlement here would have predated this time.

- 3.67. Both the 1883 and 1921 OS maps show that land within the Application Site remained in consistent agricultural usage, but its internal boundaries appear to have been altered in the mid-19th century to create a much larger number of fields, which are also more regular in shape and size. Other than this there are no notable changes and the watercourses within the site match those depicted on the 1820 map, one of which is labelled ‘The Gutter’ on the 1921 map. Similarly, the footpath running through the Application Site is depicted along the same trajectory and crosses the watercourse between Fields 4 and 5 at the same point. The northeastern section of this footpath, within Field 5, appear to have been ‘straightened’ at this point, but as the geophysical survey shows a curvilinear feature at this point it is assumed that the straight depiction on the map is either an oversimplification of the route or a sign that physical remains of the footpath were diminished by this point. To this end, it is also noted that the trajectory of this section of the footpath within Field 5 was altered further on the 1921 OS map, where it was changed to align with the existing field boundary here. It is this latest route that currently forms the present day bridleway within Field 5.

## Aerial Photography

- 3.68. Since the depiction of the Application Site on OSI historic mapping, a number of internal field boundaries have been removed in order to increase their size and make them more regular in shape, in order to facilitate their agricultural usage. In addition, several belts of trees have since been implemented at points within and adjacent to Fields 3, 6, 8 and 9. There are no visible signs of the original footpath depicted on historic mapping, but a worn trail at the modern bridleway trajectory through Field 5 is discernible on aerial imagery. Other than the existing HER sites identified from the National Mapping Programme, no hitherto-unknown clear archaeological features or cropmarks of archaeological potential have been identified from a review of modern aerial photography on Google Earth, Bing Maps, World Imagery Wayback and ArcGIS Pro global mapping.
- 3.69. Several historical aerial photographs of fields within the Application Site were identified from the consulted sources, including the National Collection of Aerial Photography (NCAP), Cambridge University Collection of Aerial Photography (CUCAP) and the Britain from Above (BfA) databases. This included two 1984 images of the western boundary<sup>1415</sup> and several

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<sup>14</sup> <https://www.cambridgeairphotos.com/location/rc8gl145/>

<sup>15</sup> <https://www.cambridgeairphotos.com/location/rc8gl146/>

images of fields inside the site from 1992, 1993 and 2000<sup>161718</sup>. These images are not currently digitised or accessible so could not be checked, but a review of Google Earth aerial imagery from the late 1990s onwards confirms that no notable site changes are discernible and no further cropmarks of archaeological potential are visible. As such, other than the Pickering aerial photography that identified the HER areas inside the site boundary, no historical aerial imagery reveals any other areas of archaeological potential.

## Lidar Data

- 3.70. **Figure 3.6: Appendix 3A** contains the 1m DTM Lidar data of the Application Site. This data was reviewed in order to identify the potential for hitherto-unknown archaeological features as well as identify the possible extents of known features.
- 3.71. No clear features of archaeological potential are discernible within the lidar data and most visible features are derived from internal field boundaries and natural characteristics. However, some faint linear patterns are visible within Fields 5 and 6. These patterns do not coincide with the areas defined by the HER sites inside the site or with any features depicted on the above historic mapping, but may indicate former field systems that predate 19<sup>th</sup> century mapping.

## Site Visit

- 3.72. An archaeological walkover survey of the Application Site was conducted on Monday 24<sup>th</sup> and Tuesday 25<sup>th</sup> January 2022 by Tristan Cousins of York Archaeology. The survey was conducted on a larger site boundary than the current iteration, but all fields within the Application Site were included within the survey. The full report and photographic survey are contained within **Appendix 3C** attached to this assessment but the key findings (with field numbers adjusted to align with **Figure 3 of Volume 2: Planning Application Drawings**) are summarised below.

## Introduction

*Most of the site consisted of either ploughed field or young, low crop unlikely to conceal any surviving above ground archaeological features but there were occasional small wooded copses and strips of denser woodland where the ground was more obscure/inaccessible. Electricity pylons extend north-east to south-west across the approximate centre of the Site, through fields 5, 6, 8 and 9.*

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<sup>16</sup> <https://ncap.org.uk/frame/16-1-2-682-24>

<sup>17</sup> <https://ncap.org.uk/frame/23-1-2-31-10>

<sup>18</sup> <https://ncap.org.uk/frame/16-1-2-549-92>

## Fields 1 & 2

*There are no non-designated assets recorded within this area, and no archaeological remains were observed with the exception of moderate sherds of post-medieval to modern pottery. This was principally comprised of white slip wares and coarse earthen wares and consistent with a midden scatter.*

## Fields 3 & 4

*The Nottinghamshire HER lists a non-designated heritage asset within this area [L1738] consisting of a purported pit-alignment and trackway identified via aerial photography. These were mainly concentrated to the south and centre of the site (Plate 7). No discernible remains pertaining to this asset were observable, but this does not preclude the possibility that remains survive below the surface. No other archaeological finds, features or deposits were recorded.*

## Field 5

*Occasional post-medieval to modern pottery was observed on the surface, as well as CBM fragments. There were no non-designated assets recorded in this area by the Nottinghamshire HER, although aerial photography suggesting occupational activity is held for the adjacent field [6] to the south; however no features were observed during the inspection (Plate 10).*

## Field 6

*The Nottinghamshire HER holds records of three non-designated assets within the area of Field 4, consisting of an Iron Age pottery scatter [L1503] and features relating to a probable enclosure complex [L10764/L1502]. The latter were recorded by aerial photography of cropmarks. These features could not be ascertained during the inspection, but this does not preclude their existence below the surface. Consistent with other fields in the PDA, only post-medieval and later pottery sherds were observed during the inspection.*

## Field 7

*The ground was turned over but did not have a growing crop on the surface. Immediately opposite, off Cliffhill Lane, a double linear feature had been recorded via aerial photography [L1505], which partially intrudes into the south-east of the field. This could not be observed during the inspection but sub-surface remains may survive in this part of the field (Plates 14 and 15).*

## Field 8

*No significant archaeological finds, features or deposits were observed during the site inspection in this area (Plates 16 and 17).*

## Field 9

*Situated immediately to the east of Field 6, this area formed a narrow rectangular field aligned approximately north to south along Cliffhill Lane. Hedgerows separated this area from Field 5 to the north, and Field 9 to the south; the latter also divided by a stream. The thin strip of woodland noted above was to the west, separating this area from Field 6.*

## Summary

*No archaeological features were noted on the surface during the site inspection. Pottery on the surface of the plough soil was post-medieval to modern in date.*

*The results presented suggest that views to or from the Site and designated assets within the Study Area are effectively screened by the topography and hedgerow/tree lined field boundaries and areas of woodland. Additionally, the majority of the assets are contained within village cores where they are surrounded by other buildings. The possible exception is the upper floors of Hawksworth Manor, from which at least some part of the development may be perceived, although the grounds themselves have extensive floral screening.*

## Geophysical Survey

- 3.73. A magnetometry survey of the Application Site was conducted between March 14<sup>th</sup> and March 23<sup>rd</sup> 2022 by Headland Archaeology (UK) Ltd. As with the walkover survey, the geophysical survey was conducted on a larger site boundary than the current iteration, but all fields within the Application Site were included within the survey area. Areas containing anomalies were used as part of the iterative design process in order to help avoid potential impacts upon sub-surface remains where possible. The full report is contained within **Appendix 3D** attached to this assessment but the key findings (with field numbers adjusted to align with **Figure 3 of Volume 2: Planning Application Drawings**) are summarised below.

*“A plethora of anomalies interpreted as possible or probable archaeological potential have been identified across the PDA at two locations. To aid description these clusters of anomalies have been grouped into main areas of archaeological activity (AAA1 and AAA2).*

*AAA1 covers a much wider area than AAA2. It comprises two major component parts, possibly of different period. The first part comprises a relatively small area of sub-divided enclosures, indicative of possible occupational activity on the eastern edge of the former course of a stream whose course now forms the eastern boundary of Field 4.*

*[...]*

*Archaeological activity (cropmarks interpreted as enclosures, trackways, and other features) has been previously recorded on the Nottinghamshire HER at both locations although the survey has provided significantly greater detail on the complexity and extent of the archaeological remains.*

[...]

*Overall, the extent of the two major areas of archaeological activity appears to be restricted to the slightly higher areas of ground situated on the river terrace or head superficial deposits bordering the current and former courses of tributary of Back Dyke. Where there are no superficial deposits, or the bedrock is overlain by alluvium there are either no recorded anomalies or they are very low magnitude and difficult to discern. This raises the possibility that the archaeological resource may be more extensive than the survey has revealed in those areas where the prevailing pedological and geological conditions are not as favourable for detection.”*

- 3.74. Subsequent to the geophysical survey, the field containing the group of anomalies AAA2 has been removed from the proposed development site and so no longer lies within the boundary. Nonetheless, anomalies within AAA1 indicate potentially significant sub-surface archaeology within the Application Site, with potential for further undetected features due to the presence of river deposits and their masking effects.

## ASSESSMENT OF DIRECT EFFECTS

### Known Archaeological and Heritage Assets

- 3.75. There are no designated heritage assets located within or adjacent to the Application Site that could be physically impacted by the Proposed Development (see **Figure 3.1: Appendix 3A**). As such, no direct effects will occur on designated assets.
- 3.76. A total of seven non-designated entries within the Nottinghamshire HER, representing five separate sites, lie inside this boundary. These sites include two distinct areas denoting cropmarks of archaeological potential (see **Figure 3.2: Appendix 3A**), specifically comprising an enclosure complex (NB15 & NB88) and group of pits, trackway and other features (NB32 & NB92). As the development design includes these two defined areas, they are at risk of direct impacts from the construction of the proposed solar farm. The two HER sites lying outside these defined areas include findspots for Iron Age pottery sherds (NB16) and flint scatter (NB17) and are not considered to have any distinct surviving remains that could be impacted.
- 3.77. The site walkover survey did not identify the presence of any standing remains within the two HER areas, indicating that their known extents contain entirely sub-surface features, some of which are discernible on the geophysical survey data (**Appendix 3D**). Similarly, the geophysical data suggests that some of the associated feature may extend beyond their current HER notations, such as the trackway visible on historic mapping, which appears to connect to further anomalies to the northeast of the HER area. As the HER features have not yet been tested through a programme of trenching, the magnitude of direct effects upon the HER areas cannot be ascertained. However, direct impacts upon these defined areas are nonetheless inevitable and may potentially result in **high/major direct effects in the absence of any mitigation measures**.

### Archaeological Potential

- 3.78. Due to the presence of several HER sites within the Application Site, in particular denoting cropmarks likely to represent archaeological features, much of the land is expected to possess a relatively high archaeological potential. In particular its potential for prehistoric settlement remains is reinforced by a number of prehistoric records both within and near to the Application Site. Similarly, the presence of several nearby findspots for Romano-British pottery and its general proximity to the Fosse Way Roman Road indicates some potential for remains from the Romano-British period.
- 3.79. In addition to the above, a number of churches, moats, dovecotes, deserted medieval settlements, motte castles and various other structures and remains are recorded within the surrounding landscape. These records represent the medieval fabric of the region and particularly the villages in the areas surrounding the Application Site (Thoroton, Hawksworth,



Sibthorpe and Orston). The location of the Application Site between medieval villages suggests that land was likely farmed at this time and may have some limited potential for remains from this period. Similarly, no post-medieval features are recorded inside the Application Site, but the land is assumed to have been in relatively consistent agricultural usage during this period and may have some limited potential for post-medieval remains.

- 3.80. While the geophysical survey undertaken at the Application Site (**Appendix 3D**) has identified the presence of numerous anomalies likely to be of archaeological interest, it is also noted that alluvium deposits within its fields may have the potential to mask sub-surface features at certain locations. As such, the potential for archaeological features may possibly extend beyond what is visible on the geophysical survey data.
- 3.81. As mentioned previously, anomalies from the geophysical survey have not yet been tested through a programme of trenching and so the magnitude of direct effects upon possible features cannot be ascertained. Nonetheless, the Proposed Development is considered likely to result in **high/major direct effects to sub-surface archaeological remains within the Application Site in the absence of any mitigation measures**. The predicted likelihood of such impacts can also be informed by considering the ground disturbance of the construction methods that will be used, as below.

## Ground Disturbance from Construction Methods

- 3.82. Different levels of intrusion and disturbance are anticipated for different construction elements. As such, the potential for impacting upon sub-surface remains is dependent on the type and scale of each construction element. The following information provides quantitative detail on each aspect of construction that is expected to have potential direct impacts upon archaeology.
- 3.83. All technical details are based on the best information available and are indicative only. They may change due to situations such as ground conditions, micro-siting or changes in technology. Individual impacts from each element of construction are estimates based on information available at this stage, and are assigned based on their resulting ground disturbance relative to the overall Application Site area, as well as the archaeological potential of the land.
- 3.84. Construction involving topsoil stripping has, in general, a lower potential for impacting upon sub-surface remains below the archaeological horizon, but retains a similar potential for encountering archaeological remains as construction involving deeper excavation work.

### Excavation works

#### *Substation*

- 3.85. A single substation compound is proposed within Field 8. This substation compound will require c. **4,656.42m<sup>2</sup>** of ground disturbance.

### *Inverter Substations*

- 3.86. There will be 28 inverter substations positioned alongside the access track through the Application Site. Each station will measure approximately 16m by 6m, requiring an area of ground disturbance of 96m<sup>2</sup> each and **2,688m<sup>2</sup>** in total.
- 3.87. Each of these inverter stations will require associated hardstanding areas. A total of 14 hardstanding areas, each measuring 16m by 16m, will result in overall ground disturbance of **3,584m<sup>2</sup>**.

### *Cable Trenches*

- 3.88. Depending on the functionality of the cable trenches, they will measure up to 1m wide and their total ground disturbance area is expected to be c. **4,995m<sup>2</sup>**. The trenches will be excavated to a depth of approximately 1m and will be backfilled after the cables have been laid.

### *CCTV Bases*

- 3.89. There will be approximately 98 CCTV cameras positioned along the perimeter fence. Each base will require a concrete foundation of 0.75m by 0.75m which will therefore have an area of disturbance of c. 0.56m<sup>2</sup> each. This will result in a total ground disturbance of **54.88m<sup>2</sup>** of the Application Site area.

### *Spare Parts Containers*

- 3.90. There will be two spare parts containers implemented as part of the Proposed Development. Each container will measure c. 12.19m by 2.44m and requiring an area of ground disturbance of **59.48m<sup>2</sup>** in total.

## **Topsoil stripping**

### *Access and Site Tracks*

- 3.91. The access and site tracks will measure c. 3,326m in length and have an average width of c. 4m. A total ground disturbance of **14,985m<sup>2</sup>** is therefore anticipated. The access tracks will be constructed by stripping the topsoil and laying down a geotextile/geogrid. Crushed rock will then be layered and compacted on to the geotextile/geogrid in order to establish the access and site tracks.

### *Temporary Compound Areas*

- 3.92. Two temporary compound areas will be implemented in Fields 8 and 9, each measuring c. 60m by 50m in a rectangular shape, resulting in a total ground disturbance area of c. **6,000m<sup>2</sup>**. These areas will be constructed by the stripping of topsoil and subsequent layering of crushed stone similar to the process for the site tracks.

## Piling

### *Solar Panels*

- 3.93. Solar panels will be mounted on galvanised metal mounting frames which will be supported by posts piled into the ground at a depth of up to 1 – 2m. The direct impacts from the piling are considered to be minimal due to the small total area covered, with each pile having a diameter of 0.1m and an area of disturbance of 0.008m<sup>2</sup>. The number of pile-driven poles is expected to be 22,708, resulting in a total cumulative area of ground disturbance of c. **181.66m<sup>2</sup>**.

### *Perimeter Fence*

- 3.94. Poles will also be inserted into the ground to support the perimeter fence. The total length of fence will be 7,451m with approximately 2,484 fence posts (proposed as one every 3m). Each fence post will disturb c. 0.03m<sup>2</sup> of ground, resulting in a total area of ground disturbed by the perimeter fence of **74.52m<sup>2</sup>** of the Application Site area.

## Vehicle Movements

- 3.95. Vehicle movements are expected to be largely accommodated by the internal site tracks. Where off-road driving is required (e.g., placement or removal of piling), there is potential for ground compression or rutting in adverse/wet conditions. However, this is not expected to have any notable effect on sub-surface archaeology and the current agricultural use of the Application Site indicates that the ground is already subject to frequent movement of agricultural machinery.

### *Piling*

- 3.96. Piling is anticipated to be done by a c. 2.95 tonne pile driver with rubber tracks. The relatively low weight of the vehicle (compared to standard agricultural vehicles which are currently on use on the Application Site) and the rubber tracks (as opposed to tyres) indicate that its activity is not expected to have any impact upon potential sub-surface remains.
- 3.97. A standard agricultural vehicle will also be used to move panels on areas without an access track where this is required. This vehicle will be of similar weight and specifications as other agricultural vehicles which are commonly used on the land.

### *Excavation and Topsoil Stripping*

- 3.98. A standard 360° excavator will be used on site to excavate material. Movement of this vehicle will be limited; movement up once during excavation and down once during backfilling. The excavator will be on tracks and will largely move on areas due to be subsequently stripped of topsoil.

### Summary of Ground Disturbance

- 3.99. Overall, the proposed footprint constitutes a relatively small percentage of the total area of the Application Site (94.24ha):
- 37,022.78m<sup>2</sup> for infrastructure (c. 3.93% of the Application Site area); and
  - 442.74m<sup>2</sup> for piling (c. 0.05% of the Application Site area).
- 3.100. The total ground disturbance area resulting from the Proposed Development is therefore **37,465.52m<sup>2</sup>** or only c. **3.98%** of the Application Site area. As such, the potential for encountering or disturbing below-ground archaeology within the Application Site during the construction phase is considered to be relatively low compared to other types of development.

## ASSESSMENT OF INDIRECT EFFECTS

- 3.101. The calculated ZTV was overlain onto the heritage assets map in order to identify those which have a greater potential to be visually impacted by the Proposed Development. The ZTV does not account for intervening hedgerows, trees or built structures, which will limit the intervisibility between the building/monument and the Proposed Development.
- 3.102. Within their respective study zones, a total of six scheduled monuments, one historic garden and designed landscape, one historic battlefield, 28 listed buildings (including three grade I, two grade II\* and 23 grade II) and three conservation areas are located within the ZTV. These assets are therefore assessed for indirect impacts below. Where non-designated features within the HER are considered to have substantial standing remains and/or sensitive settings, these will also be assessed for indirect effects.

### Scheduled Monuments

#### Two Moats and Five Fishponds at Top Green (NA01) and Medieval Village including Monastic College, Chapel, Moat, Fishponds, Dovecote and Open Field System 200m South of Manor Farm (NA02)

- 3.103. The moats and fishponds at Top Green and medieval village/fabric near Manor Farm are two scheduled monuments within Sibthorpe, located c. 1.15km and 1.2km to the north of the Application Site respectively. They are described as distinct elements forming an overall medieval village within the Historic England database:

*“The site at Top Green is a good example of a double moat with attached fishponds. It has suffered only minimal disturbance since it was abandoned and so remains from both the medieval and post-medieval periods will survive well and extensively.*

*The monument includes a group of two moats and five fishponds at Top Green. The two moats are adjacent to each other and lie at the south end of the site. Each consists of a platform or island surrounded by a 12m wide ditch which varies in depth between 1m and 2m, the deepest area being to the north-east where the moats connect with the fishpond complex. The westernmost island is the larger, measuring c.30m on each side, and a low bank extending round the north and west sides indicates that it was revetted with a wall. The eastern island measures c.30m west to east by c.25m north to south and does not appear to have been walled. The two moats share a central dividing ditch and it is probable that the platforms were connected by a bridge somewhere along this division.”<sup>19</sup> (NA01)*

*“The earthwork and standing remains of the deserted areas of Sibthorpe medieval village are particularly well preserved and retain significant archaeological deposits. The diversity of the archaeological remains compliment the extensive documentary evidence and together provide a rare historical sequence for the village and an insight into its wealth and importance. Taken*

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<sup>19</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1009154>

*as a whole Sibthorpe village will add greatly to our knowledge and understanding of the development of medieval settlement in the area.*

[...]

*The chapel took the form of a northern aisle to the church, and fabric in the northern wall of the existing church does show an original arcade which is now blocked. Earthworks to the north of the church indicate the survival of the remains of the chapel beneath the ground surface.*

[...]

*The college of Sibthorpe and its lands was subsequently granted by Henry VIII in 1546 to Richard Walley, whose widow married Edward Burnell. It is documented that Burnell had a large house at Sibthorpe but by 1790 nothing of the house survived except a large dovecote and the field name 'the park'. Today the dovecote is the most prominent feature of the village.*

[...]

*A series of rectangular platforms about the trackway on the east side and mark the positions of medieval houses. The platforms are aligned east to west and are defined by low banks. The banks are created by buried remains of walls. To the west of the trackway and approximately 30m north of Car Dyke is the dovecote (Listed Grade I). The circular stone structure measures 10m in diameter at the base and tapers in towards the top and has a conical, tiled roof. It is built of limestone with single courses of brick and tile inserted at random.*

[...]

*South west of the dovecote are a series of six fishponds. Two pairs of rectangular ponds aligned east to west and measuring up to 38m in length and 12m wide are divided by two smaller rectangular ponds aligned north to south. The ponds survive to a depth of 0.75m and are shown clearly on the 17th century map. The ponds are linked by shallow channels with outlet channels leading to Car Dyke. Further earthworks can be seen in the field to the east of the church.*

[...]

*To the south west of the fishponds, west of Church Lane and just south of Car Dyke, is a pair of moated enclosures. The ditches were infilled in 1967 and have been ploughed ever since but still show as low earthworks on the ground and even more clearly on recent aerial photographs.*

[...]

*To the north of Car Dyke and to the west of Church Lane are the well preserved remains of part of the open field system. The surviving remains are visible as parts of four medieval furlongs (groups of lands or cultivation strips) marked by headlands. The cultivation strips collectively form ridge and furrow. The ridge and furrow is curved in the shape of an elongated reverse 'S'.*

*This shape developed over the years from the need to swing the plough team out at the end of a strip to enable it to turn and to continue ploughing in the opposite direction. In the south east corner of the same field, adjacent to Church Lane and north of Car Dyke, are at least two rectangular platforms defined by low banks. These mark the position of medieval buildings and may be the site of a mill.”<sup>20</sup> (NA02)*

- 3.104. The monuments benefit from their largely undeveloped settings in the hinterland of Sibthorpe, with the exception of the northeastern section of NA02, which occupies the medieval core of the village itself. The setting also derives a group value from the various elements of medieval fabric present through the village and surrounding fields, including the Grade I listed church which is not included within this scheduling. As such, while the monuments comprise only low-lying earthwork remains, their settings are potentially sensitive to any visual impacts that may occur from the Proposed Development.
- 3.105. Views and intervisibility between the two scheduled monuments and the Application Site were not identified to be possible in either direction during the site walkover survey (**Appendix 3C**), owing to intervening hedgerows and topography. In particular it is noted that NA01 is bound by thick hedgerow which will prevent the possibility of any views or intervisibility with the Proposed Development. Similarly, while NA02 covers a more extensive area and is less bound by thick hedgerow, the relatively low-lying nature of the proposal solar farm indicates that vegetation along intervening field boundaries and roads will be sufficient to screen most views. However, some limited views from areas within and around the scheduled monument extents cannot be ruled out for NA02 due to the uncertainty of this screening, with the dovecote being the most likely for intervisibility due to its structural remains, albeit no such intervisibility was identified during the walkover survey. Any such limited and partial views with the Proposed Development would not result in substantial harm to the monument or its setting. Indirect effects are therefore anticipated to be **Low** for NA02 and **Negligible** for NA01.

### **Dovecote 240m east of Home Farm (NA03)**

- 3.106. The dovecote near Home Farm is a scheduled monument located c. 2.75km to the northwest of the Application Site. It is recorded within the Historic England database as:

*“The standing and buried remains of the dovecote 240m east of Home Farm provide a rare and well-preserved example of both a dovecote and the method of mud construction. The interior, particularly the nesting boxes, the old ground surface beneath the dovecote and any sub surface features will all retain important archaeological, ecofactual and environmental evidence.”<sup>21</sup>*

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<sup>20</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1017780>

<sup>21</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1020173>

- 3.107. The dovecote occupies space within two adjoining residential gardens, benefitting somewhat from a tightly enclosed setting bound by mature trees on its southern sides. However, the setting beyond this comprises numerous modern residences along Main Street within Flintham, which does not contribute to the heritage value of the dovecote. The mature trees enveloping the curtilage of the dovecote also prevents any views and intervisibility with the wider landscape, including the Application Site. As such, no views will be possible with the Proposed Development and indirect effects are anticipated to be **Negligible**.

### **Kilvington Medieval Settlement and Part of an Open Field System, 400m southwest of Staunton Hall (NA05)**

- 3.108. The Kilvington medieval settlement and field system are a scheduled monument located c. 3.35km to the east of the Application Site. It is recorded within the Historic England database as:

*“The monument survives as a series of earthwork and buried remains. On the top of the terrace, close to the south western edge of the monument, a series of low banks define at least two sub-rectangular features. These are interpreted as the site of medieval buildings with the low banks representing the buried remains of walls. The southernmost building appears from the earthworks and aerial photographs to be apsidal at its eastern end. The banks survive to a height of approximately 0.5m.*

*To the south of the apsidal building and running roughly north east to south west across the monument, is a wide gully. This survives to a depth of approximately 0.75m and is interpreted as a sunken track. Close to the south western edge of the monument the trackway opens out and appears to divide, with one section curving to the west towards St Mary's Church and the other continuing to the south west parallel to the existing field boundary.*

[...]

*These are more irregular and difficult to define on the ground and suggest that the area has been affected by post-medieval quarrying or flooding. Included in this area is a sub-circular mound standing to a height of approximately 1m which may be related to either water management works or quarrying activity.”<sup>22</sup>*

- 3.109. The setting of the monument comprises a single undeveloped field of unique shape on the eastern side of Main Street. The field retains a number of earthworks and its well-defined extent, bound largely by mature trees, provides a beneficial contribution to its heritage value. As such, while the monument comprises only low-lying earthwork remains, its setting can be considered potentially sensitive to any visual impacts from the Proposed Development.
- 3.110. The designated area was visited during the archaeological site inspection and it was identified that no views and intervisibility were possible between the monument area and the

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<sup>22</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1020647>



Application Site (see **Appendix 3C**). Similarly, most of the denoted area lies outside the calculated ZTV of the Proposed Development, with only sections of the northern and southern extents lying inside this area. As such, it is anticipated that screening effects from intervening vegetation will be sufficient to prevent any clear views. Limited intervisibility from along Main Street cannot be entirely ruled out, but any such views would be infrequent and largely screened, therefore not causing any notable harm to the setting of the scheduled monument at this distance. Indirect effects are therefore anticipated to be **Negligible**.

### **Minor Romano-British Villa, Moat and associated Medieval Manorial and Village Earthworks, including Six Fishponds (NA07)**

- 3.111. This Romano-British villa, moat and medieval earthwork remains form a scheduled monument located c. 3.7km to the west-southwest of the Application Site. It is recorded within the Historic England database as:

*“This monument at Car Colston is a complex multi-period site which includes the site of a minor Romano-British villa, a moat, six fishponds, ridge and furrow, a postmill mound, a leat, a boundary bank and ditch, part of the earthwork remains of the shrunken or shifted medieval village, a millpond and a hollow way. Additional village earthworks survive elsewhere in Car Colston but have not been included in the scheduling as they are separated from it by modern development. Not included, except where they encroach on the area of the scheduling, are a number of ditch-like features extending from the modern field boundary along the south-east side of the monument. It is not known precisely how these relate to the Roman and later remains but, as examples overlie part of the medieval ridge and furrow, it is assumed they are relatively recent in origin.”<sup>23</sup>*

- 3.112. The setting of the monument comprises a single field set back to the south of Tenman Lane in Car Colston. The field retains a number of earthworks and its undeveloped nature provides a beneficial contribution to its heritage value. However, this contribution is somewhat diminished by the presence of modern development around its boundaries, particularly the large agricultural buildings on its western boundary. As such, its setting may be considered partially sensitive to any visual impacts which occur on this field, but this sensitivity is low at the distance from the Proposed Development.
- 3.113. The designated area was visited during the archaeological site inspection and it was identified that no views and intervisibility were possible between the monument area and the Application Site. It is therefore anticipated that views and intervisibility will be entirely screened by vegetation along numerous intervening field boundaries and roads. As a result, indirect effects are anticipated to be **Negligible**.

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<sup>23</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1008215>

### Timber Circle 430m northeast of Stoke Fields Farm (NA08)

- 3.114. This timber circle near Stoke Fields Farm is a scheduled monument located c. 4.65km to the north of the Application Site. It is recorded within the Historic England database as:

*“The monument includes the buried remains of a timber circle situated 430m north east of Stoke Fields Farm. The site is visible from aerial photographs and shows as a sub-circular enclosure defined by two concentric rings of pits. The inner circle is made up of approximately 62 pits and measures up to 73m in diameter. It is difficult to determine the number of posts comprising the outer circle but it measures approximately 90m in diameter. An interruption in both circles of pits to the south of the monument is defined by two larger pits either side and is interpreted as an entrance. Another entrance is apparent in the north east segment of the circle. Several other pits within and beyond the circle to the east are an integral part of the monument.”<sup>24</sup>*

- 3.115. The setting of the monument comprises an agricultural field on the south side of Moor Lane, to the northeast of Elston. However, as the monument includes only sub-surface features and no standing remains, its primary importance is associated with this archaeological potential and does not derive any notable significance from this setting. As such, it is not considered to be sensitive to visual impacts from the Proposed Development. In addition, views and intervisibility with the Application Site are not expected to be possible at this distance due to intervening vegetation, topography and buildings. Indirect effects are therefore anticipated to be **Negligible**.

## Historic Parks and Gardens

### Flintham Hall (NA09)

- 3.116. Flintham Hall is a Grade II listed garden and designed landscape located c. 2.75km to the northwest of the Application Site. It is recorded within the Historic England database as:

*“An C18 landscape park with ornamental pleasure grounds and gardens, and an C18 walled garden set around an C18 hall, with C19 additions and a C19 conservatory.*

[...]

*The Fosse Way forms the west boundary, with Inholmes Road and Spring Lane in the village of Flintham forming the north and east boundaries respectively, while to the south the site gives onto agricultural land. The church of St Augustine and its vicarage abut the north-east boundary of the site, to the west of Inholmes Road. A public footpath which runs 210m south of the Hall passes through the site from east to west. The 30ha site is flat and is screened by*

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<sup>24</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1017745>

*trees from the roads on the north, east, and west boundaries, with a more open aspect to the south*<sup>25</sup>

- 3.117. The designed landscape benefits considerably from its retained parkland, ornamental gardens and overall character. Its setting is therefore considered to be sensitive to any visual impacts which may occur on its internal grounds, particularly those elements within its core area such as its principal building, associated gardens and range buildings.
- 3.118. Views and intervisibility with the Application Site were not identified to be possible during the site inspection (see **Appendix 3C**). It is expected that mature woodland bounding the outer edges of the parkland will prevent any views and intervisibility with the Proposed Development throughout the extent of the asset. As such, indirect effects are anticipated to be **Negligible**.

## Historic Battlefields

### Battle of Stoke (Field) 1487 (NA10)

- 3.119. The recorded area for the Battle of Stoke (Field) 1487 is designated as a historic battlefield with its closest point being located c. 4.4km to the north-northwest of the Application Site. It is recorded within the Historic England database as:

*“The Wars of the Roses were caused by the protracted struggle for power between the dynasties of the House of Lancaster (red rose) and the competing House of York (white rose).*

*Even after the death of King Richard III at the Battle of Bosworth in 1485, the grip of King Henry VII and the Tudor dynasty on the crown was not secure. In May 1487 a group of diehard Yorkists, led by the Earl of Lincoln, had Lambert Simnel declared King Edward VI in Dublin. Crossing from Ireland, Lincoln's 8,000 strong army marched south through Yorkshire into Nottinghamshire and crossed the Trent. The army of King Henry intercepted them near Newark.*

*The Yorkists attacked the royal vanguard before the rest of the army had formed up. Even so, the rebel force was beaten and the troops fled back towards the Trent. Tradition has the Red Gutter so named because of the bloodshed as the royal army pursued the rebels down to the river.*

*Stoke Field was the last pitched battle of the Wars of the Roses and the royal victory finally established King Henry VII and the Tudor dynasty.*

*The landscape in 1487 was one of open fields crossed by lanes and with few trees, much as it is today. The ford at Fiskerton where the rebels crossed has been lost to river improvement.”<sup>26</sup>*

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<sup>25</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1001080>

<sup>26</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1000036>

- 3.120. While the designated battlefield covers a relatively large area, only the southern part of the battlefield lies inside the 5km study area and the calculated ZTV of the Proposed Development. Most of this battlefield retains a similar character to that in 1487, comprising open fields across sloping ground on the south bank of the River Trent and to the southwest of East Stoke. The primary exception to this is the southwestern extent of the battlefield, which is now occupied by the airfield at RAF Syerston. The setting of the battlefield benefits from the retention of this landscape character, elements of which were conducive to the original battle occurring here. It is considered to be sensitive to any visual impacts which may alter the landscape character within the designated area.
- 3.121. Views and intervisibility with the Application Site were not identified to be possible during the site inspection (see **Appendix 3C**). It is expected that at this distance from the Proposed Development, screening effects from the large amount of intervening field boundaries, road, vegetation and buildings will prevent any views and intervisibility between the two areas. As such, indirect effects are anticipated to be **Negligible**.

## Listed Buildings

### Listed Buildings within Hawksworth (NA11 – 16)

- 3.122. A total of six listed buildings within Hawksworth lie within the calculated ZTV and are located c. 0.2 – 0.3km to the west and southwest of the Application Site. The listed buildings include:
- Hawksworth Manor and Adjoining Pigeoncote (Grade II);
  - Hawksworth Place and Adjoining Garden Walls (Grade II);
  - Church of St Mary and All Saints (Grade II\*);
  - Model Farm Buildings at Top Farm (Grade II);
  - Boundary Walls at Top Farm (Grade II); and
  - Yew Tree Farmhouse and Adjoining Garden Wall (Grade II).
- 3.123. The listed buildings are mostly situated within the centre of Hawksworth, representing its historic core. The exceptions to this are the grade II listed buildings at Hawksworth Manor/Place (NA11 & NA12), which lie to the east of the village. The assets all lie within the Hawksworth Conservation Area (NA45) and benefit from their proximity to one another as part of the historic fabric within Hawksworth. This is particularly the case for those occupying the core of the village (NA13 – 16), but the buildings at Hawksworth Manor/Place (NA11 & NA12) benefit from their own enclosed grounds set back from the village centre and containing their own associated range buildings and garden features. Each of the listed buildings within Hawksworth would therefore be considered to be potentially sensitive to visual impacts occurring on their settings, although this sensitivity is somewhat compromised by the inclusion of modern developments within the surrounding village.

- 3.124. Views and intervisibility with the Application Site were not identified to be possible for those within the village core (NA13 – 16) during the site inspection, with the built environs and vegetation in the village obscuring such views. However, the upper storeys of Hawksworth Manor/Place (NA11 & NA12) are expected to possess partial views of some of the Application Site (see **Appendix 3C**). These views were found to be already mitigated somewhat by the presence of intervening fields and topography. The closest field to the manor was removed from the design of the development to mitigate possible views within the village, but partial views and intervisibility with the upper storeys were nonetheless possible during the site visit at a distance. In addition, landscape viewpoints taken from the northern and southern extremities of the Hawksworth Conservation Area (NA45) indicate that partial views of the Proposed Development may be possible from these points, suggesting that intervisibility from third points may also be a possibility for NA11 and NA12 (see **Viewpoints 3 & 4, Figure 1.5: Landscape and Visual Impact Assessment**). Such intervisibility may also be possible for the listed buildings within the core of the village, but are expected to be infrequent and partial in nature, and are not expected to result in any additional impacts to the setting of any of the listed buildings. In addition, the woodland and vegetative planting proposed as part of the Landscape and Ecological Management Plan (see **Figure 1.12 of Technical Appendix 1**), including along the boundaries of the Application Site facing towards Hawksworth, would improve screening effects between the site and Hawksworth and will therefore notably reduce any potential for visual impacts for all assets within Hawksworth.
- 3.125. Overall, these views and intervisibility may have the potential for visual impacts to the setting of the Hawksworth Manor/Place, but are not expected to constitute substantial harm. With the implementation of proposed planting as part of the design, views are expected to be mostly prevented with each of the assets considered above. As such, indirect effects upon NA11 and NA12 are anticipated to be **Low**, while indirect effects upon NA13 – 16 are anticipated to be **Low to negligible**.

#### Listed Buildings within Thoroton (NA17 – 21)

- 3.126. A total of five listed buildings within Thoroton lie within the calculated ZTV and are located c. 0.25 – 0.55km to the south of the Application Site. The listed buildings include:
- Manor Farmhouse (Grade II);
  - Church of St Helena (Grade I);
  - Stable, Coach House, Blacksmith's Forge and Adjoining Wall (Grade II);
  - Thoroton Hall (Grade II); and
  - Thoroton Pigeoncote (Grade II).
- 3.127. The listed buildings are mostly situated along Cliffhill Lane, running through the centre of Thoroton village. The exception to this is the grade I Church of St Helena (NA18), which is set

back from the east side of this road, positioned along Church Lane. The grade II listed buildings benefit somewhat from their proximity to one another and their inclusion within the Thoroton Conservation Area (NA46), but as these assets are separated by modern residential buildings along Cliffhill Lane, their settings are not considered to be particularly sensitive to visual impacts occurring from outside their general proximities and outside Thoroton itself. However, as the Church of St Helena is positioned within its own grounds set back from the main road, it benefits considerably more from its own enclosed setting. As such, the grade I listed church is notably more sensitive to visual impacts which may occur from the Proposed Development, which is also reinforced by its grade I listing.

- 3.128. Views and intervisibility with the Application Site were not identified to be possible for those along Cliffhill Lane (NA17 & NA19 – 21) during the site inspection, with the built environs and vegetation within the village obscuring such views. Intervisibility from third points to the north of the conservation area may be possible (see **Viewpoint 1, Figure 1.4: Landscape and Visual Impact Assessment**) but will be infrequent and minor in magnitude. In addition, the woodland and vegetative planting proposed as part of the Landscape and Ecological Management Plan (see **Figure 1.12 of Technical Appendix 1**) would improve screening effects between the site and Thoroton.
- 3.129. Distant views of the church tower (NA18) were identified to be visible from points within the Application Site (see **Appendix 3C**). This was also confirmed from the landscape viewpoint taken from within Field 5 (**Viewpoints 6, Figure 1.6: Landscape and Visual Impact Assessment**), which shows the tower visible above the treelines. However, it is noted that the development design has since been altered to remove panels and infrastructure from the elevated section of the Application Site which contained these views, which somewhat reduces the potential impacts.
- 3.130. Overall, these views and intervisibility will result in visual impacts to the Church of St Helena, although these are not expected to constitute substantial harm. In consideration of the above, indirect effects upon the church NA18 are anticipated to be **Moderate to low**, while indirect effects upon NA17 and NA19 – 21 are anticipated to be **Low to negligible**.

#### Listed Buildings within Shelton (NA22 – 29)

- 3.131. A total of eight listed buildings within Shelton lie within the calculated ZTV and are located c. 1.35 – 1.5km to the northeast of the Application Site. The listed buildings include:
- The Manor House and Adjoining Courtyard Wall (Grade II);
  - Boundary Wall, Gate and Railing at The Manor House (Grade II);
  - Water Pump 12 Metres West of Manor Farmhouse (Grade II);
  - Manor Farmhouse with Adjoining Barn and Stable (Grade II);
  - Ice House at Manor Farmhouse (Grade II);

- Shelton Hall and Adjoining Dwellings the Stables 1 and 2 and the Ostlers (Grade II);
  - Boundary Wall at Church of St Mary (Grade II); and
  - Church Of St Mary (Grade II\*).
- 3.132. The listed buildings are situated within the southwestern extent of the village of Shelton, forming its historic core. The proximity of the assets to one another provides a group value to their shared setting within this historic core. The listed buildings are considered to be potentially sensitive to any visual impacts which may interfere with the settings of each asset or their visual relationships with one another.
- 3.133. Views and intervisibility with the Application Site were not identified to be possible for any of the listed buildings within Shelton during the site inspection (see **Appendix 3C**), which found that buildings and vegetation and buildings in the intervening area screened any possible views. As a result, no identifiable views or intervisibility are expected to be possible and indirect effects upon listed buildings within Shelton are anticipated to be **Negligible**.

#### Listed Buildings within Sibthorpe (NA30 – 31)

- 3.134. Two listed buildings within Sibthorpe within the calculated ZTV and are located c. 1.35km to the north of the Application Site and inside the designated area for the scheduled monument NA02. The listed buildings include:
- Pigeoncote (Grade I); and
  - Church of St Peter (Grade I).
- 3.135. The two structures represent standing medieval architecture present within the designated area of scheduled monument NA02 (the medieval settlement fabric of Sibthorpe). Potential indirect effects upon the pigeoncote have been previously assessed as part of scheduled monument NA02 and its overall group setting. The Church of St Peter lies within the extent of this scheduled monument and was considered as part of its setting, although the built fabric of the church itself is excluded from the scheduling. As a result, indirect effects upon these structures as listed buildings are expected to align with those experienced as part of the setting of the scheduled monument and are therefore anticipated to be **Low**.

#### Scarrington House (NA32 – 34)

- 3.136. Scarrington House contains a total of three listed buildings that lie within the calculated ZTV and are located c. 1.6 – 1.7km to the southwest of the Application Site. The listed buildings include:
- Scarrington House and Adjoining Farm Buildings with Boundary Wall and Pump (Grade II);

- Pigeoncote At Scarrington House (Grade II); and
- Pair Of Garden Pavilions at Scarrington House (Grade II).

3.137. The listed buildings each lie within the landscaped grounds associated with Scarrington House, which is set back to the northwest of Hawksworth Lane. The landscaped grounds include belts of trees which enclose the setting and provide a beneficial contribution to their heritage value. However, the same trees were found to prevent any views with the Application Site from being possible (see **Appendix 3C**), while intervisibility from points along Hawksworth Lane are similarly expected to be completely screened by hedgerow along this road. Indirect effects are therefore anticipated to be **Negligible** for all three listed buildings.

### Church of St Peter (NA35 – 38)

3.138. The Church of St Peter contains a total of four listed buildings that lie within the calculated ZTV and are located c. 1.65 – 1.90km to the east of the Application Site. The listed buildings include:

- Church Of St Peter (Grade II);
- Pair Of Headstones 10 Metres South of Nave East End at Church of St Peter (Grade II);
- Pair Of Headstones 10 Metres South of Chancel of Church of St Peter (Grade II); and
- Pair Of Headstones 7 Metres South of Chancel at Church of St Peter (Grade II).

3.139. The listed buildings are all located within the grounds of the Church of St Peter, in the western extent of Flawborough. The assets all contribute to the overall group setting of the church, which in turn is well-defined and enclosed by mature woodland on its west and south sides. Their setting is therefore potentially sensitive to any visual impacts which may occur upon the church grounds, but the woodland enveloping most of its curtilage is expected to fully screen all possible views and intervisibility with the Proposed Development. This was reinforced during the site inspection, which found that no views were at all possible between the church and the Application Site (see **Appendix 3C**). Indirect effects upon the listed buildings at the Church of St Peter are therefore anticipated to be **Negligible**.

## Conservation Areas

### Hawksworth (NA45)

3.140. Hawksworth Conservation Area is located adjacent to the west of the Application Site and contains the previously assessed listed buildings NA11 – 16. The conservation area itself forms the primary group setting for the listed buildings and as such has been considered within the assessment of indirect effects for the aforementioned listed buildings. Visual impacts upon



the conservation area itself are expected to be in line with those assessed for the listed buildings within its core. Indirect effects are therefore anticipated to be **Low**.

### Thoroton (NA46)

3.141. Thoroton Conservation Area is located c. 0.15km to the south of the Application Site and contains the previously assessed listed buildings NA17 – 21. The conservation area itself forms the primary group setting for the listed buildings and as such has been considered within the assessment of indirect effects for the aforementioned listed buildings. Visual impacts upon the conservation area itself are expected to be in line with those assessed for the listed buildings within the ground level of its core. Indirect effects are therefore anticipated to be **Low**.

### Orston (NA47)

3.142. Orston Conservation Area is located c. 1.4km to the south-southeast of the Application Site and contains listed buildings NA40 – 44. These listed buildings lie outside the calculated ZTV of the Proposed Development and so have not been previously assessed. The majority of the Orston conservation area, as it forms the primary group setting of the structures, similarly lies outside this ZTV and will be not visually impacted. However, the western and northern extremities of the designated area extent slightly into this calculated ZTV. This indicates that theoretical views may be possible, but in practice views and intervisibility with these areas are expected to be completely screened by intervening vegetation, field boundaries and buildings, particularly around Orston itself as well as around Thoroton nearer to the Application Site. This was identified to be the case during the site inspection (see **Appendix 3C**). As a result, no views or intervisibility are expected to be possible with Orston Conservation Area and indirect effects are anticipated to be **Negligible**.

## Historic Environment Record

3.143. There is a total of 144 archaeological sites in the local HER that are within the 1km study zone. These sites can be used to evaluate the potential for archaeological remains within the Application Site. However, although the majority of these HER sites lie within the calculated ZTV, they typically lack standing remains or are not considered to be sensitive to possible visual impacts, while others overlap with listed buildings or monuments previously assessed. No potential for notable indirect effects upon any specific HER sites were identified. As such, indirect effects upon HER sites within the calculated ZTV are anticipated to be **Negligible** overall.

## Cumulative Indirect Effects

3.144. Cumulative visual impacts have been assessed as part of **Technical Appendix 1: Landscape Visual Assessment (LVA)**. The assessment states that “no developments requiring cumulative

*assessment were identified in this instance*". As the LVA concluded that no notable cumulative landscape or visual effects will occur as a result of the Proposed Development, no cumulative visual impacts are expected to occur on any of the surrounding heritage assets previously identified.

## Summary of Indirect Effects

- 3.145. There were six Scheduled Monuments identified within the 5km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon the 'medieval village including monastic college, chapel, moat, fishponds, dovecote and open field system 200m south of Manor Farm' (NA02) are anticipated to be **Low**, while indirect effects upon the other monuments (NA01, NA03, NA05 & NA07 – 08) are anticipated to be **Negligible**.
- 3.146. There was one Historic Garden and Designed Landscape identified within the 5km study zone that lies inside the calculated ZTV of the Proposed Development. Indirect effects upon Flintham Hall (NA09) are anticipated to be **Negligible**.
- 3.147. There was one Historic Battlefield identified within the 5km study zone that lies inside the calculated ZTV of the Proposed Development. Indirect effects upon the Battle of Stoke (Field) 1487 (NA10) are anticipated to be **Negligible**.
- 3.148. There were 28 Listed Buildings (including three grade I, two grade II\* and 23 grade II) identified within the 2km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon the Church of St Helena (NA18) are anticipated to be **Moderate to low**, while indirect effects upon Hawksworth Manor/Place (NA11/NA12) and the Pigeoncote and Church of St Peter (NA30 & NA31) are anticipated to be **Low**. In addition, indirect effects upon listed buildings NA13 – 17 and NA19 – 21 are anticipated to be **Low to negligible**, while indirect effects upon listed buildings NA22 – 29 and NA32 – 38 are anticipated to be **Negligible**.
- 3.149. There were three Conservation Areas identified within the 2km study zone that lie inside the calculated ZTV of the Proposed Development. Indirect effects upon Hawksworth and Thoroton Conservation Areas (NA45 & NA46) are anticipated to be **Low**, while indirect effects upon Orston Conservation Area (NA47) are anticipated to be **Negligible**.
- 3.150. There were no World Heritage Sites or Heritage Coasts identified in their respective study zones. As such, these resources are not considered to be at risk of significant indirect effects.
- 3.151. Cumulative visual impacts have been assessed as part of **Technical Appendix 1: Landscape Visual Assessment (LVA)**. As the LVA concluded that no notable cumulative landscape or visual effects will occur as a result of the Proposed Development, no cumulative visual impacts are expected to occur on any of the surrounding heritage assets previously identified.

## MITIGATION MEASURES

### Direct Effects upon Known Assets

- 3.152. There are no designated heritage assets located within or adjacent to the Application Site that could be physically impacted by the Proposed Development (see **Figure 3.1: Appendix 3A**). However, several non-designated cropmark sites within the Nottinghamshire HER lie inside this boundary, represented by two distinct areas of archaeological potential (see **Figure 3.2: Appendix 3A**). These comprise an enclosure complex (NB15 & NB88) and group of pits, trackway and other features (NB32 & NB92), which are at risk of direct impacts from the construction of the proposed solar farm and will therefore require inclusion within a mitigation strategy as outlined below.
- 3.153. Due to their sub-surface nature and lack of any standing remnants, archaeological remains associated with the HER areas can be approached as part of the same sequential programme of archaeological works intended to mitigate potential direct effects on hitherto-unknown archaeology, as below.

### Archaeological Potential

- 3.154. The Application Site is considered to contain a high probability for sub-surface remains of potential significance, particularly in relation to the prehistoric and medieval periods. While the geophysical survey undertaken at the Application Site (**Appendix 3D**) has identified the presence of numerous anomalies likely to be of archaeological interest, it is also noted that alluvium deposits within its fields may have the potential to mask sub-surface features at certain locations. As such, the potential for archaeological features may possibly extend beyond what is visible on the geophysical survey data.
- 3.155. In the event that planning consent is achieved, an appropriate post-determination programme of archaeological works, as prepared and implemented by qualified archaeologists, is recommended in order to facilitate the further evaluation of the geophysical anomalies and the preservation of sub-surface features, either *in-situ* or by record. The programme of archaeological works should include test trenching designed to target anomalies of archaeological interest, as well as including a provision for test trenches within otherwise 'blank' areas such as those within Fields 1 – 3 and 7 – 9. This will allow for the investigation of the anomalies as well as the possibility of further features being present in blank areas, which may have been obscured from the magnetometry survey by alluvium deposits.
- 3.156. Following the results of investigative test trenching, the Applicant has indicated their intention to use the following **non-intrusive construction methods within the extents of all archaeological features deemed to be of potential significance** (to be determined through consultation with the Nottinghamshire County Council (NCC) archaeological advisors):

- ground-mounted bases ('concrete shoes') for all solar panels that are intended to be placed within 10m of the known feature extents;
  - above-ground 'concrete sleeves' for any cables proposed within 10m of the known feature extents; and
  - 'floating roads' and ground-protection mats for access tracks, construction compounds and ancillary elements within 10m of the known feature extents.
- 3.157. As highlighted during pre-application consultation with NCC, one of the primary concerns for direct impacts upon sub-surface remains was that derived from the decommissioning phase of the Proposed Development. Through the use of the above non-intrusive methods at selected locations, the potential for direct impacts upon archaeological features identified through the geophysical survey and test trenching will be minimised at the construction, operational and decommissioning phases. Where non-intrusive methods may not be possible at the location of sub-surface remains, then such remains should be either preserved *in-situ* through the use of 10m exclusion zones around their extents, subject to agreement with NCC. Where non-intrusive methods or exclusion zones cannot be used at the locations of any significant remains, then full excavation of the features may be required.
- 3.158. The results of the test trenching will also help inform the need and scope for any archaeological monitoring during the construction phase of the Proposed Development (watching brief).
- 3.159. The above programme of archaeological works is necessary to be undertaken prior to the commencement of the construction phase of the Proposed Development. However, **it is considered that its implementation would be sufficient as part of a post-determination planning condition**, provided that the system of non-intrusive construction methods are implemented in accordance with the instruction of qualified archaeologists and the archaeological advisors of NCC.
- 3.160. Any requests and requirements for archaeological work is at the discretion of Rushcliffe Borough Council and the NCC archaeological advisors.

## Indirect Effects

- 3.161. Indirect effects upon the surrounding heritage assets have been assessed as overall Moderate to low in the worst case. The development design has been evolved to exclude certain areas in order to reduce the potential for visual impacts upon surrounding assets, as well as including additional planting areas to screen possible views with Hawksworth and Thoroton villages. Therefore, **no further specific mitigation is considered to be required for the reduction of any visual impacts**, but the aforementioned vegetative planting included as part of proposal will help ensure that any potential visual impacts upon heritage assets will be kept minimal throughout the operational phase of the development.

## RESIDUAL EFFECTS

- 3.162. As no designated heritage assets lie inside the Application Site, no direct effects will occur on these resources. However, several non-designated cropmark sites within the Nottinghamshire HER lie inside this boundary, represented by two distinct areas of archaeological potential (see **Figure 3.2: Appendix 3A**). These comprise an enclosure complex (NB15 & NB88) and group of pits, trackway and other features (NB32 & NB92). Following the mitigation strategy outlined above, methods will be in place for the evaluation and preservation of these features, either *in-situ* through the use of non-intrusive construction methods or exclusion zones at their locations, or by record. Residual effects upon these HER sites are therefore anticipated to be **Low to negligible** on the assumption that an appropriate programme of archaeological mitigation is implemented.
- 3.163. Following the implementation of an appropriate archaeological programme of works, building on the results of the completed geophysical survey and undertaken prior to the construction stage of the Proposed Development, measures will be in place for the further evaluation of the specific archaeological potential of the Application Site, as well as the full recording and preservation of any sub-surface remains of significance that are identified during this or any further work as necessary. In addition, the use of non-intrusive construction methods at locations to be specified by qualified archaeologists following the results of the test trenching will help to minimise the potential direct impacts upon sub-surface remains. As such, residual direct effects upon hitherto-unknown archaeology as a result of the Proposed Development are anticipated to be **Low to negligible, on the assumption that the above measures are implemented.**
- 3.164. As no further mitigation is expected to be required for indirect effects, residual indirect effects can be considered to be unchanged at **Moderate to low** for the Grade I listed Church of St Helena (NA18), while all other heritage assets inside the ZTV overall range between **Low and Negligible** for indirect effects.

## SUMMARY

- 3.165. This Cultural Heritage Impact Assessment (CHIA) has been prepared by Neo Environmental Limited, on behalf of Renewable Energy Systems (RES) Ltd in support of a planning application submitted to Rushcliffe Borough Council for a proposed 49.9MW solar farm development on lands between Hawksworth and Thoroton. As no designated heritage assets lie inside the Application Site, no direct effects will occur on these resources. However, several non-designated cropmark sites within the Nottinghamshire HER lie inside this boundary, represented by two distinct areas of archaeological potential (see **Figure 3.2: Appendix 3A**). These comprise an enclosure complex (NB15 & NB88) and group of pits, trackway and other features (NB32 & NB92). Following the mitigation strategy outlined above, methods will be in place for the evaluation and preservation of these features, either *in-situ* through the use of non-intrusive construction methods and exclusion zones at their locations, or by record. Residual effects upon these HER sites are therefore anticipated to be **Low to negligible on the assumption that an appropriate programme of archaeological mitigation is implemented**.
- 3.166. The Application Site is considered to contain a high probability for sub-surface remains of potential significance, particularly in relation to the prehistoric and medieval periods. An appropriate programme of archaeological works, to include test trenching designed to target anomalies of archaeological interest and otherwise 'blank' areas, is recommended in order to investigate the anomalies as well as the possibility of further features being present, which may have been obscured from the magnetometry survey by alluvium deposits. Following the implementation of an appropriate archaeological programme of works, measures will be in place for the further evaluation of the specific archaeological potential of the Application Site, as well as the full recording and preservation of any sub-surface remains of significance that are identified during this or any further work as necessary, in accordance with the instruction of qualified archaeologists and the archaeological advisors of NCC. In addition, the use of non-intrusive construction methods at locations to be specified by qualified archaeologists following the results of the test trenching will help to minimise the potential direct impacts upon sub-surface remains at both the construction and decommissioning stages. As such, residual direct effects upon hitherto-unknown archaeology as a result of the Proposed Development are anticipated to be **Low to negligible, on the assumption that the above measures are implemented**.
- 3.167. Indirect effects upon the surrounding heritage assets have been assessed as **Moderate to low** for the Grade I listed Church of St Helena (NA18), while overall ranging between **Low and Negligible** for all other heritage assets within the calculated ZTV of the Proposed Development. Therefore, **no specific mitigation is considered to be required for the reduction of any visual impacts**, but vegetative planting included as part of proposal will help ensure that visual impacts upon heritage assets will be kept minimal throughout the operational phase of the development.

## LIST OF APPENDICES

### Appendix 3A – Figures

- Figure 3.1 – Designated Heritage Assets
- Figure 3.2 – Historic Environment Record
- Figure 3.3 – Henry Stevens 1820 Map of Newark-on-Trent
- Figure 3.4 – OS 1883 Map
- Figure 3.5 – OS 1921 Map
- Figure 3.6 – Lidar Data (1m DTM)

### Appendix 3B – Tables

### Appendix 3C – Walkover Survey Report

### Appendix 3D – Geophysical Survey Report