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15.0 CULTURAL HERITAGE

15.1 Introduction

15.1.1 This chapter presents the findings of a preliminary assessment of temporary and permanent impacts on cultural heritage during construction and operation of the Proposed Development. The chapter considers potential impacts on the following:

- designated heritage assets, including Scheduled Monuments, listed buildings, registered parks and gardens and conservation areas; and
- non-designated heritage assets, including archaeological remains, historic buildings and the historic landscape.

15.1.2 Cultural heritage comprises all aspects of the environment resulting from the interaction and relationships between people and places through time. The above aspects are referred to as heritage assets: buildings, monuments, sites, places, areas or landscapes identified as having a degree of significance due to their heritage interest that merit consideration in planning decisions. Cultural heritage influences how people relate to places and cultures and can provide a sense of place and stability to a community.

15.1.3 This chapter aims to:

- detail the requirements of key legislative and policy requirements and describe how the Proposed Development will consider them;
- explain how information on the existing and future environment has been collected (through desk-based studies, survey work and stakeholder consultation);
- describe the understanding of the existing and future environment, based on the baseline information;
- explain any further information to be obtained through further consultation, desk-based studies, or surveys;
- describe the potential effects of the Proposed Development on cultural heritage; and
- describe potential mitigation measures.

15.1.4 The chapter is accompanied by **Appendix 15A: Cultural Heritage** desk based assessment which contains **Figures 15A.a-d – 15A.5** illustrating the heritage assets in relation to the Proposed Development Site.

15.1.5 An assessment of cumulative effects on cultural heritage assets associated with the Proposed Development and other committed developments in the vicinity are described in **Chapter 19: Cumulative and Combined Effects**.

15.2 Legislation, Planning Policy and Guidance

15.2.1 Legislation identifies the requirement for the Secretary of State to have regard to the desirability of preserving listed buildings, Scheduled Monuments and the character of conservation areas.

15.2.2 A full overview of the legislative and policy context that is relevant to the Proposed Development is provided within **Chapter 7: Legislative Context and Planning Policy** (PEI Report Volume I).

15.2.3 Legislation, planning policy and guidance of most relevance to cultural heritage and pertinent to the Proposed Development comprises:

Legislative Background

The Ancient Monuments and Archaeological Areas Act 1979

15.2.4 The Ancient Monuments and Archaeological Areas Act 1979 (HMSO) imposes a requirement for Scheduled Monument Consent for any works of demolition, repair, and alteration that might affect a designated Scheduled Monument.

The Planning (Listed Buildings and Conservation Areas) Act 1990

15.2.5 The Planning (Listed Buildings and Conservation Areas) Act 1990 (the Act) sets out the principal statutory provisions that must be considered in the determination of any application affecting listed buildings and conservation areas.

15.2.6 Section 66 of the Act states that in considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses. By virtue of Section 1(5) of the Act a listed building includes any object or structure within its curtilage.

15.2.7 Section 72 of the Act establishes a general duty on a local planning authority or the Secretary of State with respect to any buildings or other land in a Conservation Area to pay special attention to the desirability of preserving or enhancing the character or appearance of a Conservation Area.

Planning Policy Context

Overarching National Policy Statement (NPS) for Energy EN-1 and EN1-2

15.2.8 The NPS EN-1 (DECC, 2011a) sets out the government's overarching policy statement for energy. With regard to the Historic Environment, the NPS provides a series of requirements and recommendations for the appropriate level of assessment of energy proposals that have the potential to impact upon the historic environment, and decision-making policies. These accord with the policies outlined in the NPPF.

15.2.9 Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Climate Change, 2011) recognises that the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment and sets out principles for assessing such impacts.

15.2.10 EN-1 states that the historic environment results from the interaction between people and places through time, and includes all surviving physical remains of past human activity. EN-1 (paragraph 5.8.2) defines a heritage asset as an element of the historic environment that is of value to present and future generations because of its historic,

archaeological, architectural or artistic interest. The sum of these interests is referred to as its significance.

- 15.2.11 EN-1 (paragraph 5.8.3) recognises that some heritage assets have a level of significance that warrants official designation, including World Heritage Sites, Scheduled Monuments, Protected Wreck Sites, Protected Military Remains, Listed Buildings, Registered Parks and Gardens, Registered Battlefields and Conservation Areas. The EN-1 also recognises that there are non-designated heritage assets that are demonstrably of equivalent significance to Scheduled Monuments, and if the evidence suggests that such an asset may be affected by a proposed development, it should be considered subject to the policies for designated heritage assets (paragraph 5.8.5).
- 15.2.12 EN-1 (paragraph 5.8.6) states that impacts on other non-designated heritage assets should be considered on the basis of clear evidence that they have a heritage significance that merits such consideration, even though the assets are of lesser value than designated heritage assets.
- 15.2.13 EN-1 (paragraph 5.8.8) states that, as part of its assessment, the applicant should provide a description of the significance of the heritage assets affected by the development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage asset and no more than is sufficient to understand the potential on the heritage asset. As a minimum, the applicant should consult the relevant Historic Environment Record (HER).
- 15.2.14 Where a development site includes, or has the potential to include, heritage assets of archaeological interest, the applicant should carry out a desk-based assessment and if necessary, a field evaluation in order to properly assess the interest (EN-1 paragraph 5.8.9). Ultimately, the applicant should ensure that the extent of the impact of the proposed development on the heritage assets can be adequately understood from the application and supporting documents (EN-1 paragraph 5.8.10).
- 15.2.15 EN-1 states that the significance and value of heritage assets should be taken into account when considering the impact of a proposed development. The desirability of sustaining or enhancing the significance of heritage assets should also be taken into account, along with the desirability of new development making a positive contribution to the character and distinctiveness of the historic environment. EN-1 (paragraph 5.8.14) states there should be a presumption in favour of the conservation of designated heritage assets, and loss of significance to any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a Grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments; registered battlefields; Grade I and II* Listed Buildings; Grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional. Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of the development (EN-1 paragraph 5.8.15).
- 15.2.16 EN-1 (paragraph 5.8.20) recognises that where loss is justified, based on the merits of the development, the developer should be required to record and advance understanding of the heritage asset before it is lost, and that where appropriate, such

work should be carried out in accordance with a Written Scheme of Investigation (WSI) that has been agreed in writing with the local authority (EN-1 paragraph 5.8.21).

15.2.17 Table 15.1 provides a summary of relevant NPS advice and signposting to where matters are considered within this chapter.

Table 15.1: Summary of relevant NPS advice regarding historic environment

Summary of NPS	Consideration within the Chapter
NPS EN-1	
<p>Paragraph 5.8.8 states: “As part of the ES (see Section 4.2) the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, English Heritage or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development’s impact.”</p>	<p>Section 15.4 and Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II).</p>
<p>Paragraph 5.8.9 states: “Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.”</p>	<p>Section 15.4 and Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II). Visualisations (wirelines) have been produced as Figures 14-19 – 14-24 (PEI Report Volume III).</p>
<p>Paragraph 5.8.10 states: “The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting document”.</p>	<p>Section 15.6 and Section 15.7 describe further proposed intrusive investigation of archaeological potential, including a deposit model and production of an Outline Written Scheme of Investigation to accompany the DCO Application.</p>

UK Marine Policy Statement (MPS) and the East Inshore Marine Plan

15.2.18 The UK Marine Policy Statement ('the MPS') (Defra, 2011) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It establishes a vision for the marine environment, which is for 'clean, healthy, safe, productive and biologically diverse oceans and seas'. The MPS underpins the process of marine planning, which establishes a framework of economic, social and environmental considerations in that will deliver these high level objectives and ensure the sustainable development of the UK marine area.

15.2.19 Relevant high level marine objectives relevant to the Proposed Development include:

- achieving a sustainable marine economy;
- ensuring a strong, healthy and just society; and
- living within environmental limits.

15.2.20 The East Inshore and East Offshore Marine Plans (Defra, 2014) establishes the plan led system for the marine area in which the riverine parts of the Proposed Development Site are located.

15.2.21 In section 2 the vision and objectives for the East marine plan areas is stated. The vision (page 23) comprises:

"By 2034, sustainable, effective and efficient use of the East Inshore and East Offshore Marine Plan Areas has been achieved, leading to economic development while protecting and enhancing the marine and coastal environment, offering local communities new jobs, improved health and well-being. As a result of an integrated approach that respects other sectors and interests, the East marine plan areas are providing a significant contribution, particularly through offshore wind energy projects, to the energy generated in the United Kingdom and to targets on climate change."

15.2.22 Objective 5 of the East Inshore Marine Plan is 'To conserve heritage assets, nationally protected landscapes and ensure that decisions consider the seascape of the local area'. It continues:

"This objective relates to the historic environment, nationally important landscapes and seascapes. It recognises the need to consider if developments are appropriate to the area they would be located in and have influence upon, and as far as possible do not compromise the value of such assets and characteristics".

15.2.23 Further details of the MPS and East Inshore Marine Plan are provided within **Chapter 7: Legislative Context and Planning Policy** (PEI Report Volume I).

National Planning Policy Framework

15.2.24 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), 2019) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development. While the EIA methodology forms part of a separate planning regime, the planning decision still takes account of national guidance. As such, it is important to understand where the development fits within this.

- 15.2.25 Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.
- 15.2.26 The NPPF sets out the importance of being able to assess the significance of heritage assets that may be affected by a development. Significance is defined in Annex 2 as being the, '*value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic*'. Significance is not only derived from an asset's physical presence, but also from its setting. The setting of a heritage asset is defined in Annex 2 as, 'the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve'.
- 15.2.27 Paragraph 189 of the NPPF states that 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. Similarly, there is a requirement on local planning authorities, having assessed the particular significance of any heritage asset that may be affected by a proposal; to take this into account when considering the impact of a proposal on a heritage asset (paragraph 190).
- 15.2.28 In determining planning applications, local planning authorities should take account of the following points:
- the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
 - the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality;
 - the desirability of new development making a positive contribution to local character and distinctiveness (paragraph 192); and
 - opportunities to draw on the contribution made by the historic environment to the character of a place.
- 15.2.29 Paragraphs 193 to 197 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration, destruction or development within their setting. This harm ranges from less than substantial through to substantial. With regard to designated assets, paragraph 193 states that great weight should be placed on its conservation, irrespective of whether any potential harm is considered to be substantial or less than substantial. The paragraph goes further to say that the more important the asset, the greater the weight should be on its conservation. In paragraph 194, a distinction is made in respect of those assets of the highest significance (e.g. Scheduled Monuments, Grade I and Grade II* listed buildings) where substantial harm to or loss should be wholly exceptional.
- 15.2.30 In instances where development would cause substantial harm to or total loss of significance of a designated asset consent should be refused unless it can be demonstrated that it is necessary to achieve substantial public benefits that outweigh that harm or loss (paragraph 195). In instances where development would cause less

than substantial harm to the significance of a designated asset the harm should be weighed against the public benefits of the proposal to provide a balanced judgement (paragraph 196).

15.2.31 With regard to non-designated assets, paragraph 197 states that the effect of the application on the significance of the asset should be taken into account in determining the application. A balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

Planning Practice Guidance (PPG)

15.2.32 The Planning Practice Guidance (PPG) (MHCLG 2019) is a government produced interactive on-line document that provides further advice and guidance to accompany policies in the NPPF. It expands on terms such as 'significance' and its importance in decision making. In particular, paragraph 008 states that '*understanding the significance of a heritage asset and its setting from an early stage in the design process can help to inform the development of proposals which avoid or minimise harm. Analysis of relevant information can generate a clear understanding of the affected asset, the heritage interests represented in it, and their relative importance*' (Paragraph 008, Ref. ID: 18a-008-20190723, Revision date: 23 07 2019).

15.2.33 The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals. This information should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on its significance (Paragraph: 009, Ref. ID: 18a-009-20140306, Revision date: 23 07 2019). Setting is also discussed in paragraph 013 which stresses that setting is not only visual but can be influenced by historic or aesthetic considerations (Paragraph 013, Ref. ID: 18a-013-20190723, Revision date: 23 07 2019).

15.2.34 When considering impacts to a heritage asset, the PPG usefully discusses how to assess whether harm is caused. Paragraph 018 identified that a proposed development asset may have no impact on its significance or may enhance its significance and therefore cause no harm. Where potential harm to designated heritage assets is identified, it needs to be categorised as either less than substantial harm or substantial harm. The guidance goes on to state that '*within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated*' (Paragraph: 018 Ref. ID: 18a-018-20190723, Revision date: 23 07 2019).

15.2.35 The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development. The PPG states that these benefits should follow from the proposed development and should be of a nature and scale to be of benefit to the public and not just a private benefit. However, benefits do not always have to be visible or accessible to the public in order to be of public benefit. Public benefits may include heritage benefits, such as:

- sustaining or enhancing the significance of a heritage asset and the contribution of its setting;
- reducing or removing risks to a heritage asset; and

- securing the optimum viable use of a heritage asset in support of its long-term conservation. (Paragraph: 020 Ref. ID: 18a-020-20190723, Revision date: 23 07 2019).

Local Planning Policy

15.2.36 The Proposed Development Site lies entirely within the administrative area of North Lincolnshire Council. The statutory development plan for the area currently comprises the following documents:

- North Lincolnshire Core Strategy (NLC, 2011a) - adopted June 2011;
- Employment and Land Allocations (NLC, 2017) - adopted March 2016; and
- Saved Policies of the North Lincolnshire Local Plan (Local Development Frameworks Government Office for Yorkshire and The Humber, 2007) - adopted May 2003, saved September 2007.

15.2.37 North Lincolnshire historic environment planning policies relevant to the Proposed Development include the following saved policies from the 2003 Local Plan.

- Policy HE5: Development affecting Listed Buildings. The policy states that *'proposals which damage the setting of a listed building will be resisted'* (North Lincolnshire Council 2003, 204).
- Policy HE8: Ancient Monuments. The policy states that proposals that would result in an adverse effect on the setting of a 'Scheduled Ancient Monument' will not be permitted (North Lincolnshire Council 2003, 206).
- Policy HE9: Archaeological Excavation. The policy states:

'Where development proposals affect sites of known or suspected archaeological importance, an archaeological assessment to be submitted prior to the determination of a planning application will be required. 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.'

Sites of known archaeological importance will be protected. When development affecting such sites is acceptable in principle, mitigation of damage must be ensured and the preservation of the remains in situ is a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before and during development' (North Lincolnshire Council 2003, 207).

- LC14: Area of Special Historic Interest. The policy states that development within the Isle of Axholme Area of Special Historic Landscape Interest will not be permitted if development will destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features (North Lincolnshire Council 2003, 185).

15.2.38 The North Lincolnshire Core Strategy (adopted June 2011) includes Policy CS6 Historic Environment stating the following [extract]:

'The council will promote the effective management of North Lincolnshire's historic assets through:

- *safeguarding the nationally significant medieval landscapes of the Isle of Axholme (notably the open strip fields and turbaries); and*
- *preserving and enhancing the rich archaeological heritage of North Lincolnshire.*

The council will seek to protect, conserve and enhance North Lincolnshire's historic environment, as well as the character and setting of areas of acknowledged importance including historic buildings, conservation areas, listed buildings (both statutory and locally listed), registered parks and gardens, Scheduled ancient Monuments and archaeological remains.

All new development must respect and enhance the local character and distinctiveness of the area in which it would be situated, particularly in areas with high heritage value.

Development proposals should provide archaeological assessments where appropriate'.

15.2.39 North Lincolnshire Council is currently preparing a new single Local Plan for North Lincolnshire. Once formally adopted, this will replace the existing North Lincolnshire Local Plan and Core Strategy. Policy HE1p of the emerging plan states the following:

'Development proposals affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance.

Planning applications for such development must be accompanied by an appropriate and proportionate desk based assessment to understand the potential for and significance of remains, and the impact of development upon them.

If desk based assessment does not provide sufficient information, developers will be required to undertake field evaluation in advance of determination of the application. This may include a range of techniques for both intrusive and non-intrusive evaluation, as appropriate to the site. All archaeological work should be undertaken by a suitably qualified party in accordance with professional standards and guidance published by Historic England and the Chartered Institute for Archaeology.

Wherever possible and appropriate, mitigation strategies should ensure the preservation of archaeological remains in-situ. Where this is either not possible or not desirable, the developer will be required to make adequate provision for preservation by record according to a written scheme of investigation submitted by the developer and approved by the planning authority.

Any work undertaken as part of the planning process must be appropriately archived in a way agreed with the local planning authority. The written scheme of investigation should be submitted in advance of determination of the application and its implementation will be secured by condition' (North Lincolnshire Council 2020, Policy HE1).

15.2.40 Policy HE2p of the emerging plan states the following:

The Isle of Axholme is designated as an area of Special Historic Landscape Interest.

Within this area, development will not be permitted which would destroy, damage or adversely affect the character, appearance or setting of the historic landscape, or any of its features.

Other Guidance

Historic England Guidance

- 15.2.41 Historic England has published a series of Good Practice Advice (GPA) of which those of most relevance to this appraisal are GPA2 - Managing Significance in Decision-taking (March 2015), GPA3 - The Setting of Heritage Assets (2nd Edition) (December 2017), and Advice Note 12 Statements of Heritage Significance (October 2019).
- 15.2.42 GPA2 emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).
- 15.2.43 GPA3 provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views such as those that were designed or those that were intended, that contribute to understanding the significance of assets.
- 15.2.44 Advice Note 12 outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a *'Statement of Heritage Significance'*, as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The Advice Note also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2: Glossary); namely archaeological, architectural and artistic, and historic.

Chartered Institute of Archaeologists

- 15.2.45 The baseline study has been undertaken in accordance with guidance published by the Chartered Institute for Archaeologists (CIfA), specifically the standard and guidance for historic environment desk-based assessment (CIfA, 2017).

Lincolnshire County Council

- 15.2.46 This study also follows guidance in the Lincolnshire County Council Archaeology Handbook (Jennings 2019).

15.3 Assessment Methodology

Consultation

- 15.3.1 A Scoping report was submitted to the Planning Inspectorate on the 15 May 2020 and scoping responses were received 16 July 2020. A copy of the Scoping report and Scoping opinion are provided within **Appendix 1A** and **Appendix 1B** respectively (PEI Report Volume II).
- 15.3.2 Consultation was undertaken with the North Lincolnshire Conservation Officer by telephone on 3 August 2020. This highlighted the Scheduled Monument and Grade II listed building of Keadby Lock, and the Grade II listed Keadby Bridge as being designated assets in proximity to the Proposed Development where an impact assessment and consideration of available landscape mitigation options would be necessary with regard to change to their settings. No further areas of concern were noted.
- 15.3.3 An initial consultation was undertaken with the North Lincolnshire Council Historic (NLCH) Environment Officer by telephone on 3 August 2020. The initial consultation including a general discussion on the current status of the Proposed Development, the timescales for preparation of the PEI Report and the strategies outlined in the consultation responses to the scoping report.
- 15.3.4 Table 15.2 summarises the consultation undertaken with statutory consultees to inform this chapter.

Table 15.2: Consultation Summary Table

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
The Planning Inspectorate	25 June 2020	<p>Para 4.8.2 - Noted that the ES must specifically assess possible effects on waterlogged deposits, following appropriate guidelines (e.g. Historic England 2016 – <i>Preserving Archaeological Remains. Appendix 3 – Water Environment Assessment Techniques</i>; Historic England 2020 – <i>Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits</i>). Geophysical and detailed geotechnical deposit modelling surveys should therefore be commissioned for this.</p>	<p>At this early stage, no intrusive ground investigations have been undertaken. The specification for, nature and timing of any future intrusive investigations will be discussed with relevant stakeholders, including the North Lincolnshire Council (NLC) county archaeologist and Historic England and the programme undertaken will be reported within the ES. This will include further evaluation of possible effects on waterlogged deposits.</p>
		<p>Para 4.8.3 - The Scoping Report acknowledges that Keady Lock is a Scheduled and Listed structure. Possible physical impacts to the lock and its waterway environs, either through vibration, dust, pollution or accident must also be assessed. Mitigation through design or protective measures should be identified and developed in consultation with relevant consultation bodies e.g. the Canal and River Trust and included in the ES.</p>	<p>The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6 of this PEI Chapter. It includes consideration of physical impacts through vibration, dust, pollution or accident, where applicable.</p>
		<p>Para 4.8.4 Noted that the ES should detail all receptors considered within the study area and locate them on one or more figures in relation to the Proposed Development.</p>	<p>Figure 15A-1a and Figure 15A-1b (PEI Report Volume III) provide maps of designated and non-designated heritage assets within the study area.</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>4.8.5 Noted that the National Monuments Record (NMR) should be consulted for the ES, along with a specialist study of available historic aerial photographs and lidar data.</p> <p>Para 4.8.6 Noted that it is suggested that separate heritage-specific viewpoints should be included within the heritage assessment chapter (rather than only within Landscape and Visual Amenity section) and that there should be a structured assessment of the visual (fixed</p>	<p>These are reported within Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II).</p> <p>Where available these resources were studied and used to inform the technical baseline reported within Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II).</p> <p>Due to the ongoing Covid-19 pandemic, it has not been possible to visit the North Lincolnshire Historic Environment Record in person, nor has it been possible to visit local archives centres to gather historic and archaeological information pertaining to the Proposed Development Site and its surrounding landscape. Such records will be consulted if access can be obtained prior to submission of the DCO Application.</p> <p>A collaborative approach to identifying viewpoint locations that are suitable for Landscape and Visual Amenity Assessment and heritage purposes has been undertaken. Whilst the viewpoints are</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>point and kinetic) impacts from the Proposed Development on Keadby Lock and associated waterways within the ZTV</p>	<p>presented to accompany Chapter 14: Landscape and Visual Amenity of this PEI Report, they are referred to within this chapter where they assist in visualising the Proposed Development within the setting of heritage assets, including Keadby Lock.</p>
		<p>Para 4.8.7 Requested that the criteria to establish significance in the ES should make specific reference to relevant published and unpublished literature resources such as; Lincolnshire Historic Landscape Characterisation (HLC) Project (2011), the Isle of Axholme HLC (1997) and <i>The Archaeology of the East Midlands: An Archaeological Resource Assessment and Research Agenda</i> (2006).</p>	<p>Reference to these published and unpublished resources are included in technical baseline reported within Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II).</p>
		<p>Para 4.8.8 – Noted that the assessment should be based on a robust baseline position, with the significance of remains carefully characterised such that the potential buried archaeological historic baseline is identified within an appropriate study area. Noted that aerial photographic and lidar analyses should be undertaken, along with a programme of walkover, geophysical and geotechnical (deposit modelling) surveys and that efforts should be made to agree the approach with relevant consultees. Noted that results and assessment of significance should be clearly presented within the ES along with a description of any uncertainties or assumptions applied.</p>	<p>The NLCH Environment Officer has been consulted and further engagement is proposed on the approach to further evaluation stages, including programme of field evaluation. Written Schemes of Investigation (WSI) will be produced and agreed by the NLCH Environment Officer, and the results and assessment of significance will be clearly presented in the ES.</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>Para 4.8.9 – Referenced that the Scoping Report proposed that once all potential heritage receptors have been identified they will be assigned a ‘value’. Recommended that the origin and rationale of such an approach, the matrixes used, and which organisation devised them should be acknowledged and referenced in the ES, which should also describe where expert judgement has been applied. Expert judgement should be provided in the form of nontechnical narrative within this chapter.</p>	<p>The methodology for assessing heritage value, magnitude of impact and significance of effects is outlined in this chapter, which also stipulates that professional judgement will be used alongside these matrices. Where professional judgement has been applied to alter the predicted outcome, this is clearly articulated in the relevant assessment text.</p>
		<p>Para 4.8.10 Noted that the Cultural Heritage section of the Scoping Report did not identify any potential impacts on historic receptors within watercourses and along their banks. Recommended that results of walkover and any geophysical surveys should be used to identify and assess any potential impacts on historic receptors (where significant effects are likely to occur) within the River Trent, the Stainforth and Keadby Canal, Three Rivers and drainage channels; as well as riverbank areas.</p>	<p>The ES will identify and assess any potential impacts on historic receptors within watercourses and along their bank, once archaeological evaluation has been completed.</p>
<p>Historic England:</p>	<p>Response to PINS Scoping Opinion 25 June 2020</p>	<p>Recommended structured assessment of the visual (fixed point and kinetic) impacts of the proposed installation on the Scheduled and listed Keadby Lock https://historicengland.org.uk/listing/the-list/listentry/1005204 & https://historicengland.org.uk/listing/the-list/list-entry/1342734 and associated waterways are essential and should include metric visualisation, (alongside work in relation to other designated assets) as necessary to</p>	<p>The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6 of this PEI Chapter. It draws on the setting assessment and viewpoints provided in Chapter 14: Landscape and Visual Amenity (PEI Report Volume I) to draw conclusions</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>understand how the new installation would group with the existing power stations and infrastructure and what additional impacts would be likely / how these might be reduced eliminated. See our https://historicengland.org.uk/imagesbooks/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/.</p> <p>Advised that physical (construction risks) to the Scheduled lock and its environs must be considered and mitigated through design and protection measures.</p>	<p>regarding the impact of the Proposed Development upon the setting and significance of the asset. This includes consideration of how the Proposed Development will appear in combination with existing infrastructure and in fixed point and kinetic views.</p> <p>The assessment presented in Section 15.6 of this chapter includes consideration of physical impacts to Keadby Lock as a result of the Proposed Development.</p>
		<p>Noted that in this landscape prehistoric, Roman and early medieval remains can survive below alluvium both through natural and 'warped' deposition processes and within former channels (cf para. 6.172 with reference to a previous find of a bog body in the vicinity), hence archaeological deposit modelling is of particular importance.</p> <p>Referred the Applicant to the advice of the North Lincolnshire Council's archaeological specialist advisor as regards necessary geophysical survey, deposit modelling and provided relevant guidance https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/ and trial trenching as appropriate).</p>	<p>A programme of field evaluation is planned and the NLCH Environment Officer will be consulted at all stages in the development of this programme.</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		Noted that a clear understanding of archaeological potential is required for the development in order to address the significance of remains in a manner proportionate to their significance as required by national policy.	
North Lincolnshire Council	3 August 2020	<p>NLCH Environment Officer: Noted that in addition to local planning policies listed in the Scoping Report, , other relevant policies include: Core Strategy (2011) policy CS6 Historic Environment Local Plan (2003) Policies LC14 Area of Special Historic Landscape Interest, and HE8 Ancient Monuments’</p>	<p>These policies are detailed in Section 15.2 of this chapter and Section 2 of the technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II).</p>
		<p>NLCH Environment Officer: Noted that , an extended study area of 10km is recommended for the non-designated heritage asset of national importance of the Isle of Axholme historic landscape, comparable with the study area proposed for the LVIA.</p>	<p>The technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II) and Figure 15A.1d (PEI Report Volume III). include information on the Isle of Axholme Area of Special Historic Landscape Character. An assessment of the effects of the Proposed Development upon that asset is provided in Section 15.6 of this PEI Chapter.</p>
		<p>NLCH Environment Officer: Advised that a shared visualisation viewpoint for the Cultural Heritage assessment and the LVIA should be taken from the high point on Belton Open Field at the junction of the public rights of way at or about SE780070.</p>	<p>This viewpoint is provided as Viewpoint 13 in Chapter 14: Landscape and Visual Amenity Assessment (PEI Report Volume I)) and is illustrated on Figure 14.5 and 14.18. Together with Figure 14-24</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>NLCH Environment Officer: Noted the opinion that in order to produce appropriate information for the EIA, the scope of the cultural heritage assessment should comprise desk based assessment AND the results of fieldwork including archaeological evaluation which it is recommended should include:</p> <p>1. Desk-Based Synthesis</p> <p>a. Baseline review to include local and national databases, local archives, historic maps and plans, aerial photographs, LIDAR, geological and geotechnical data, and published and unpublished documents.</p> <p>b. Site visit to identify the presence of, or potential for, any above or below ground heritage assets within the development area, and any constraints on archaeological fieldwork</p> <p>2. Field Evaluation</p> <p>a. A programme of coring to produce a detailed deposit model of the sub-surface topography of the application</p>	<p>(PEI Report Volume III), which provides a wireline of the Proposed Development from this viewpoint, these have been used in the assessment of impact of the Proposed Scheme upon the Isle of Axholme Area of Special Historic Landscape Character in the PEI Report.</p> <p>1a. The desk-based assessment presented as Appendix 15A: Cultural Heritage Desk Based Assessment (PEI Report Volume II) includes the baseline review as requested.</p> <p>1b. A site visit was conducted, to identify the presence of, or potential for, above or below ground heritage assets and fieldworks constraints.</p> <p>2a-c. The production of specifications for a programme of initial GI works is completed. The NLCH Environment Officer will be consulted on these works prior to commencement.</p> <p>As programme of archaeological evaluation is proposed and further engagement will be undertaken to agree a proportionate investigation</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>area, to identify and model the deposit sequence and former land surfaces, and provide an understanding of the development of the landscape; and to obtain appropriate samples for assessment of preservation potential and the potential for palaeo-environmental evidence to inform the archaeological record; this assessment should include all relevant palaeo-environmental indicators and provision for a programme of scientific dating of the deposit sequence; a specification for this work should be agreed with the HER.</p> <p>b. Dependent on ground conditions, field surveys comprising fieldwalking and geophysical survey;</p> <p>c. Excavation of sample trial trenches to determine the nature, extent, state of preservation and importance of any archaeological remains, such as those associated with the warping channels mapped in this area, the peat deposits and the pre-peat landscape.</p> <p>3. Assessment of Significance</p> <p>a. Assessment of the significance of those heritage assets and their settings likely to be directly or indirectly impacted by the development; the assessment of the significance of heritage assets will be take account of the combined results of all the preceding stages of desk and site based assessment, and be based on the heritage values set out in <i>Conservation Principles, Policies and Guidance for the sustainable management of the</i></p>	<p>which will inform the baseline assessment. Details are provided in Section 15.5.</p> <p>3a. The assessment of significance herein is preliminary, since the programme of field evaluation has not begun. The assessment of significance to be outlined in the ES will take into account the baseline data collected through field evaluations, where reasonably practicable.</p> <p>The assessment of heritage value (significance) in the technical baseline Appendix 15A: Cultural Heritage Desk Based Assessment and the PEI references the NPPF Glossary terms for defining an asset's heritage interest, namely architectural, archaeological, historic, and artistic (NPPF 2019 Annex 2, Glossary), but it also takes cognisance of the considerations outlined in Conservation Principles (2008) where a broader definition of heritage interest is discussed. This forms part of the professional judgement used by the authors in determining heritage value.</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p><i>historic environment</i>, Historic England, 2008 https://www.historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/.</p> <p>b. The methodology of assessing the contribution of setting to significance should be undertaken as set out in Historic England's Historic Environment Good Practice Advice Note 3 (formerly '<i>The Setting of Heritage Assets</i>') https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets The use of photographic visualisations from appropriate viewpoints in the surrounding area looking towards, from within and across the heritage assets would be of particular use to demonstrate effects of the proposals on settings, including evidence of no effects. Impacts other than visual, such as noise, dust and odour, should also be considered.</p> <p>4. Assessment of Impact</p> <p>a. Assessment of impact of the proposed development on the significance of the heritage assets and their setting based on the findings of the preceding stages, with reference to details of proposed construction ground works, the scale, mass and height of the development and the cumulative impact with nearby developments.</p>	<p>3b. The methodology for assessing the setting of heritage assets is provided in the technical baseline (see Appendix 15A: Cultural Heritage Desk Based Assessment) and follows Historic England's Historic Environment Good Practice Advice Note 3. A collaborative approach to identifying viewpoint locations that are suitable for LVIA and heritage purposes has been undertaken. Whilst the viewpoints are presented in the LVIA they are referred to within this chapter of the PEI Report, where they are useful for visualising the Proposed Development within the setting of heritage assets. This chapter of the PEI Report provides an assessment of the construction and operation effects of the Proposed Development upon heritage assets including consideration of aspects such as noise, dust and odour, where applicable.</p> <p>4. The preliminary assessment of likely impacts and effects is presented in Section 15.6 of this PEI</p>

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		<p>NLCH Environment Officer: Noted that if the assessment demonstrates that the significance of heritage assets will be adversely affected by the proposals, then appropriate mitigation measures should be drawn up to conserve them. This may include avoiding or minimizing effects to areas of significance, if necessary, by modifying the layout and/or design of the proposals i.e. in situ preservation. Alternatively, where loss of heritage assets as a result of development is considered justified, provision should be made to record the evidence before it is lost either in advance of, or during, development.</p> <p>Advised that mitigation measures should be detailed in the ES, including WSI (specification) for further archaeological recording, as may be necessary.</p> <p>Noted that where a DCO may subsequently be granted, the implementation of appropriate and agreed mitigation measures can be secured by requirement.</p>	<p>Chapter. This assessment will be developed further once archaeological investigations have taken place and as the Proposed Development design develops.</p> <p>Mitigation measures are discussed in Section 15.7 of this PEI Chapter. These will be developed further once an agreed scheme of archaeological evaluation have taken place and as the Proposed Development design develops.</p>
Canal and River Trust	05 June 2020 (Scoping Opinion)	Vibrations from construction processes on site and construction equipment could result in damage to the canal wash wall, or the structure Keadby Lock, which is a Scheduled ancient Monument [...] supporting information should be provided to highlight that works on site will not	The assessment of the impact of the Proposed Development on the Scheduled Monument and listed building of Keadby Lock is presented in Section 15.6 of this PEI Chapter. It includes consideration of physical

Consultee Approached	Date and Nature of Consultation and method	Summary of Response	How comments have been addressed in this chapter
		result in adverse vibrations that could result in damage to these structures.	impacts through vibration, dust, pollution or accident, where applicable. Further assessment of noise and vibration effects on Keadby Lock is also presented in Chapter 9: Noise and Vibration (PEI Report Volume I).

Assessment Methods

Methodology for Determining Heritage Baseline

- 15.3.5 A desk-based assessment has been undertaken in order to identify the known cultural heritage resource within defined study areas and the potential for as yet unknown archaeological remains to be present at the Proposed Development Site. The desk-based assessment has built on and updated work carried out for previous studies at the Keadby Power Station site and Keadby Windfarm site, to the immediate north of the Proposed Development Site.
- 15.3.6 The assessment presented herein is preliminary, relying primarily on data gathered through desktop research and field walkovers.
- 15.3.7 The assessment of impacts due to change to the setting of heritage assets focuses on known designated and non-designated assets identified in the National Heritage List for England and the North Lincolnshire Historic Environment Record. Review of non-designated assets identified through using historic ordnance maps of the area will be completed and reported in the ES although it is anticipated that assets identified through these means will not experience significant adverse effects.
- 15.3.8 Due to the ongoing Covid-19 pandemic, it has not been possible to visit the North Lincolnshire Historic Environment Record in person, nor has it been possible to visit local archive centres to gather historic and archaeological information pertaining to the Proposed Development Site and its surrounding landscape. Limitations relating to desk based research are described in section 15.9 of this chapter, however, it is noted that PINS Advice Note 7 was updated in May 2020 to take account of challenges posed to Applicants by the Covid-19 pandemic, acknowledging that:
- The Inspectorate understands that conducting specific surveys and obtaining representative data is difficult in the current circumstance. The Inspectorate considers that Applicants should make effort to agree their approach to the collection and presentation of information with relevant consultation bodies. In turn the Inspectorate expects that consultation bodies will work with Applicants to find suitable approaches and points of reference to aid the robust preparation of applications at this time. The Inspectorate is required to take into account the advice it receives from the statutory consultation bodies and will continue to do so in this regard.*
- 15.3.9 The Applicant is progressing concept design work on the preferred low carbon option using post-combustion CCP at the Proposed Development Site. In view of the ongoing design studies, a number of options are under consideration as described in Chapter 4: The Proposed Development. Large areas of land are currently within the Proposed Development Site for the purposes of connections to the Proposed Development from the operational Keadby 1 Power Station and the Keadby 2 Power Station (currently under construction). These areas are likely to be refined prior to submission of the DCO.

Assumptions

- 15.3.10 The following assumptions that have been used to assess impacts to heritage assets are listed below:

- The Proposed PCC Site and K2/ K3 turnaround area; (refer to **Figure 3.2** in PEI Report Volume III).
 - the CCGT and CCP will be located on the 'Main Site' within Keadby Common.
 - all structures will require piling. Piling options would only be fully defined on conclusion of a specific ground investigation at detailed design stage.
- Temporary laydown areas.
 - minimal intrusive works will occur within these areas and no intrusive work will occur in construction the laydown area north of the Proposed Development Site access road, south of the Stainforth and Keadby Canal, since a pre-existing Keadby 2 laydown area will be utilised.
- Proposed Development Site Access Route.
 - The existing route utilised by construction vehicles for Keadby 2 Power Station will be used during the construction and operation of the Proposed Development, with access to the Proposed PCC Site via the existing North Pilfrey bridge. Evaluation of a potential junction improvement, which may include carriageway widening to incorporate a turning lane, is under consideration on the A18 and the existing small cabin on the access route will become a permanent feature for security purposes at the Proposed Development Site.
- Emergency Vehicle and Access Road and Electrical Connection to 132kV substation and Electrical Connection to 132kV Substation:
 - An existing track through Keadby Windfarm land will be used in an emergency to allow an emergency vehicle to access the Proposed Development Site once operational. The road may be subject to works during construction relating to a potential connection under consideration between the Proposed PCC Site and the existing 132kV National Powergrid Substation on Chapel Lane.
- Water Connection Corridor
 - the Water Connection Corridors will utilise existing water pipelines used for Keadby 1 Power Station, as far as reasonably practicable. These pipelines will need to be extended to connect into the Proposed Development Site.
- Abstraction Points
 - The Proposed Water Connection Corridor abstraction options are at or adjacent to the existing Keadby Power Station cooling water abstraction points on the River Trent and alternatively on the Stainforth and Keadby Canal adjacent to the Keadby 2 abstraction point.
 - Dredging is not proposed at the River Trent abstraction point.
 - the existing River Trent water intake will be subject to significant modification.
- Abnormal Indivisible Load Route
 - The route utilises an existing temporary route, currently being used in the construction of Keadby 2 Power Station.
 - The crane currently positioned on the Waterborne Transport Offloading Area on land adjacent to Keadby Lock will be used to transfer components into the Proposed Development via the established route through the existing Keadby Power Station site.

Study area

- 15.3.11 The study area for the identification of non-designated assets was defined as 1km from the Proposed Development Site, with an extension to include the Isle of Axholme Area of Special Historic Interest. This study area has been determined on the basis of professional judgement to provide the context of, and potential for, surviving archaeological remains on the Proposed Development Site given the nature of the Proposed Development and its location.
- 15.3.12 The study area for the identification of designated assets and the potential for impacts caused by development within their settings is set at 3km, with an extension to 5km for designated assets of the highest value (namely, World Heritage Sites, Scheduled Monuments and Grade I listed buildings).
- 15.3.13 The study area is determined using professional judgement and in consultation with the local authority in order to assess the archaeological potential of the Proposed Development Site, and to identify key constraints in the surrounding landscape. It places the application site within its wider heritage context.

Sources of Information - Desktop Research

- 15.3.14 The following sources of information that define the Proposed Development have been reviewed and form the basis of the assessment of likely significant effects on the Historic Environment:
- North Lincolnshire Historic Environment Record (HER) (report dated 8 June 2020);
 - National Heritage List for England (NHLE);
 - Ordnance Survey historic mapping data and historic maps and plans (<https://maps.nls.uk/>) and (<https://www.oldmapsonline.org/>);
 - LIDAR data;
 - published and unpublished documents/reports;
 - British Geological Survey (BGS) Geology of Britain Viewer;
 - Landmark EnviroCheck Report (2020);
 - online research;
 - aerial photographs (<http://www.britainfromabove.org.uk>) and (<http://ncap.org.uk/>); and
 - local authority data.
- 15.3.15 The designated heritage assets within this assessment are identified with their National Heritage List for England (NHLE) reference number. The non-designated heritage assets are identified with their HER reference number, referenced in square brackets, and non-designated assets not listed within the HER with and AECOM reference number. All assets are identified within the text and can be cross-referenced to the gazetteer in Annex A of **Appendix 15A: Cultural Heritage Desk Based Assessment** and located on **Figures 15A.1a – 15A.1b** presented within the appendix.

Field Walkover

15.3.16 A site visit and visual appraisal of heritage assets within the study area were undertaken on 16 July 2020 in order to:

- identify known archaeological sites within the site;
- identify historic buildings and related assets including listed buildings, conservation areas and locally listed buildings within the application site and its surrounding study area;
- identify areas with the potential to contain any previously unidentified archaeological or historical remains;
- identify and assess the setting of heritage assets within the study area; and
- identify the location, extent and severity of modern ground disturbance and previous construction impacts.

Field Investigation

15.3.17 At this early stage, no intrusive ground investigations have been undertaken. The specification for, nature and timings of any future intrusive investigations will be discussed with relevant stakeholders, including the NLC county archaeologist and Historic England, as the EIA progresses and reported in the ES to accompany the DCO Application.

Methodology for Determining Effects and their Significance

Assessment Criteria

15.3.18 This preliminary environmental assessment has been undertaken following relevant elements of key guidance, including:

- Historic England Good Practice Advice Note GPA3, The Setting of Heritage Assets (Historic England 2017); and
- Chartered Institute for Archaeologists, Code of Conduct and Standards and Guidance for Historic Environment Desk-based Assessment (CIfA 2014).

Scope and Level of Assessment

15.3.19 The principles of the impact methodology rest upon independently evaluating the significance of the cultural heritage resources and the magnitude of impact upon that significance. By combining the value of the cultural heritage resource with the predicted magnitude of impact, the significance of the effect can be determined. The effect significance can be beneficial or adverse.

Assessment of Value (Heritage Significance)

15.3.20 The value (heritage significance) of a heritage asset is derived from its heritage interest which may be archaeological, architectural, artistic or historic. The significance of a place is defined by the sum of its heritage values. Taking these criteria into account, each identified heritage asset can be assigned a level of heritage value in accordance with the criteria set out in Table 15.3.

Table 15.3: Criteria for Determining the Heritage Value of Heritage Assets

Heritage Value	Criteria
High	World Heritage Sites Scheduled Monuments Grade I and II* listed buildings Registered battlefields Grade I and II* registered parks and gardens Conservation areas of demonstrable high value Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance. Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II listed buildings Conservation areas Grade II registered parks and gardens Other Conservation areas Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance. Less-well preserved historic landscape character areas, exhibiting reasonable coherence, time-depth or other critical factor(s). Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.
Low	Locally listed buildings Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. Historic landscape character areas whose value is limited by poor preservation and/ or poor survival of contextual associations
Negligible	Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic value. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. Landscape with no or little significant historical merit.

15.3.21 When professional judgement is considered, some sites may not fit into the specified category presented in Table 15.3 above. Each heritage asset is assessed on an individual basis and considers regional variations and individual qualities of sites.

Magnitude of Impact

15.3.22 Having identified the heritage value of the heritage asset, the next stage in the assessment is to identify the level and degree of impact to an asset arising from the Proposed Development. Potential impacts are defined as a change resulting from the Proposed Development which affects a heritage asset. The impacts of a development upon heritage assets can be positive or negative; direct or indirect; long term or temporary and/or cumulative. Impacts may arise during construction or operation and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.

15.3.23 The level and degree of impact (impact rating) is assigned by reference to a four-point scale as set out in Table 15.4 below. The level of impact considers mitigation measures which have been embedded within the Proposed Development as part of the design development process (embedded mitigation).

Table 15.4: Criteria for Determining the Magnitude of Impact on Heritage Assets

Magnitude of impact	Description of impact
High	Changes such that the significance of the asset is totally altered or destroyed. Comprehensive change to, or total loss of, elements of setting that would result in harm to the asset and our ability to understand and appreciate its significance.
Medium	Change such that the significance of the asset is significantly altered or modified. Changes such that the setting of the asset is noticeably different, affecting significance and resulting in changes in our ability to understand and appreciate the significance of the asset.
Low	Changes such that the significance of the asset is slightly affected. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the significance of the asset.
Very low	Changes to the asset that hardly affect significance. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the significance of the asset

15.3.24 An assessment to classify the effect, having taken into consideration any embedded mitigation, is determined using the matrix at Table 15.5 which takes account of the significance (heritage value) of the asset (Table 15.3) and the magnitude of impact (Table 15.2). Effects can be neutral, adverse or beneficial.

Table 15.5: Significance of effect

Heritage value (significance)	Magnitude of impact			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Minor
Low	Moderate	Minor	Minor	Negligible
Negligible	Neutral	Neutral	Neutral	Neutral

15.3.25 This chapter considers that major or moderate effects are significant for the purposes of the EIA Regulations, in accordance with standard EIA practice, however the cultural heritage assessment includes an assessment of the heritage significance of potentially affected assets, in line with the National Planning Policy Framework (NPPF) (MHCLG, 2019a). This also assesses any impact to heritage significance resulting from changes to the setting of heritage assets.

15.3.26 The NPPF defines value of heritage assets as *'the value of a heritage asset to this and future generations because of its heritage interest'* (ibid.) and sets out criteria which should be considered when assessing the significance of cultural heritage assets, which include archaeological, architectural, artistic and historic interest. These criteria are acknowledged in NPS EN-1 (paragraph 5.8.2; DECC 2011) and have been used in the assessment of significance for each affected asset and this information, in conjunction with professional judgement, have been used to assess the value of heritage assets.

15.3.27 Within the NPPF (ibid.), impacts affecting the value of heritage assets are considered in terms of harm. There is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. Although there is no direct correlation between the significance of effects identified through the EIA process and the level of harm caused to heritage significance, the assessment of harm arising from the impact of the Proposed Development will be determined using professional judgement, and with regard to the following considerations:

- a large (significant) effect on a heritage asset would more often be the basis by which to determine that the level of harm to the significance of the asset would be substantial;
- a moderate (significant) effect is unlikely to meet the test of substantial harm and would therefore more often be the basis by which to determine that the level of harm to the significance of the asset would be less than substantial;
- a slight (not significant) effect would still amount to less than substantial harm, which triggers the statutory presumptions against development within s.66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 (HMSO 1990); and
- a neutral effect would be classified as having no harm.

Rochdale Envelope

- 15.3.28 It is assumed that the majority of the Proposed PCC Site (with the exception of areas of vegetation that are to be retained and protected) would be cleared and subject to some below ground disturbance during construction, no matter what the final sizing and layout of the buildings and structures is. The Rochdale Envelope parameters (i.e. the maximum parameters for the Proposed Development and in particular its main buildings and structures) therefore do not affect the construction assessment of impacts on heritage assets.
- 15.3.29 The Construction phase assessments consider the impacts of the Proposed Development buildings and structures on the setting of heritage assets. A worst-case is assessed in terms of building/ structure dimensions and stack heights, taking into account the design parameters set out in **Chapter 4: The Proposed Development** (PEI Report Volume I) and assuming that some piling may be required for some of the structures. Therefore, no further discussion of the Rochdale Envelope parameters is provided in this chapter.

15.4 Baseline Conditions

- 15.4.1 The desk-based assessment for the Proposed Development provided in **Appendix 15A** (PEI Report Volume II) identified the designated and non-designated assets within the defined study area (shown on **Figure 15A-1a** and **Figure 15A-1b** (PEI Report Volume III)).

Designated Assets

- 15.4.2 There are no designated assets within The Proposed Development Site.
- 15.4.3 Within the study area there are 41 designated heritage assets including two Scheduled Monuments (one of which is also a Grade II listed building), a further 37 listed buildings, including three Grade I listed buildings, the remainder being Grade II listed buildings, and one conservation area.
- 15.4.4 There are no World Heritage Sites, Registered Park and Gardens, Registered Battlefields, or Protected Wrecks within the study area.

Scheduled Monuments

- 15.4.5 The Scheduled Monuments comprise of Keadby Lock [1005204], located adjacent to the Proposed Development Site. This monument is also a Grade II listed building [1342734]. It comprises a tidal canal lock and abutments for a former swing bridge constructed between 1793 and 1802 for the Stainforth and Keadby Canal. The second Scheduled Monument is Flixborough Saxon nunnery and site of All Saints medieval church and burial ground [1009382], located approximately 4.9km to the north-east of the Proposed Development Site. It includes the remains of an Anglo-Saxon ecclesiastical site, probably a nunnery, as well as the remains of a ruined medieval church and its attached graveyard.

Listed Buildings

- 15.4.6 The closest listed building to the Proposed Development Site is the Grade II listed Keadby Lock on the Stainforth and Keadby Canal [1342734], which is also a

Scheduled Monument. Other listed buildings in the study area are concentrated in its settlements at Keadby, Althorpe, Gunness, Ealand and Crowle, or in a cluster at Tetley Hall. Other isolated assets include associated with land improvement such as late-18th to early-19th century drainage syphons and sluices [1346690, 1084319 and 1076974], and a former garden feature [1083288]. The study area contains three notable Grade I listed buildings, The Church of All Saints in Belton [1083293], and two called the Church of St Oswald; one in Althorpe [1083258], and one in Crowle [1346672], which is also a conservation area.

Conservation Area

- 15.4.7 The Crowle Conservation Area is in the 5km study area for assets of the highest value. Whilst it is not considered to be an asset of the highest value (as per the criteria for identification in this study area), it provides the context and setting for the Grade I listed Church of St Oswald [1346672] which is an asset of the highest value and it has therefore been included in the baseline.

Non-designated Assets

- 15.4.8 Eight known non-designated archaeological assets are recorded within the Proposed Development Site. A total of 64 non-designated assets are located within the study area and are summarized in **Appendix 15A: Cultural Heritage Desk Based Assessment** (PEI Report Volume II). The assessment identifies known assets within the study area in order to establish the potential for as yet unknown archaeological remains to be present within the Proposed Development Site and their potential significance
- 15.4.9 Eleven non-designated standing buildings are identified in the North Lincolnshire HER within 1km of the Proposed Development Site. As with the designated listed buildings, several of these are located in the area's settlement foci, but a number of isolated 19th century farms are also recorded. This is an asset type that is not featured as strongly in the designated assets.
- 15.4.10 The known archaeological assets within the study area cover a time span between the Neolithic (4,000BC) to modern periods. The following presents a brief summary of the archaeological narrative of the study area. Detailed information is provided in in **Appendix 15A: Cultural Heritage Desk Based Assessment** (PEI Report Volume II)..

Palaeoenvironmental

- 15.4.11 Palaeoenvironmental remains are considered heritage assets based on their potential to reconstruct past environments. The presence of peat deposits within the Proposed Development has been demonstrated [AECOM 1111] and [MLS22432], with deposition occurring between the Late Neolithic and Iron Age periods. Further, palaeochannels pre-dating post-medieval drainage schemes have been identified to the northeast and south of the Proposed Development Site, indicating the presence of a former channel (approximately 13-14m below ground level) of the River Trent beneath the footprint of the Keadby 1 Power Station, with a possible area of higher ground (eyot) to the east.

Early prehistoric (500,000BC to 4,000BC) to later prehistoric (4,000BC to 43AD)

15.4.12 The majority of known evidence for prehistoric activity is located on the higher ground ridges of Crowle and Belton, where remains are not buried beneath post-medieval warping sediments and earlier periods/events of alluviation. Baseline assessment has demonstrated that peat deposition occurred in the late Neolithic period, and there is potential for a buried pre-Neolithic land surface to exist beneath this.

15.4.13 The wetland marsh environment from the Late Neolithic onwards, would be attractive to populations, yielding rich resources (peat, fish, game, plants, wood). The proximity of the area to known sites of prehistoric settlement (such as at Crowle) mean that that this wetland environment would have been easily accessible during these periods. Evidence of Bronze Age activity within the study area includes a hoard of socketed axes [MLS2486] and a Bronze Age shield (beyond the study area), and a possible one-tree log boat identified near White House Farm (also beyond the study area). The latter was found within a peat layer and demonstrates the preservation potential of such deposits.

Roman (43AD – 410)

15.4.14 The recovery of Romano-British ‘bog body’ [MLS71], dated to the late 3rd to 4th centuries c. 270m north of the Main Site demonstrates the level of preservation that peat provides, as well as demonstrating Roman activity within the area. Roman occupation is known to have occurred at Crowle, which may have functioned as a trading post at this time. A possible small Romano-British settlement is thought to exist within the eastern limits of the Proposed Development Site, within the Water Connection Corridor, based on a recorded pottery scatter [MLS17311]. This settlement may be associated with occupation of an eyot (island) during this period.

Early medieval (450 – 1066)

15.4.15 The place names Keadby and Gunness suggest Viking derivation, with Keadby thought to mean ‘Kaeti or keti’s farmstead’ and Gunness to mean ‘Gunni’s headland’ (Cameron 1998, 54 and 57). If settlements existed here at this time they may have been connected to retreating positions of the Danes, mentioned in 11th century Anglo-Saxon chronicles as Danes taking shelter in the marshlands of Axholme in order to use its sea and river connections (Le Quesne 2015, p.11).

Medieval (410 – 1540)

15.4.16 Throughout the medieval period the Proposed Development Site is likely to have remained marshland, used as summer pasture and exploited for the rich fishing and hunting resources that such an environment provides. To date however, no medieval remains have been identified within the Site and the only remains recovered from the study area is a lead spindlewhorl, found in a garden in Gunness [MLS10358].

Post-medieval Period (1540 – 1900)

15.4.17 The post-medieval period saw dramatic and systematic drainage programmes on the Isle of Axholme, converting areas of marshland and moorland into organised, drained and fertile enclosures to create an entirely new landscape. The work comprised cutting of new drains, constructions of dykes, re-directing the flow of the island’s bounding rivers, and warping systems. The ambitious programme began in the 1620s,

designed by Cornelius Vermuyden, who had been commissioned by Charles I to drain the land.

Modern Period (1914 – present)

15.4.18 The first power station was constructed on Site and opened in 1952. The power station was coal fired and comprised a coal store, compounds, chimneys, conveyors, turbine house, boiler house and further features. The power station operated until 1984 and was replaced in 1996 by Keadby 1 Power Station, a gas fired power station constructed on the main footprint of the previous station in the 1990s.

Known Heritage Assets within the Proposed Development Site

15.4.19 There are seven known non-designated below ground heritage assets within the Proposed Development Site. These are listed in Table 15.6 along with each asset's significance (value). Of these, asset [MLS15717] has been removed and is no longer present on the Site.

Table 15.6. List of known non-designated heritage assets located within or in close proximity to the Proposed Development Site

HER reference	Name	Type	Value (Significance)	Period	Description
MLS15717	Deer antlers, Keadby Power Station, 1951	Findspot	Negligible	?Bronze Age	Red deer antlers found in peat during the construction of Keadby Power station.
MLS21639	Cropmark, NW of Pilfrey Farm	?Enclosure, land improvement drain	Low	Post-medieval	A large rectangular enclosure, measuring c.80m across. Other linear marks within the field appear to be warping drains, so together may represent a warping compartment.
MLS22432	SE 8114 1125	Peat deposit, South Soak Drain	Medium	?Prehistoric	Peat deposits up to 2.4m deep, recorded during an auger survey in 2012. The peat contained fragments of birch and alder, together with large oak tree remains.
MLS22755	Palaeochannel north of Keadby	Palaeochannel	Medium	Prehistoric	A former watercourse (palaeochannel) just west of the River Trent was mapped from air photographs in 2003.
MLS24691	Warping Drain (site of), north of Chapel Lane	Land improvement drain	Low	Post-medieval	The site of a post medieval warping drain visible as

HER reference	Name	Type	Value (Significance)	Period	Description
					cropmarks, north of Chapel Lane Keadby.
MLS25874	Site of unnamed farmstead, Keadby with Althorpe	Farmstead	Low	Post-medieval	Demolished unlisted farmstead.
AECOM1111	Scientifically dated peat deposits	Peat deposit	Medium	Neolithic, Bronze Age	A core sample collected in 2013 contained peat deposits dating from the prehistoric period, from the Neolithic to the late Iron Age.

Potential for heritage assets to be present within the Proposed Development Site

15.4.20 In addition to the known cultural heritage assets identified above, the Proposed Development Site has:

- **Palaeoenvironmental:** a high potential for encountering palaeoenvironmental remains that if encountered, would be of medium value;
- **Early Prehistoric:** a low potential for early prehistoric remains that if encountered would be of medium to high value;
- **Later Prehistoric:** medium potential for later prehistoric remains that if encountered would be of medium value;
- **Roman:** high potential for Roman remains that if encountered would be of low / medium value;
- **Early medieval:** low potential and if encountered, these remains would be of low value;
- **Medieval:** low potential and if encountered, of low value;
- **Post-medieval:** medium potential and if encountered, of low value; and
- **Modern:** presence of power stations is evident, and they are considered to be of low value.

15.4.21 Further details relating to the potential for unrecorded buried archaeological remains to be present within the Proposed Development site and their assessed potential and value is presented in **Appendix 15A: Cultural Heritage Desk Based Assessment**. As explained in **Appendix 15A**, the assessment of archaeological potential and significance is based on the data available at the time of writing and takes into consideration the known archaeological assets within the Proposed Development Site and study area, historical and cartographic evidence presented in the baseline. Significances of buried archaeological remains have been increased due to the potential for high preservation of organic remains afforded by the Proposed Development Site’s marshland environment (peat).

15.4.22 As described in section 15.5, a programme of archaeological evaluation will be discussed with relevant stakeholders and a proportionate investigation completed to inform the baseline assessment, which may lead to additional heritage assets being identified within the Proposed Development Site.

Historic Landscape

15.4.23 The Historic Landscape Characterisation Project for Lincolnshire and Isle of Axholme historic landscape characterisation project (Miller 1998, see **Figures 15A.1c and 15A.1d**) has been used to characterise the baseline historic landscape in **Appendix 15A: Cultural Heritage Desk Based Assessment**.

15.4.24 The character of the historic landscape differs either side of the Stainforth and Keadby Canal. To the north of the canal, with the construction of the coal fired power station in the 1950s, the construction of Keadby 1 and the current construction of Keadby 2 the Proposed Development Site has again changed, to become industrial in character. To the south of the canal the Proposed Development Site crosses an historic landscape that comprises post-medieval to modern private planned enclosures and modern fields.

15.4.25 The Isle of Axholme Area of Special Historic Interest is centered on Epworth, with a northern boundary c.2km south of the Proposed PCC Site (Figure 15A.1d). The existing Keadby 1 Power Station does not significantly impinge on this area of interest.

15.4.26 The historic landscape character within the Proposed Development Site to the north of the Stainforth and Keadby Canal has been assessed as being of **low sensitivity to change**. The Proposed Development Site, south of the Canal, borders the Isle of Axholme Area of Special Historic Landscape Interest (that is protected by Policy LC14 of the saved North Lincolnshire Local Plan). Due to this proximity the historic landscape character of this part of the Proposed Development Site has been assessed as being of **medium sensitivity to change**.

Future Baseline

15.4.27 The baseline presented herein is preliminary, relying primarily on data gathered through desktop research and field walkovers. The planned programme of archaeological evaluation has the potential to add to the baseline detailed here.

15.4.28 Aside from the results of the planned programme of archaeological evaluation, the baseline cultural heritage details as presented above are not anticipated to change in the absence of the Proposed Development.

15.5 Development Design and Impact Avoidance

Below Ground Archaeological Deposits

15.5.1 The Proposed Development is located adjacent to the existing Keadby 1 Power Station and Keadby 2 Power Station (under construction). This means that it can share some of the existing infrastructure used for the construction and operation of those existing schemes, reducing the impact of the Proposed Development on buried archaeological remains and reducing the requirement for newly introduced infrastructure into the surrounding landscape and the settings of heritage assets.

15.5.2 As outlined within the consultation responses, given the potential for impact on previously unrecorded archaeological deposits and the high potential for palaeoenvironmental and Roman remains within the Proposed Development Site, a staged programme of further archaeological desk based, and field evaluation is proposed as part of the EIA. This programme will involve the following:

- production of an initial deposit model using available factual ground investigation data presented/ referenced within **Appendix 13A**: Phase 1 Desk Based Assessment and **Appendix 15A**: Cultural Heritage Desk Based Assessment;
- engagement with stakeholders to agree a proportionate field evaluation strategy, taking into account known constraints relating to Keadby 2 Power Station construction which are likely to preclude investigation of certain areas of the Proposed Development Site. This is likely to comprise:
 - targeted geophysical survey/ auger coring in areas of likely impact on the Proposed PCC Site that are not currently in use for Keadby 2 Power Station materials storage¹;
 - targeted geophysical survey in other areas of potential impact including in the vicinity of works which may be required within the Additional AIL Route and/ or Water Connection Corridor (River Water Abstraction Option) and proposed construction laydown areas;
 - where reasonably practicable, coupling archaeological monitoring and/ or works within an initial ground investigation being planned in early quarter 1 2021;
- production and agreement of WSI for the agreed field evaluation strategy and subsequent execution; and
- updating of the initial deposit model of the sub-surface topography of the Proposed Development Site.

15.5.3 The resultant information will be used to inform ongoing design development in order to mitigate physical impacts to previously unrecorded archaeological assets through avoidance during detailed design, wherever reasonably practicable, or where not reasonably practicable, excavation would provide mitigation in the form of preservation by record. An OWSI will be prepared to accompany the DCO application.

Built Heritage

15.5.4 The Proposed Development is located adjacent to the existing Keadby I Power Station and Keadby 2 Power Station (under construction). This means that it can share some of the existing infrastructure used for the construction and operation of those existing schemes, reducing the impact of the Proposed Development on buried archaeological remains and reducing the requirement for newly introduced infrastructure into the surrounding landscape and the settings of heritage assets. Visually, whilst locating the Proposed Development adjacent to existing development results in a concentration of this type of development in one place, it also focuses impacts in that

¹ Refer to Plates in Appendix 15A: Cultural Heritage Desk Based Assessment, including Plate 2 illustrating working constraints associated with any planned investigations.

one place. This limits the potential for new impacts through change to the setting of heritage assets in the local area that may be currently unaffected by the existing development. The use of plume abatement technology on the proposed cooling tower minimises impacts to heritage assets through change to their settings during operation, which would otherwise occur through views of steam rising from the cooling tower over long distances dependent on weather conditions.

15.6 Likely Impacts and Effects

Construction

15.6.1 The Proposed Development is currently at the conceptual phase. In order to identify and assess likely impacts and effects, a number of assumptions have been made, listed in Section 15.3.

15.6.2 Construction of the Proposed Development has the potential to affect heritage assets in the following ways:

- partial or total removal of heritage assets;
- compaction of archaeological deposits by construction traffic and structures;
- changes to local hydrology that could dry out underlying peat deposits and effect preservation levels of heritage assets;
- vibration effects during construction and/or operation of the Proposed Development; and
- adverse effects on the setting of heritage assets as a result of, for example visual intrusion, noise, severance, access and amenity.

Potential Archaeological Deposits

15.6.3 Impacts to buried heritage assets are likely to derive from the following construction works:

- piles, pile caps, ground beams and floor slabs;
- any required ground remediation;
- installation of any below ground surface water attenuation tanks; and
- burial of pipes and cables.

15.6.4 The baseline study has identified the potential for known archaeological assets to be affected by the construction phase of the Proposed Development. These are listed in Table 15.7.

Table 15.7. Summary of Likely Impacts to Known Heritage Assets and Effects

HER reference	Description	Value (Significance)	Description of Impact	Magnitude of Impact	Significance of effect
15717 - MLS1571 7	Red deer antlers found in peat during the construction of	Negligible	Asset is not extant.	None	Neutral

HER reference	Description	Value (Significance)	Description of Impact	Magnitude of Impact	Significance of effect
	Keadby Power Station.				
21639 - MLS21639	A large rectangular enclosure, measuring c.80m across. Other linear marks within the field appear to be warping drains, so together may represent a warping compartment.	Low	Assessment of impact is based on the assumption that no intrusive works will occur in the location of heritage asset or impact the setting of this asset.	None	Neutral
22432 - MLS22432	Peat deposits up to 2.4m deep, recorded during an auger survey in 2012. The peat contained fragments of birch and alder, together with large oak tree remains.	Medium	Assessment of impact is based on the assumption that the temporary laydown area will utilise the existing Keadby 2 laydown area and consequently no intrusive works will occur in the location of this heritage asset or impact the setting of this asset	None	Neutral
22755 - MLS22755	A former watercourse (palaeochannel) just west of the River Trent was mapped from air photographs in 2003.	Medium	Assessment of impact is based on the assumption that no intrusive works will occur in the location of heritage asset or impact the setting of this asset.	None	Neutral
24691 - MLS24691	The site of a post medieval warping drain visible as cropmarks, north of Chapel Lane Keadby.	Low	Assessment of impact is based on the assumption that no intrusive works will occur in the location of heritage asset or impact the setting of this asset.	None	Neutral
25874 - MLS25874	Demolished unlisted farmstead.	Low	Assessment of impact is based on the	None	Neutral

HER reference	Description	Value (Significance)	Description of Impact	Magnitude of Impact	Significance of effect
			assumption that no intrusive works will occur in the location of heritage asset or impact the setting of this asset.		
AECOM111	A core sample collected in 2013 contained peat deposits dating from the prehistoric period, from the Neolithic to the late Iron Age.	Medium	Assessment of impact is based on the assumption that this asset is present, below ground, within the major construction areas. Construction of piling and any ground remediation to depth, has the potential for partial removal of this asset.	Medium	Moderate adverse

15.6.5 As previously assessed, there is the potential for additional undiscovered heritage assets to be present and to be impacted by the Proposed Development. A programme of archaeological evaluation will be conducted during the EIA, which will enable further assessment of the potential magnitude of impact and classification of effect. For the purposes of presenting a worst-case assessment in this ES, it is assumed that piled foundations would be required, which would disturb any below ground deposits. On the basis of existing information, assuming worst-case i.e. assets are of medium to high value and impact magnitude is up to medium, the effect could be classified as moderate adverse (significant).

Built Heritage

15.6.6 The baseline study has identified the potential for impacts to designated and non-designated assets within the study area as a result of change to their settings during construction. These impacts derive from construction-related activities such as noise, lighting and vehicle movements, together with the presence of the Proposed Development within an asset’s setting.

15.6.7 A number of assets were scoped out of further assessment in the baseline study due to the lack of potential for impacts resulting from the Proposed Development. The following 11 designated and non-designated assets are those where it is considered that there is the potential for impact;

- Keadby Lock [1005204; 1342734] (Scheduled Monument and Grade II);
- Keadby Bridge [1067725] (Grade II);

- 94 Old Village Street [1346862] (Grade II);
- Church of St Oswald, in Althorpe [1083258] (Grade I);
- Isle of Axholme Area of Special Historic Landscape Interest (locally designated);
- Wesleyan Methodist Chapel, Keadby [MLS21604] (non-designated);
- North Pilfrey Farm [MLS25266] (non-designated);
- Ealand Warpings [MLS25267] (non-designated);
- Ealand Grange [MLS25268] (non-designated);
- Salisbury House [MLS25440] (non-designated); and
- Keadby Grange [MLS25539] (non-designated).

15.6.8 The Scheduled Monument and Grade II listed building of Keadby Lock [1005204; 1342734] is an asset of **high value**. The asset's value lies in its historic and architectural interest as part of the British canal network and as an example of late-18th century canal engineering and technical innovation. The view from the asset towards the Proposed Development is represented by Viewpoint 3 of the LVIA presented in **Chapter 14: Landscape and Visual Amenity Assessment** (PEI Report Volume II). The setting of the asset is defined by its relationship to the wider canal network and the River Trent, and to associated structures immediately adjacent. The canal was a semi-industrial feature of the landscape, although its character is now more associated with leisure and the appreciation of views of the open landscape when travelling along it. In the immediate vicinity of the lock, this semi-industrial character is more apparent with views across the river featuring the industrial landscape of Gunness and views west featuring the existing Keadby 1 Power Station and Keadby Windfarm. The proposal in the immediate vicinity of the lock involves the perpetuation of an existing route for the transport of abnormal indivisible loads from the River Trent during construction of the Proposed Development. This will take place outside the extent of the Scheduled area and listed building in an area of hardstanding to the north of the asset. This area is currently in use for the construction of Keadby 2 Power Station and a crane is already in place which will continue in use throughout the construction of the Proposed Development. This aspect of the construction of the Proposed Development is therefore assessed as having no further impact on the setting and significance of the Scheduled Monument and listed building.

15.6.9 In terms of views of the Proposed Development in combination with the lock, kinetic views when travelling along the canal will feature views of the Proposed Development and its associated infrastructure, together with the existing Keadby 1 Power Station and Keadby 2 Power Station (currently under construction). This concentration of development in the landscape immediately north of the canal will be a dominating feature of views, particularly when traveling west to east along the canal towards the asset. Nevertheless, the asset is not one that is appreciated through distant views and when travelling in this direction, by the time the viewer reaches the lock they are past the area of impact and views are more focused on the asset and its relationship with the River Trent beyond. In views from the asset towards the Proposed Development Site, some elements of the Proposed Development may be visible in the view behind Keadby 1 Power Station, but it is considered that the change would be minimal. Keadby 1 Power Station is due to reach the end of its operational life in 2025, but the future use of the site and buildings is yet to be determined. In consideration of this, a

cautious assessment of the impact to Keadby Lock would be **very low**, resulting from the continuation of this type of large-scale development within its setting, resulting in a **minor adverse** significance of effect, which is not EIA significant.

- 15.6.10 The Grade II listed Keadby Bridge [1067725] is an asset of **medium value**. The asset's value lies in its historical and architectural interest as an early-20th century piece of technical engineering, that was the first and largest of its kind in Britain. The structure has an industrial character that is matched by its surroundings in the industrial development of the Trent riverside in Gunness and by the presence of Keadby 1 Power Station and Keadby Windfarm on the west side of the River Trent. As these industrial features of the asset's setting are considered to contribute to the asset's context, the addition of the Proposed Development into this setting is not considered to result in adverse impacts on the asset's significance, either through any increased traffic on the road or river during construction, or through the presence of the Proposed Development in views from the asset. Such views will be possible from the footbridge added to the asset's north elevation which already features the aforementioned industrialised landscape of Keadby and Gunness. **No impact** to the asset's heritage value is anticipated as a result of the Proposed Development, resulting in a **neutral effect**, which is not EIA significant.
- 15.6.11 The Grade II listed 94 Old Village Street [1346862] is an asset of **medium value**. Its value lies in its historical and architectural value an example of a moderately wealthy house of the late-18th to early-19th century located in a rural village. The setting assessment of the house noted its important relationship with Old Village Street as it winds through the settlement of Gunness, lined with historic buildings. A view across the River Trent from Old Village Street on approach to the asset featured views of Keadby 1 Power Station and Keadby Windfarm. This view of out of character development was determined to fall within the asset's setting, although it has only a small role to play in terms of the asset's significance. The addition of the Proposed Development behind Keadby 1 Power Station will perpetuate this existing view of out of character development on approach to the listed building, northwards along Old Village Street. A cautious assessment of the impact of the Proposed Development is that it would experience a **very low** impact, resulting in a **minor adverse effect**, which is not EIA significant.
- 15.6.12 The Grade I listed Church of St Oswald [1083258] in Althorpe is an asset of **high value**. Its value lies in its historical, archaeological and architectural value as a medieval church at the centre of its settlement and community. The view from the settlement towards the proposed development is represented by Viewpoint 6 in the LVIA presented as **Chapter 14: Landscape and Visual Amenity**. The setting assessment of the church noted that it is visible in a key view looking towards the settlement of Althorpe from the south-west. Also present in this view, to the west of the church tower and settlement, is the existing Keadby 1 Power Station and Keadby Windfarm. This existing development is a distracting feature of the wider landscape around the settlement and in this view towards the church tower, although it does not interfere with the view of the actual tower and settlement or compete directly with the church tower in the view. The addition of the Proposed Development will perpetuate this existing distracting feature, although it will also concentrate this type of development in one location, limiting the spread of this type of development across the view. A cautious assessment of the impact of the Proposed Development therefore determines that it will experience a **very low** impact, resulting in a **minor adverse effect**, which is not EIA significant.

- 15.6.13 The Isle of Axholme Area of Special Historic Landscape Interest is a locally designated (i.e. non-designated) asset of **high value**. The heritage value of the landscape lies in its historic and archaeological interest as a rare survival of open-field strip-cultivation and turbaries. The setting assessment noted that the Proposed PCC Site lies c.2km north of the northern extent of the Area, where views are available across the flat landscape towards the Proposed Development Site. These feature distant views of the existing Keadby 1 Power Station and Keadby Windfarm and associated pylons routes.
- 15.6.14 The assessment of landscape character within the Proposed Development Site noted that it is defined as modern derelict industrial land and industrial works, and Recently Enclosed Land. Whilst it was concluded within the desk-based assessment **Appendix 15A** that this landscape character within the Proposed Development Site was of low sensitivity to change, the significance of the Isle of Axholme Area places importance on the Proposed Development Site as falling within its setting. The presence of the Proposed Development will perpetuate a form of development in the setting of the Isle of Axholme Area of Special Historic Landscape Interest that is out of character with the defining characteristics of the core area. Nevertheless, the Proposed Development will take place within an area already changed through development of a similar type and scale, which will minimise harm caused through the introduction of this type of development into the landscape.
- 15.6.15 The proposed A18 junction improvement option and proposed permanent security cabin and parking on the access road off the A18 will, however, formalise an existing temporary arrangement at that location, that brings this out of character development closer in the view than Keadby 1 and Keadby 2 (under construction). Together with distant views of the Proposed Development (Main Site), this is considered to result in a **low** impact on the asset through the presence of the Proposed Development within its setting. This results in a **moderate adverse effect**, which, in the absence of mitigation would be EIA significant.
- 15.6.16 The non-designated isolated farmsteads at North Pilfrey Farm [MLS25266], Ealand Warpings [MLS25267], Ealand Grange [MLS25268] and Keadby Grange [MLS25539] are assessed to be of **low value**. The heritage value of these assets lies in the historic interest of the surviving 19th century farm buildings and farmhouses that illustrate the agricultural history of the area, while architectural interest derives from the appreciation of the local vernacular style and materials. They are likely to be adversely affected by the construction of the Proposed Development, due to their rural setting that extends to the Proposed Development Site. The agricultural landscape within the study area includes views of the existing Keadby 1 Power Station and its associated infrastructure, Keadby Windfarm and the construction of Keadby 2 Power Station. These prominent features alter the visual character of the surrounding landscape and detract from the significance of the non-designated farmsteads through erosion of understanding of their agricultural context and removal of parts of their working farmland. This detracting characteristic of the assets' settings will be exacerbated by the construction and presence of the Proposed Development, adding a further detracting feature into their settings, although in the case of construction access, this proposes to use the existing access for construction of Keadby 2 Power Station limiting the introduction of new features into the landscape adjacent to North Pilfrey Farm [MLS25266]. Therefore, despite this intrusion, the siting of the Proposed Development Site minimises harm through concentrating these detracting features in one location, alongside the existing Keadby 1 Power Station and Keadby 2 Power

Station (currently under construction) and reusing their existing infrastructure. The magnitude of impact on these assets is expected to be **medium**, resulting in a **minor adverse effect**, which is not EIA significant.

15.6.17 The non-designated Salisbury House [MLS25440] is also a farmhouse and farmstead of **low value**. As with those described above, it has architectural and historical interest as a surviving 19th century irregular farm complex, located within a settlement. Its setting differs from those discussed above because it is located within the settlement of Keadby and adjacent to the River Trent. The setting assessment noted that the asset's agricultural context does survive to the west of the asset, contributing to its significance. The Proposed Development will be present in views west from the asset and its surroundings alongside the existing Keadby 1 Power Station and Keadby 2 Power Station (currently under construction). Due to the proximity of the Proposed Development to the asset, the predicted impact is expected to be **medium**, resulting in a **minor adverse effect**, which is not EIA significant.

15.6.18 Another non-designated asset located within the settlement of Keadby is the Wesleyan Methodist Chapel [MLS21604]. This asset is assessed to be of **negligible value** as a locally important asset that has undergone significant change, that erodes understanding of its purpose and historic and architectural interest. It is considered that there are other examples of non-conformist chapels in the locality that are in better condition with less alteration than this example. The setting assessment noted the asset's place within the settlement containing 19th century housing that provides its functional context as part of the growth of the settlement related to nearby industry. The Proposed Development will be present in views of the asset in its surroundings. These views already feature the existing Keadby 1 Power Station and its associated infrastructure. Due to the proximity of the Proposed Development to the asset, the predicted impact is expected to be **medium**, resulting in a **neutral effect**, which is not EIA significant.

15.6.19 It is not anticipated that there will be any physical impact upon any designated heritage assets during construction.

Operation

15.6.20 There will be no additional physical impacts to buried archaeological assets as a result of operation of the Proposed Development.

15.6.21 Potential impacts related to operation of the Proposed Development could include operational noise, and vehicle movements for staff access, however these are not considered to result in any change to the assessed levels of impact resulting from construction of the Proposed Development and its physical presence within the setting of heritage assets. Therefore, no additional impacts to assets through changes to their setting are predicted as a result of operation of the Proposed Development. This assessment will be re-evaluated within the Environmental Statement. Any additional impacts identified at that stage will be reported in the Cultural Heritage Chapter of the Environmental Statement.

Decommissioning

- 15.6.22 It is envisaged that the Proposed Development would have an operational life of up to circa 25 years or more, therefore decommissioning activities are currently anticipated to commence after 2050.
- 15.6.23 The strategy for decommissioning is not yet known. Proposals are described in **Chapter 4**: The Proposed Development, including removal or dismantling of plant and equipment to ground level and leaving hard standing and sealed concrete areas in-situ. Any areas of the Proposed Development Site that are below ground level would be backfilled to ground level to leave a levelled area.
- 15.6.24 There would be no physical impacts to buried cultural heritage assets during decommissioning of the Proposed Development, as any impact upon archaeological remains would have been mitigated at the construction phase.
- 15.6.25 There would be temporary indirect impacts to the setting of designated assets in the wider study area during decommissioning, resulting from the use of machinery to dismantle the plant. Decommissioning is likely to affect the setting of those heritage assets described for 'construction' above. However, impacts would be no greater than those recorded during construction and operation, and the setting effects would therefore not be significant.
- 15.6.26 Impacts arising from decommissioning activities would be temporary and the duration would be shorter than the impacts during construction. The impacts would not be greater than those reported during construction.

15.7 Mitigation and Enhancement Measures

Below Ground Archaeology

- 15.7.1 Where feasible, archaeological assets which will experience significant adverse effects arising from the construction of the Proposed Development should be preserved in situ, following the NPPF requirement '*to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible*' (Ref. 6-11, para. 199). This would involve sensitive design measures (embedded mitigation) to avoid areas of significant archaeological potential.
- 15.7.2 Where it is not reasonably practicable to apply design mitigation to the management of the archaeological resource, additional mitigation measures may be applied, which may include a programme of archaeological fieldwork and recording.
- 15.7.3 An initial programme of archaeological evaluation is proposed to inform the mitigation strategy for the archaeological resource. Archaeological investigations will take an iterative approach to the evaluation of archaeological potential and establishing the requirements for archaeological mitigation work. An Outline Written Scheme of Investigation describing the approach and methods to be used will be prepared and submitted with the DCO Application.
- 15.7.4 At detailed design stage, it is envisaged that mitigation will be integrated further into the design of the Proposed Development to minimise impacts on heritage assets and

their setting, as far as reasonably practicable. An appropriate archaeological mitigation strategy for the identified impacts will be agreed with the NLCH Environment Officer, and, where required, Historic England.

Built Heritage

- 15.7.5 The impacts of the Proposed Development on the setting of heritage assets, and in particular, the design of the permanent security gatehouse on the Proposed Development Site access road, will be considered through detailed design and appropriate mitigation measures will be devised to minimise harm to heritage assets through development within their settings.
- 15.7.6 As outlined within Section 15.5, given the potential for impact for previously unrecorded archaeological deposits and the known potential for palaeoenvironmental remains within the Proposed Development Site, a programme of archaeological investigation is proposed. A Written Scheme of Investigation (WSI) outlining the archaeological works will be produced in consultation with NLC Historic Environment Officer. The WSI would establish the objectives, design and processes for the programme of archaeological investigation.

15.8 Monitoring

- 15.8.1 Monitoring is not a requirement at this stage since the full extent of the mitigation strategy is yet to be determined.

15.9 Limitations or Difficulties

- 15.9.1 The desk-based assessment and identification of the cultural heritage baseline is based on information available at the time of writing. Due to the ongoing Covid-19 pandemic, it has not been possible to visit local archives centres to gather historic and archaeological information that would support the baseline assessment.
- 15.9.2 A programme of staged archaeological investigations will enable further assessment of the archaeological baseline, and assessment of significance of effects presented to be confirmed.

15.10 Summary of Likely Significant Residual Effects

Below Ground Archaeology

- 15.10.1 In the absence of further archaeological investigation at the Proposed Development Site, an initial assessment of significance of effects on archaeological assets has been made using available information. Assuming worst-case (assets are of medium to high value) and impact magnitude due to the Proposed Development is up to medium, effects would be moderate adverse (significant). It is anticipated, however, that with appropriate mitigation described in Section 15.7, residual effects are likely to be not significant.

Built Heritage

- 15.10.2 Due to the scale of the Proposed PCC Site, it is envisaged that opportunities to provide effective landscape screening will be limited. Therefore, the residual effects

of the Proposed Development in relation to impacts resulting from change to the setting of designated and non-designated heritage assets will be the same as those reported under construction phase effects for the majority of assets. These effects were not EIA significant.

- 15.10.3 The impact identified at the Isle of Axholme Area of Special Historic Landscape Interest arises primarily through views of the proposed permanent cabin. Due to its size, it is possible to effectively screen the structure in views from the Isle of Axholme Area, or to provide bespoke design solutions for the cabin to minimise harm. This should reduce the potential impact of the Proposed Development to **very low**, on this asset of high value, resulting in a residual **minor adverse effect**, which is not EIA significant.

15.11 References

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