KEADBY 3 CARBON CAPTURE POWER STATION

A collaboration between **SSE Thermal** and **Equinor**

Document Ref: 6.2.15

Planning Inspectorate Ref: EN010114

The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order

Land at and in the vicinity of the Keadby Power Station site, Trentside, Keadby, North Lincolnshire

Chapter 15: Cultural Heritage of ES Addendum including Appendix 15D

The Planning Act 2008

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Applicant: Keadby Generation Limited

Date: May 2022

DOCUMENT HISTORY

Document Ref	6.2.15/ ES Addendum Chapter 15: Cultural Heritage including Appendix 15D
Revision	VP2.0 – Non Change Request
Document Owner	AECOM

CONTENTS

TABLES

15.0 ES ADDENDUM: CULTURAL HERITAGE

15.1 Introduction

15.1.1 This Chapter provides an addendum to the cultural heritage assessment (archaeology) included within the submitted Environmental Statement (ES) and should be read in conjunction with the following documents submitted with the Development Consent Order (DCO) Application and subsequently, during examination:

- **Chapter 15:** Cultural Heritage of the ES Volume I (Application Document Ref. 6.2.15) [**APP-058**];
- **Appendix 15A:** Cultural Heritage Desk Based Assessment (Application Document Ref. 6.3.29) [**APP-093**];
- **Appendix 15B:** Geoarchaeological Hand Auger Survey Fieldwork Report (Application Document Ref. 6.3.30) [**APP-094**]; and
- **Appendix 15C:** Geophysical Survey Fieldwork Report (Application Document Ref. 6.3.31) [**APP-095**].
- **Appendix 15D:** Interim Report on Archaeological Investigation and Recording (Application Document Ref. 6.2.15).

15.1.2 This assessment considers the cultural heritage effects arising from the relevant Additional Information as summarised in sections below.

15.1.3 This Addendum only considers changes in baseline conditions or potential effects since the submitted ES was prepared; if no change is listed then conditions are the same as those presented in these documents.

15.1.4 The Chapter is accompanied by a new Appendix comprising the interim results of archaeological trial trenching and geoarchaeological assessment undertaken under an agreed Written Scheme of Investigation (WSI) during March/ April 2022. This is referred to herein as **Appendix 15D**: Interim Report on Archaeological Investigation and Recording, to preserve numbering of the original ES Appendices.

15.1.5 No updated figures accompany this chapter of the ES Addendum.

15.1.6 A glossary of terms and list of abbreviations used in this ES Addendum is provided within **Application Document Ref. 10.8**.

15.2 Changes in Legislation, Planning Policy and Guidance

15.2.1 The Environment Act 2021 ('The Act') (Her Majesty's Stationary Office (HMSO) 2021) was given Royal Assent after the submission of the Application and sets out legislation to provide a post-Brexit environmental framework for the United

Kingdom. In summary, The Act includes new legislation such as: binding targets on water quality, biodiversity, resource efficiency and waste reduction, and regulation of chemicals.

15.2.2 The majority of The Act is not yet in force. The Office for Environmental Protection (OEP) has been brought into effect but is yet to receive its enforcement powers in England that would apply to the Proposed Development. The Applicant will continue to monitor implementation of The Act throughout the course of Examination and will consider the need for changes where they apply to policy or plans and their implementation, during the course of Examination. Until any changes are made, extant legislation and policies remain in force.

15.2.3 Part 7 of the Act provides for the creation of conservation covenants through a conservation covenant agreement between a landowner and a responsible body. No such covenants exist in respect of the Proposed Development. The majority of The Act is not yet in force. The Office for Environmental Protection (OEP) has been brought into effect but is yet to receive its enforcement powers in England that would apply to the Proposed Development. The Applicant will continue to monitor implementation of The Act throughout the course of Examination and will consider the need for changes where they apply to policy or plans and their implementation, during the course of Examination. Until any changes are made, extant legislation and policies remain in force.

15.2.4 Draft revised National Policy Statements (NPS) for energy infrastructure were published by the Department for Business, Energy and Industrial Strategy (BEIS) on 6 September 2021, after submission of the Application. Consultation closed on 29 November 2021 and BEIS is now considering consultation feedback prior to finalising the revised NPS. These do not constitute the relevant NPS (i.e., they do not have effect under Section 104(1) of the 2008 Act) but may potentially be important or relevant matters for consideration, pursuant to Section 104(2)(d). Until the reviewed NPS is finalised, the extant NPS remains in place.

15.2.5 NPS EN-1 maintains the majority of its guidance on the Historic Environment. Paragraph 5.9.13 adds that when assessing cultural heritage, studies will be required to assess the impact of noise, vibration, light as well as indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected.

15.2.6 The National Planning Policy Framework (NPPF) was updated in July 2021 (MHCLG 2021). With regard to cultural heritage, whilst the policy paragraphs have been renumbered, the policy text remains largely unchanged from that reported in **Chapter 15:** Cultural Heritage of the ES Volume I (Application Document Ref. 6.2.15) [**APP-058**]. One additional paragraph was added, paragraph 198; this considers applications to remove or alter historic statues, plaques and memorials. It is not of relevance to this assessment.

15.2.7 The guidance document 'Principles of Cultural Heritage Impact Assessment in the UK' was published in 2021. It is a guide to good practice in cultural heritage impact assessment published jointly by the Institute of Environmental Management and Assessment (IEMA), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CIfA). The document provides guidance on understanding cultural heritage assets and evaluating the consequences of change. It provides a structured methodology for assessing impacts to cultural heritage. Understanding cultural heritage assets is split into three stages: Description, Significance and Importance, and the process of evaluating the consequences of change is also split into three stages: Understanding change, Assessing impact and Weighting the effect. The methodology described aligns with the methodology used in **Chapter 15:** Cultural Heritage of the ES Volume I (Application Document Ref. 6.2.15) [**APP-058**] and no changes are required as a result of this new guidance.

15.3 Relevant Additional Information

15.3.1 The Applicant has completed further on-site archaeological evaluation, in the form of archaeological trial trenching and geoarchaeological assessment, agreed through a WSI with the North Lincolnshire Council (NLC) Historic Environment Officer (HEO). The findings of this work are considered Additional Information for the purposes of this ES Addendum and described herein and in **Appendix 15D:** Interim Report on Archaeological Investigation and Recording which accompanies this ES Addendum chapter.

15.4 Consultation

15.4.1 Consultation on the Additional Information has been undertaken since publication of the ExA Rule 17 letter in January 2022.

15.4.2 A summary of comments raised via the consultation and other technical engagement is summarised in Table 15-1.

Table 15.1: Consultation responses on the Additional Information

Consultee or Organisation	Date and Nature of Consultation	Summary of Response	How Comments have been addressed in this Chapter of the ES Addendum
North Lincolnshire Council (NLC) (Archaeology)	January 2022 – May 2022 (Technical Engagement to agree approach Rule 17 letter)	A meeting was held with NLC HEO to agree the approach to the Rule 17 response. Subsequently, technical engagement has continued between the Applicant's archaeological representative and NLC HEO regarding progress of the field evaluation and to agree the strategy for further work and updates to Application documents required.	Additional information gathered as a result of the field evaluation is summarised in Section 15.6 of this ES Addendum and the findings of the field evaluation are presented in the accompanying **Appendix 15D**. An updated Document 7.4 - Outline Written Scheme of Investigation (OWSI) has been produced to outline the agreed mitigation strategies.

15.5 Updated Baseline Conditions

Existing Baseline

15.5.1 The Additional Information alters the existing baseline conditions for Cultural Heritage as described in **Chapter 15** of ES Volume I [**APP-058**].

15.5.2 Table 15.7 in **Chapter 15** of ES Volume I [**APP-058**] lists the known non-designated below ground heritage assets located within the Proposed Development Site. At the time of writing, the table was based on the Historic Environment Record (HER) data and the results of the geophysical survey and hand-auger survey. As a result of the Additional Information, the interpretation/ description of some of these assets has changed. Table 15.2 below lists the assets that have changed, with their previous interpretation and their updated interpretation/ description detailed.

Table 15.2: Known Non-Designated Below Ground Heritage Assets Located Within the Proposed Development Site

HER Reference	[redacted]	Name	Type	Period	[redacted]
AECOM3333	Possible partial enclosure	Post-medieval warping drain	Land improvement drain	Post-medieval	Post-medieval warping drain identified during the archaeological trial trenching and geoarchaeological assessment (**Appendix 15D**)
AECOM3334	Possible partial enclosure	N/A	N/A	N/A	Feature not identified during the archaeological trial trenching and geoarchaeological assessment (**Appendix 15D**)
AECOM3339	Possible post-medieval	Post-medieval	Land improvement drain	Post-medieval	Post-medieval warping drains identified during the archaeological

HER Reference	[illegible]	Name	Type	Period	[illegible]
	warping drains	warping drains			trial trenching and geoarchaeological assessment (**Appendix 15D**)
AECOM3342	Former field boundaries	Modern land drain	Land improvement drain	Modern	Modern land drain identified during the archaeological trial trenching and geoarchaeological assessment (**Appendix 15D**)
AECOM3341	Undetermined linear feature	N/A	N/A	N/A	Feature not identified during the archaeological trial trenching and geoarchaeological assessment (**Appendix 15D**)
AECOM3338	Undetermined linear feature	Modern land drain	Land improvement drain	Modern	Modern land drain identified during the archaeological trial trenching and geoarchaeological assessment (**Appendix 15D**)

Future Baseline

15.5.3 The future baseline conditions have not changed as a result of the Additional Information.

15.6 Likely Impacts and Effects

Construction

Additional Information

Below Ground Archaeological Remains

15.6.1 The Additional Information has the potential to change the assessment of below ground archaeological remains, as reported in **Chapter 15:** Cultural Heritage of ES Volume I (Application Document Ref. 6.2.15) [**APP-058**].

15.6.2 As a result of the Additional Information, the assessment of the value of asset [AECOM3333], and the resulting magnitude of impact and significance of effect as reported in **Chapter 15** has changed. Asset [AECOM3333] was confirmed to be a warping drain of post-medieval date. The value of this asset derives from its archaeological interest and potential to enhance archaeological recording of warping systems and processes which could contribute to local research. The asset is assessed to be of low value using the criteria for determining the value of heritage assets provided in Table 15.4 of **Chapter 15**: Cultural Heritage (**APP-058**).

15.6.3 The Proposed Development in this area comprises the Proposed PCC Site which will result in permanent ground disturbance due to ground levelling, piling and installation of below ground structures and pipework. The asset forms part of a larger landscape of warping systems and the ground disturbance is likely to result in the removal of a small proportion of the asset. This would result in a slight change to the asset but would not reduce its value. This would constitute a low magnitude of impact (using the criteria for determining the magnitude of impact on heritage assets provided in Table 15.5 of **Chapter 15 - APP-058**). In accordance with the matrix for classifying the significance of effects provided in Table 15.6 of **Chapter 15**: Cultural Heritage (**APP-058**), this would result in a minor adverse effect, which is **not significant**.

15.6.4 As a result of the Additional Information, asset [AECOM3334] was not identified and it was established this feature doesn't exist and is therefore removed from the assessment.

15.6.5 As a result of the Additional Information, asset [AECOM3339] was confirmed to be a post-medieval warping drain, therefore there is no change to the assessment as reported in **Chapter 15:** Cultural Heritage of ES Volume I (Application Document Ref. 6.2.15) [**APP-058**].

15.6.6 As a result of the Additional Information, the assessment of the value of asset [AECOM3342], and the resulting magnitude of impact and significance of effect as reported in **Chapter 15** has changed. Asset [AECOM3342] was confirmed

to be a modern land drain. The asset has no archaeological value and is therefore removed from the assessment.

15.6.7 As a result of the Additional Information, asset [AECOM3341] was not identified and it was established this feature doesn't exist and is therefore removed from the assessment.

15.6.8 As a result of the Additional Information, the assessment of the value of asset [AECOM3338], and the resulting magnitude of impact and significance of effect as reported in **Chapter 15** has changed. Asset [AECOM3338] was confirmed to be a modern land drain. The asset has no archaeological value and is therefore removed from the assessment.

Built Heritage

15.6.9 There will be no change to the assessment of built heritage during construction as a result of the Additional Information.

15.6.10 Decommissioning There will be no change to the assessment of below ground archaeological remains and built heritage during decommissioning as a result of the Additional Information.

15.7 Additional Mitigation, Monitoring and Enhancement Measures

Additional Information

15.7.1 As a result of the Additional Information, the OWSI) (**Application Document Ref: 7.4** has been updated to reflect the current status of the archaeological works.

15.7.2 The OWSI has also been updated to outline the strategy on reporting for the archaeological evaluation works and sets out the potential mitigation strategies that may be required following the results of the final report (York Archaeology, 2022). The OWSI has been subject to review, comment and agreement by NLC HEO prior to submission into examination at Deadline 6a.No additional mitigation measures are required for built heritage as a result of the Additional Information.

15.8 Limitation or Difficulties of Additional Assessment

15.8.1 During the archaeological trial trenching and geoarchaeological assessment, a total of 50 trenches were proposed, of which four were unable to be excavated due to poor ground conditions. In addition, several trenches were realigned/ moved due to modern land drains.

15.9 Summary of Updated Likely Significant Residual Effects

15.9.1 As a result of the Additional Information, the assessment of effects on below ground archaeological remains has changed, resulting in no new or additional significant adverse effects. Therefore, there are no likely significant residual effects.

15.9.2 There are no changes to the conclusions of the assessment of likely significant residual effects on built heritage, as presented in **Chapter 15**: Cultural Heritage of ES Volume I (Application Document Ref. 6.2.15) [**APP-058**].

15.10 References

Department for Business, Energy and Industrial Strategy (BEIS) (2021). Draft revised National Policy Statements.

Her Majesty's Government. (2021) The Environment Act 2021.

Institute of Environmental Management and Assessment (IEMA) (2021) *Principles of Cultural Heritage Impact Assessment. Institute of Environmental Management and Assessment.*

York Archaeology (2022) Final Report on Archaeological Investigation and Recording. Report forthcoming.

York Archaeology

The Keadby 3 Carbon Capture Power Station Project: Interim Report on Archaeological Investigation and Recording

Report Number YA/2022/063

The Keadby 3 Carbon Capture Power Station Project:
Interim Report on Archaeological Investigation and Recording

York Archaeology – Nottingham Office
Unit 1 Holly Lane, Chilwell, Nottingham NG9 4AB
Phone: +44 (0)115 8967400
yaenquiries@yorkat.co.uk www.yorkarchaeology.co.uk

KEY PROJECT INFORMATION

Project Name	Keadby 3 Carbon Capture Power Station Project
TPA Project Code	KAS2
Report status	Interim Report
Type of Project	Evaluation
Client	AECOM Limited
NGR	482351 411796
Authors	O. Davies-Ellis, R. Lowther
Illustrations	M. Hughes
Editor	K. Poole
Report Number and Date	YA/2022/063
Version and Filename	V3 KAS_INTERIMv3

SUMMARY

- York Archaeology were commissioned by Keadby Generation Limited to undertake archaeological trial trenching and geoarchaeological test-pitting in relation to the proposed carbon capture power station (the Proposed Development) (Planning Inspectorate Ref: EN010114), on land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe, DN 17 3EF (the Proposed Development Site).

- The archaeological works followed a Written Scheme of Investigation (WSI) prepared by AECOM (archaeological consultants to Keadby Generation Limited) and in accordance with the Chartered Institute for Archaeologists Code of Conduct (CIfA) (2020a) and the Standard and Guidance for Archaeological Field Evaluation (CIfA 2020b).

- Previous phases of evaluation have been undertaken as part of the Proposed Development including a geophysical survey (Magnitude Surveys, 2021) and a geoarchaeological hand auger survey (Trent and Peak Archaeology 2021) undertaken in 2021.

- The bulk of identified features are interpreted as dug channels relating to the practice of flood-warping of the area. However, features in Trenches 32, 27, 43 and 44 may represent earlier field boundaries/drainage that was subsequently covered by later warping practice.

- Organic silt-clay peat was found as a layer across the majority of both site areas. Five column samples and associated bulk samples were retained from small depressions of the 'natural' Sutton Sands which will be subject to forthcoming palaeoenvironmental and radiocarbon assessment. Macrofossil wood samples will also be analysed by an archaeobotanist. An OSL sample was also collected to allow the possibility to discern reworking of the Sutton Sands. The analysis of these samples will form part of an updated geoarchaeological assessment in due course, providing an updated history of the evolution of the site area.

CONTENTS

LIST OF PLATES

LIST OF FIGURES

1. INTRODUCTION

1.1 Site Background

1.1.1 York Archaeology was commissioned by AECOM and Keadby Generation Limited to undertake a programme of archaeological investigation and recording at Keadby 3 carbon capture power station, adjacent to existing Keadby 1 and Keadby 2 power stations(Figure 1, from here on referred as 'the Site').

1.1.2 Groundworks consisted of a total of 50 trenches across the two areas, each measuring 50m (L) x 2m (W). A total of 26 trenches in Area 1 and 24 trenches in Area 2 were proposed (refer to Figures 1-5), although four trenches in Area 1 were not excavated due to ground conditions.

1.1.3 Works for this archaeological investigation were conducted between the 15th March and 14th April 2022. These works were conducted in compliance with the methodology prescribed in the approved Written Scheme of Investigation (WSI) produced by AECOM (2022) with the guidance of the North Lincolnshire Planning Archaeologist.

2. SITE BACKGROUND

2.1 Location, Topography and Geology

2.1.1 The Site is located within and near to the existing Keadby Power Station site near Scunthorpe, North Lincolnshire, and lies within the administrative boundary of North Lincolnshire Council (Figure 1). It is centred on national grid reference (NGR) 482351 411796 and encompasses an area of approximately 69.4 hectares (ha). This includes an area of approximately 18.7 ha to the west of Keadby 2 Power Station in which the generating station (CCGT plant, cooling infrastructure and CCP) and gas connection will be developed (the Proposed PCC Site).

2.1.2 Two areas within the Site have been identified for further evaluation, comprising Area 1 which is located on Keadby Common (the Proposed PCC Site), immediately to the west of the Keadby Power Station sub-station and Area 2, which is located across arable fields (Construction Laydown Area 2), immediately to the south of the Stainforth and Keadby Canal (Figure 1).

2.1.3 Ground level across Area 1 is relatively flat, ranging from *c* 0.55-0.8m above Ordnance Datum (AOD). Ground level across Area 2 ranges from *c* 0.8–1.25m AOD, with the lower lying land being located in the east of the area.

2.1.4 The underlying geology across both areas is recorded as alluvium and warp deposits overlying the Sutton Sand Formation, which in turn overlies the Mercia Mudstone bedrock (British Geology Survey 2022).

2.1.5 The Cranfield Soil Site Reporter records the site as an area of Loamy and clayey soils of coastal flats with naturally high groundwater (Soilscapes 2022).

2.2 Historical and Archaeological Background

2.2.1 The archaeological and historical background of the Proposed Development Site has been set out in detail in a Desk-Based Assessment (Appendix 15A, ES Volume II – Application Document Ref. 6.3.29 [APP-093]) and is summarised here. It utilised a Study Area comprising 1km from the boundary of the Site.

Palaeoenviromental

2.2.2 Palaeoenvironmental remains are considered heritage assets based on their potential to reconstruct past environments. The presence of peat deposits within the Site and study area has been demonstrated, 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 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.

Bronze Age (*c* 2400 — 700 BC) and Iron Age (*c* 700 BC — AD 43)

2.2.3 The majority of known evidence for prehistoric activity is located on the higher ground ridges of Crowle and Belton, in areas not impacted by the post-medieval warping sediments and earlier alluviation events. 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.

2.2.4 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 this wetland environment would have been easily accessible during these periods. Evidence of Bronze Age activity in the wider area includes a hoard of socketed axes and a Bronze Age shield, and a possible one-tree log boat identified near White House Farm. The latter was found within a peat layer and demonstrates the preservation potential of such deposits.

Romano-British Period (*c* AD 43 — 410)

2.2.5 The recovery of a Romano-British 'bog body', dated to the late 3rd to 4th centuries, *c* 270m north of the 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 Site, within the Water Connection Corridor, based on a recorded pottery scatter. This settlement may be associated with occupation of an eyot (island) during this period.

Early Medieval Period (*c* AD 410 — 1066) and Medieval Period (*c* AD 1066 – 1485)

2.2.6 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'. 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.

2.2.7 Throughout the medieval period the Site is likely to have remained marshland, used as summer pasture and exploited for the rich fishing and hunting resources that such an environment would have provided. To date, however, no medieval remains have been identified within the Site and the only remains recovered in the vicinity of the Site is a lead spindlewhorl, found in a garden in Gunness.

Post-Medieval Period (*c* AD 1540 – 1899) and Modern Period (*c* AD 1899 – Present)

2.2.8 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.

2.2.9 The first power station was constructed within the Keadby Power Station 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

3. AIMS AND OBJECTIVES

3.1 Aims

3.1.1 The Site-specific aims have been developed to address the key areas of archaeological and palaeoenvironmental interest identified from the geophysical survey and hand auger survey results, and through research of the archaeological and historic baseline. These site-specific aims include:

- To assess the date, extent and palaeoenvironmental potential of any organic deposits and possible former land surfaces that may survive;
- To record the presence / absence, location and extent of archaeological evidence associated with the prehistoric, Roman and post-medieval activity in the area;
- To assess the effect that later activity had on the state of preservation of any archaeological and palaeoenvironmental remains; and
- To inform research questions to be addressed during any archaeological mitigation works.

3.2 Objectives

3.2.1 The general objectives of the archaeological trial trenching were:

- To confirm the presence or absence of surviving archaeological remains;
- To determine the location, nature, extent, date, condition, state of preservation, significance and complexity of any archaeological remains and geoarchaeological / palaeoenvironmental sequences;
- To determine the likely range, quality and quantity of artefactual and environmental evidence present;

- To interpret the archaeological remains within their local, regional and national archaeological context; and
- To inform the requirement for and scope of any archaeological mitigation works that may be required.

4. RESULTS

4.1 Overview

4.1.1 A total of 46 trenches, measuring 50m by 2m, were excavated within the site. These excavations were divided into two areas. Area 1 consisted of 22 trenches, with 4 not competed due to wet ground conditions. The southern field within Area 1 had been the site of modern rubble dumping, which may have removed any relevant features/deposits. Area 2 contained the remaining 24 trenches, several of which were moved due to field drains. The following trench overview only includes excavations that had potential or confirmed archaeological features.

4.2 Trench 01 (Plate 01)

4.2.1 Trench 01 was situated in the far north-western corner of Area 1. At the base of the trench were natural sands, overlain by peat deposit (0103), which measured 0.24m thick. This had been cut by possible cut warp drain/channel [0105], which matched the geophysical results. It ran on a north west-south east alignment in the western corner of the trench and measured in excess of 2.6m in width and 0.34m in depth. However, the entire profile was not uncovered as it extended outside the limit of excavation. The associated fill (0106) consisted of repeated laminations of sand/ silty sand very closely resembling (0102). This feature is provisionally assumed to represent a post-medieval linear dug to direct water for land warping, hereafter referred to as warp drain/channels. Geophysical results indicated these features continued in Trenches 04, 11, 16.

4.2.2 Covering [0105] and (0103) was a 0.36m thick warp deposit (0102), which in turn was overlain by agricultural topsoil (0101), measuring 0.36-0.45m in thickness.

4.3 Trench 02

4.3.1 Trench 02 was situated in the north-western edge of Area 1. The sequence in-section consisted of natural sands, followed by 0.22m thick peat deposit (0203), overlain by 0.22m thick alluvium (0203), with agricultural topsoil completing the sequence.

Geophysical results indicated the presence of one east-west aligned feature in this trench, which was established as a modern field drain.

4.4 **Trench 03**

4.4.1 Trench 03 was situated in the north-western edge of Area 1. The sequence in-section was similar to that in Trench 02. Geophysical results indicated that two features were present in this trench. These comprised an east-west aligned feature, which was established to be a modern field drain, and a northeast-southwest aligned linear feature, which could not be identified in the trench base or after cleaning trench sections.

4.5 **Trench 04**

4.5.1 Trench 04 was situated in the north-western corner of Area 1, running north-south. Overlying natural sands was peat deposit (0402), measuring between 0.34-0.50m thick, which had been cut by a possible cut warp drain/channel [0405]. This was one of three linear features indicated by the geophysical survey to be present in this trench. It ran on a northwest – southeast alignment and measured 4.40m in width by 0.34m in depth. The associated fill (0406) consisted of repeated laminations of sand/ silty sand light brownish-yellow in colouration. The other potential linear feature, was right-angled and thought to represent a possible enclosure, but could not be located in the trench.

4.5.2 Immediately above the peat and drain/channel [0405] was agricultural topsoil (0401).

4.6 **Trench 05**

4.6.1 Trench 05 was situated along the northern edge of Area 1, running east-west. Natural sands were covered by 0.26m peat deposit (0502), which was overlain by agricultural topsoil. Geophysical results indicated the presence of one north-south feature in this trench, which was established as a modern field drain.

4.7 **Trench 06**

4.7.1 Trench 06 was situated along the western edge of Area 1, running north-south. The sequence in-section consisted of natural sands, covered by 0.26m thick peat deposit (0602), in turn covered by agricultural topsoil (0601). Geophysical survey highlighted the possible presence of two linear features in this location. Both were confirmed to be land drains.

4.8 **Trench 07**

4.8.1 Trench 07 was north-south aligned and situated along the western corner of Area 1. The sequence in-section consisted of natural sands, covered by 0.26m thick peat deposit (0702), in turn covered by agricultural topsoil (0701). Geophysical survey indicated the same results as Trench 06; both were again confirmed as land drains.

4.9 **Trench 10 (Plates 3,4)**

4.9.1 Trench 10 was north-south aligned and was located in the centre of Area 1. The sequence in-section consisted of natural sands, followed by 0.16m thick peat deposit (0703), overlain by agricultural topsoil.

4.9.2 Geophysical findings suggested the presence of two possible linear features in this part of the Site. Two features, representing probable warp drains were uncovered. Linear feature [1005] was a southwest-northeast aligned linear feature measuring 6.02m in width and 0.22m in depth. The related fill (1006) was a light brown- yellow silt/sand laminations.

4.9.3 Near the centre of the trench, [1007] was a similar east-west aligned linear feature, measuring 0.38m in depth and 2.81m in width. Fills consisted of a primary fill of dark brown sandy silt (1010), containing moderate organic remains (this fill was bulk sampled), covered by upper fill (1008), comprising light yellowish-brown sand with regular well-defined silty sand laminations. This feature appeared to be a warp drain.

4.9.4 Neither of these features corresponded closely to the geophysical survey, as no linear features were indicated where [1005] was found, and [1007] was positioned in the approximate location of a geophysical anomaly, but lacked the curvilinear nature of the feature indicated by the survey. Moreover, a further possible feature that the survey suggested would be present in the southern end of the trench could not be found.

4.10 **Trench 11 (Plate 5)**

4.10.1 Trench 11 was present in the centre/centre western part of the Site, running northeast-southwest. Natural sands were overlain by peat deposit (1102), measuring 0.09-0.24m in thickness, in turn covered by agricultural topsoil.

4.10.2 Geophysical data identified the potential for four linear features to be present in this part of the Site, but only two linear features were identified. The north/northwest-south/southeast aligned cut [1005] measured 4.10m in width by 0.68m in depth and truncated peat deposit (1102). It contained a single fill (1105), composed of light brownish-yellow sand with regular well-defined silt laminations. This feature

corresponded with geophysical data, and was provisionally identified as a warping channel/drain. The other feature was a modern field drain, which did not appear on the geophysical survey.

4.11 **Trench 12 (Plates 6, 7)**

4.11.1 Trench 12 was situated in the centre of Area 1. Natural sands were overlain by peat (1202), measuring 0.26-65m thick (which was column/bulk sampled). Geophysical survey indicated the presence of three linear features, of which all were identified. These consisted of two probable warp drains, [1205], [1209] and a field drain. Feature [1205] was north-south aligned and measured 1.52m in width and 0.25m in depth. Feature [1209] was of a similar nature and orientation. The associated fills of both features consisted of repeated laminations of sand/ silty sand. Geophysical data implies that [1205] and [1209] met as they headed north. The other linear feature found was a field drain.

4.11.2 Agricultural topsoil (1201) completed the sequence.

4.12 **Trench 13**

4.12.1 Trench 13 was situated in the north-east corner of Area 1 and ran north-south. The sequence in-section consisted of natural sands, overlain by peat (1302), 0.17m thick, covered by agricultural topsoil. Geophysical survey indicated the presence of one linear east-west aligned feature, which was located in the trench and was established to be a modern land drain.

4.13 **Trench 15**

4.13.1 Trench 15 was situated towards the east of Area 1 and was aligned east-west. The sequence in-section was similar to Trench 13, although here the peat (1502) measured 0.26m thick. Geophysical survey indicated the presence of one linear north-south feature, which was established as a modern land drain.

4.14 **Trench 16 (Plate 8)**

4.14.1 Trench 16 was situated towards the east of Area 1, and ran east-west. At its base were natural sands, overlain by a 0.19m thick layer of peat (1602). Geophysical data indicated a possible weak linear continuation from Trench 12, which was found as [1604]. This feature was more substantial than the survey suggested, and is again likely a warping channel/drain. It measured 3.24m in width and 0.41m in depth and cut through the peat and sands. It contained a single fill (1605), a light yellow- brown formed from repeated silt/sand laminations.

4.15 **Trench 19 (Plate 9)**

4.15.1 Trench 19 was present in the south-western corner of Area 1. Much of the upper sequence had been removed by a modern tip for demolition waste, (1901). Limited amounts of peat (1902) survived, measuring less than 0.20m in section, but as with elsewhere on the Site were seen to overlay natural sands.

4.15.2 No geophysical data was recorded for this part of the Site, but three east-west aligned linear features were uncovered: [1906], [1910], and [1912]. Linear feature [1906] measured 1.44m at its greatest width and was 0.46m in depth. Associated fills consisted of a lower dark silty sand layer (1907), overlaid with (1908) a light bluish grey clayey silt.

4.15.3 Linear feature [1909] was more heavily truncated by the demolition event, but from the remaining section of feature it could be seen to have a dark silty sand basal fill (1910) and a light brownish grey silty clay upper fill (1911).

4.15.4 Linear feature [1912] measured at least 1.34m with a depth of 0.37m. The feature contained a marginally more complex fill sequence. Working downwards stratigraphically, (1915) was visually and in composition identical to (1908) and (1911). This overlaid a narrow lens of mid-greyish brown silty clay (1914). At the base was another dark silty sand fill (1913)

4.15.5 Environmental samples were taken from the lower organic fills of [1906] and [1912]

4.15.6 No concrete evidence for usage of these features was determined, but they are provisionally assumed to represent land drainage of undetermined date, pending environmental sample analysis.

4.16 **Trench 27 (Plates 10, 11)**

4.16.1 Trench 27 was located in the north-western corner of Area 2, on the far side of the goods road. Due to the presence of a nearby field drain, this trench was moved some 28m to the west of its original agreed location. Geophysical data indicated the presence of a single, north-south aligned feature, which was located in the trench and recorded as [2705]. This feature measured 2.30m in width and 0.08 in depth. Its lower fill (2706) consisted of a mix of alluvial and redeposited peat (2706) and was covered by upper fill (2707), composed of mid grey brown laminated silt and sand. This feature may represent a field boundary/drainage predating the post-medieval warping deposits.

4.16.2 A further cut feature was found to the west of [2705] but was not seen on the geophysical survey. It was recorded as [2708] and was interpreted as a wrap channel/drain. It did not have clear profile/ heading defined, due to the angle at which it appears within the excavation.

4.17 **Trench 28**

4.17.1 Trench 28 was located in the centre-north corner of Area 2, on the far side of the goods road. Natural sands (2803) were overlain by peat, 0.06m thick and then by agricultural topsoil. One north-south feature was identified within this part of the Site by the geophysical survey, this was established as a land drain.

4.18 **Trench 32 (Plates 13)**

4.18.1 Trench 32 ran northwest-southeast to the north-centre of Area 2. Geophysical findings indicated the presence of a single north-south aligned linear feature, which was located in the trench and recorded as [3206]. This feature measured 2.40m in width and 0.6m in depth. It contained three distinct fills, consisting of basal fill (3212), a dark grey-brown mixed sand/silt with frequent organics, covered by (3208), a mottled mid grey brown sand with remains of redeposited peat substance, with upper fill (3202), completing the sequence. This latter fill resembled the warping deposits.

4.18.2 A further, truncated, linear feature was found running parallel to [3206], and was recorded as [3210]. A total width of 1.34m and depth of 0.17m survived. The fill consisted of a light brown yellow sand mixed with the occasional lump of sandy peat substance. No clear usage could be identified.

4.19 **Trench 33**

4.19.1 Trench 33 ran north-south, and was situated in the north-centre of Area 2. In-section recording showed a peat layer at its base, less than 0.1m thick on average, covered by an alluvial layer, some 0.16m thick, representing possible remains of warp flooding. Agricultural topsoil completed the sequence.

4.19.2 Geophysical data indicated the possible presence of two east-west aligned linear features, neither of which could be identified in the trench.

4.20 **Trench 34**

4.20.1 Trench 34 was present in the north-east corner of area 2, running east-west. It contained very narrow band of peat (3402) at its base covered agricultural topsoil.

Geophysical evidence suggested the presence of a single linear, which was identified in the trench as a land drain.

4.21 **Trench 35**

4.21.1 Trench 35 was present in the east corner of Area 2, running north-south. It contained Agricultural topsoil, and a band of peat (3502). Geophysical evidence suggested two linear readings, both of which were found to be land drains.

4.22 **Trench 36 (Plates 13, 14)**

4.22.1 Trench 36 was located near the centre of Area 2 and ran on a northwest-southeast alignment. Geophysical survey indicated the possible presence of three features. Two of these were clearly located, and an additional feature was identified.

4.22.2 Linear feature [3607] ran on a north-south alignment, but its full dimensions were uncertain as it was truncated by another linear feature, [3605]. Its single fill (3612) consisted of a light brown yellow sand mixed with the occasional lump of sandy peat substance. No clear usage could be determined.

4.22.3 Linear feature [3605] measured 1.8m in width, 0.76m in depth and ran roughly north-south. This likely indicated a continuation of [3206]. The primary fill was a mottled, light-yellow sand with peat inclusions, most likely a result of redeposition. A small light brown-yellow laminated silty/sand fill was noted overlaying (3611). This was assumed to be the result of warp flooding infilling what remained of the ditch.

4.22.4 The other feature found in the trench, not identified by the geophysics, was a large north-south aligned ditch, [3606]. It measured 2.72m wide and 0.94m in depth. Associated fills were a primary fill (3614) of mid, reddish-brown silty sand with moderate organics (which was bulk sampled), covered by an upper fill of mid orange-brown silty sand. A timber was located in the section. It was badly degraded and could not be species-identified, but showed with no indication of having been worked. This feature was provisionally identified as a field boundary/drainage predating the post-medieval warping deposits.

4.23 **Trench 37**

4.23.1 Trench 37 was aligned northeast-southwest, and was located along the western edge of Area 2. A similar sequence to other trenches, of natural sands covered by peat and then agricultural topsoil, was observed. Neither of the two potential features suggested to be present by the geophysical survey could be found.

4.24 **Trench 38**

4.24.1 Trench 38 was aligned north-south, and was located along the western side of Area 2. Neither of the two potential features suggested by the geophysical survey could be found, but a field drain was present.

4.25 **Trench 41**

4.25.1 Trench 41 was present along the western edge of Area 2. It contained a notable depression to the natural sands which had infilled with a peaty substance, measured at 1.65m at lowest depth. Only two field drains were present.

4.26 **Trench 42**

4.26.1 Trench 42 ran on a northwest-southeast alignment, and was located in the south-western corner of Area 2. The linear feature present on the geophysical survey was identified and found to be a field drain.

4.27 **Trench 43 (Plate 16)**

4.27.1 Trench 46 was situated in the south-central section of Area 2. It contained a thick warp deposit up to 0.56m in thickness. Geophysical survey had indicated the possibility of a series of intersecting features. An assumed warp drain [4305] was found, but this did not clearly match the geophysical data.

4.27.2 Feature [4305] did not have clear profile/ heading defined, due to the angle at which it appeared within the excavation. Its maximum depth was 0.54m, though rapidly rising groundwater hindered excavation. The associated fill (4306) was a light red-yellow with fine silt/sand laminations identical to the upper warp deposits.

4.28 **Trench 44 (Plate 15)**

4.28.1 Trench 44 ran on a northeast-southwest alignment, and was situated in the south-central of part of Area 2. Deposits in section indicted warp flooding measuring some 0.19m thick, along with peat at least 0.16m thick. Three potential features were identified in the geophysical data, of which two were clearly identified. One as a field drain, the other was a linear feature recorded as [4404].

4.28.2 Feature [4404] measured 0.90m wide and 0.41m in depth. It contained a darker basal fill (4407), covered by upper mixed silty sand (4406). Provisionally assumed to represent a pre-warping land drainage/ boundary ditch.

4.29 **Trench 46**

4.29.1 Trench 46 was situated in the south-central section of Area 2. Geophysical survey indicated an undetermined signature, this was identified as a damaged field drain.

5. DISCUSSION OF ARCHAEOLOGICAL FINDINGS

5.1.1 The vast majority of the archaeological features identified during the trenching excavation related to the post-medieval process of flood warping. The stratigraphy for Area 2 in particular showed an undulating layer of the sediment formed during the warping process. Features identified in Trenches 01, 04 ,11, 12 and 16 offer clear examples of the practical methods utilised to this end. These could either be channels for bringing in river water or return drains to remove excess fluid. Less well-defined instances were also found in Trenches 43 and 27.

5.1.2 Further linear features were identified in Trenches 19, 27, 32, 36 and 44. These features may indicate pre-existing field boundaries/drainage relating to land use before the warping process. No dates were established on-site, pending the findings from environmental sampling.

5.1.3 All identified features clearly post-date the formation of the peat throughout site, having been cut into this deposit.

6. GEOARCHAEOLOGICAL FINDINGS *by Richard Lowther*

Overview of samples retained

6.1 The trench evaluation comprised the pulling of forty-six trenches within two areas (22 in Area 1, 24 in Area 2; Figures 1-5). Through onsite inspection, consultation with the geophysical data, and the county archaeologist, five column samples with associated bulk samples were retrieved across both areas for further paleoenvironmental assessment and radiocarbon dating (Table 1; Appendix 2). These samples were predominantly collected within hollows of the natural sand whereby organic sediment accumulation is provisionally considered to represent the greatest thickness of this unit across the site. Column samples from Area 2 (ES 01, 05, and 07) were derived from an area attributed as natural spread on the geophysical record (York Archaeology, 2022).

Table 1: Summary of column and bulk samples recovered and their approximate location. GPS locations for these samples are not available at this stage and will be provided in the full report. Approximate locations are also provided on Figures 1-5.

Trench No.	Colum and Bulk sample number	Approx. location within trench	Total Column thickness (m)	Approx. peat thickness (m)	OSL Sample?
TR06	ES 12, 11	Northern	0.43	0.25	No
TR12	ES 14, 15	Central	0.50	0.40	No
TR41	ES 07, 08	Central	0.50	0.34	No
TR45	ES 01, 03	Southern	0.41	0.33	Yes
TR46	ES 05, 06	Central	0.50	0.42	No

Table 2: Summary of test pits completed across Area 1

Trench of test pit	Location (end of trench)	Maximum Depth (m BGL)
TR02	Southern	3.00
TR05	Eastern	2.60
TR08	Northern	2.90
TR11	South-western	2.80
TR12	Western	2.80
TR13	Southern	3.40
TR14	Northern	2.80
TR26	Eastern	2.70

Table 3: Summary of test pits completed across Area 2

Trench of test pit	Location (end of trench)	Maximum Depth (m BGL)
TR31	Southern	2.30
TR32	North-western	2.50
TR33	Southern	1.80
TR34	Eastern	2.10
TR37	South-western	3.10
TR39	Western	3.50
TR43	Northern	1.80

TR44	Eastern	1.90

Lithology and initial discussion of deposits

Sutton Sands

6.2 The basal deposits of each trench predominantly consisted of yellow/white occasionally mottled sands, likely representing the aeolian (wind-blown) Sutton Sand Formation (c. 10,700-9,950 years BP (Bateman *et al.* 2015). Slight variations in colour with the inclusion of dark brown/black blotches likely reflects the percolation of water from the peat into the natural sands. Undulations to the sand surface were visibly noticeable, for instance in TR12 and TR41, supporting the undulating profile modelled from the results of the hand auger survey (TPA 2021).

6.3 Test pits (Tables 2, 3) were carried out at a maximum of 25 trenches down to a maximum of 3m BGL (unless collapse) to discern any potential for buried land surfaces. No such archaeological features or artefacts were found. Slight variations of the colour of the sands could possibly represent the influence of weathered bedrock (reddish-brown Mercia Mudstone) or mineral deposition by water percolation. The deposits of sands continued below the limits of excavation, consistent with the large but variable (5-15m) thickness of the Sutton Sands demonstrated across the Lower Trent Valley (Lillie, 1998).

6.4 One OSL sample (ES02) was retrieved associated with the top of the sands adjacent to the base of TR45 column sample ES 01. The sample was retrieved to enable the possibility of discerning the potential of reworking of the sands during the Holocene as highlighted by the hand auger survey (TPA, 2021), with the site being part of a wide floodplain of the Lower Trent Valley. Due to water incursion, particularly within the deeper undulations of the sand surface where the associated column samples were taken, OSL samples were not retrieved in other areas. Nevertheless, the recovered

sample may provide a suitable indication of any potential reworking exhibited at the site which was not originally visible through on-site inspection.

Organic silt-clay peat

6.5 Overlying the sands within most of the trenches saw a thin but variable (c.0.05-0.40m) thick layer of dark brown (black) silt-clay peat. The peat from Area 2 differed in composition to Area 1, containing moderate-well humified organic material, compared to the frequent bark, wood, and reed fragments within the peat of Area 1. The peat from Area 2 also lacked the indicative strong organic odour usually indicative of peatland environments which may initially suggest that the unit has partially dried out through loss of/intermittent waterlogging. This finding likely accords with the water management of the site (numerous post-Medieval/Modern field drains and boundary ditches) to support agricultural practices through to the present.

6.6 In contrast to Area 1, the deposits displayed moderate to well humified organic material. Only very occasional preserved root fragments were found across the 24 trenches which may further support an initial interpretation of loss of waterlogging and resulting wood degradation. These potential existing impacts to the peat can be further determined through the preservation of pollen grains analysed by a palynologist amongst producing the pollen record for the site.

6.7 The peat from Area 1 displayed numerous preserved tree stumps, trunks, and bark fragments, from which samples have been retained. These are tentatively assessed as *Pinus* (Pine) wood and *Betula* (Birch) bark. Such interpretations along with the identification of the numerous other wood samples retrieved (Appendix 2) will be verified by an in-house archaeobotanist in due course. Such macrofossil samples enable an understanding of the evolution of peatland development through time. It may be initially suggested that the peat surface dried at a point in time to an extent to possibly allow for woodland development at this area of the site. More acute changes to the peat stratigraphy may be later seen through the geoarchaeological assessment of the column samples (ES 12 TR06, and ES 14 TR12). The finding of preserved reed fragments suggests a change of local landscape to/from an open fenland/marshland during one time of Area 1's history.

6.8 The peat stratigraphically overlies the early Holocene (Early Mesolithic) Sutton Sands, and is predominantly overlain by Modern alluvial 'warp'. As a result, this unit may have developed across multiple archaeological cultural periods. Despite finding no archaeological remains within the trenches, bulk sediment samples taken in conjunction with the column samples (ES 12 TR06, and ES 14 TR12) may yet recover

archaeological artefacts and ecofacts given the former peatland landscape would have provided a rich environment and resource for exploitation by potential settlers. Palaeoenvironmental analysis and radiocarbon dating of the organic sediments or macrofossils recovered from the column samples will assess the archaeological significance of these samples in due course.

Fine-grained Alluvium

6.9 Occasionally overlying the peat deposits saw a varying thickness (c. 0.05-0.30m) of fairly stiff light grey brown silt-clay alluvium. This homogenous silt-clay unit is predominantly of greater thickness than the similar composition silt-clay material deposited in laminations seen within the overlying warp, suggesting the two deposits may be separate units. It is suggested that the unit represents the gradual accumulation of fine-grained overbank alluvium as part of flooding events. The boundary between the upper peat and lower alluvium was often sharp, demonstrating the complete loss of peat development at the site. The significance of this finding will be assessed following the palaeoenvironmental analysis and radiocarbon dating to suggest a likely forcing method (potentially human induced) for this sharp sediment transition.

Alluvial 'warp'

6.10 Where peat deposits were found, a varying (c. 0.10-0.50m) thickness of laminated fine sands and clay-silt were experienced in the majority of the trenches. The unit is attributed as alluvial 'warp', an artificially induced deposit derived from the settling of material from suspension following repeated deliberate flooding of areas. This practice originated in the Lower Trent Valley from the late 18th Century to the late 19th Century, and is recorded in multiple localities in the Isle of Axholme (Gaunt, 1994; Lillie, 1998; BGS, 2022). Slight variations of the composition and lamination thickness of the warp may relate to slight differences of an area's elevation and proximity to the former warp channels.

6.11 Area 2 displayed this unit across the majority of the trenches, in contrast to Area 1 which saw comparatively reduced visibility as a layer, but more defined presence adjacent to and as a fill of cut channels, those themselves interpreted as warping channels. In some instances, these cut channels filled with warp partially and occasionally fully truncate the peat deposits.

6.12 Similarly, to the boundaries found between the peat and the alluvial layers, the sharp

boundary between the peat and the overlying warp demonstrates a local landscape change from a natural waterlogged peatland to the artificially raised and drained agricultural fields seen at present. Instances where warp deposits were of minor thickness and/or absence may reflect the unit's partial or full truncation by modern agricultural ploughing or industrial land clearance, or an area's relative location outside the warping enclosures. Where peat and warp were absent in Area 1 it is likely that this is a result of truncation during the removal of industrial landfill which formerly covered the entire area. No below ground contamination relating to the site's use for landfill was encountered by the trenching or the previous borehole survey. This would suggest that any potential peat or warp deposits were removed when the landfill was cleared. Dumps of rubble material found in the southern part of Area 1 are likely to relate to the site's use as a storage facility for materials and waste during construction of the power station.

Made Ground

6.13 In Trench 21, both the peat and warp deposits are absent which may relate to their full truncation and the creation of a made ground surface containing various industrial materials. Trench 19 also saw a unit of made ground which also contained archaeological features.

Topsoil

6.14 The sediment sequence is capped by a fairly thick topsoil (*c* 0.40-0.50m). Only very occasionally was a subsoil identified, suggesting the predominant mixing of the two soil horizons by agricultural means. It is likely that any archaeology within this horizon is scattered across the site. Apart from the occasional residual modern pot seen on the surface of the ploughed fields of Area 2, no archaeological remains were recovered from this unit. The highly oxidised nature of the unit has low preservation potential for organic remains.

Proposed palaeoenvironmental assessment

6.15 A programme of range-finder radiocarbon dating and palynological assessment will be shortly underway from some of the samples noted in Table 1. It is hoped that this data will help to better constrain the chronological framework and palaeoenvironmental history for the evolution of the site situated on the Lower Trent Valley floodplain. The proposed assessment allows for a refined evaluation of the archaeological and geoarchaeological findings to a suite of potential research objectives set out in the East Midlands Historic Environment Research Framework (Knight, Vyner, and Allen, 2012). In addition, the findings will be discussed with those

from previous reports (i.e. Headland, 2018), providing an updated history of the site area.

6.16 At this stage, the preservation of the palaeoenvironmental proxies (i.e pollen) within the waterlogged organic samples is unknown. Should these be found to be poor through specialist assessment, further sample extraction in alternative areas may be recommended to collect improved sequences. In addition, more defined targets for future sampling may be recommended following the results of the full report.

References

AECOM. 2022. 'Written Scheme of Investigation: The Keady 3 (Carbon Capture

Equipped Gas Fired Generating station) Order'. Unpublished Report, AECOM.

Bateman, M.D., Evans, D.J.A., Buckland, P.C., Connell, E.R., Friend, R.J., Hartmann, D., Moxon, H., Fairburn, W.A., Panagiotakopulu, E. and Ashurst, R.A., 2015. Last glacial dynamics of the Vale of York and North Sea lobes of the British and Irish Ice Sheet. Proceedings of the Geologists' Association, 126(6), pp.712-730.

British Geological Survey (BGS), 2022. Geology of Britain Viewer. [Online]. Geology of Britain viewer | British Geological Survey (BGS) [Accessed: April 2022].

Chartered Institute for Archaeologists (CIfA). 2020a. *Code of Conduct*. Reading: Chartered Institute for Archaeologists. Reading.

Chartered Institute for Archaeologists (CIfA). 2020b. *Standard and Guidance for Archaeological Field Evaluation*. Reading: Chartered Institute for Archaeologists.

Gaunt, G.D., 1994. Geology of the country around Goole, Doncaster, and the Isle of Axholme: memoir for 1: 50000 geological sheet 79 and 88.

Headland Archaeology Ltd. 2018. Keadby II Combined Cycle Gas Turbine (CCGT) Power Station, North Lincolnshire, Paleoenvironmental Assessment. Unpublished report: Headland Archaeology Ltd.

Knight. D., Vyner. B. and Allen. C. 2012. East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands. Nottingham: University of Nottingham and York Archaeological Trust.

Lillie, M 1998. The palaeoenvironmental survey of the lower Trent valley and Winterton Beck. In: Van de Noort, R. and Ellis, S. (eds) Wetland Heritage of the Ancholme and Lower Trent Valley. Humber Wetlands Project.

Magnitude Surveys. 2021. 'Geophysical Survey Report for Keadby, North Lincolnshire'. Unpublished Report for Trent and Peak Archaeology.

TPA. 2021. 'A geoarchaeological hand auger survey at Keadby 3 Low Carbon Gas Power Station, Lincolnshire.' Unpublished Trent and Peak Archaeology Report. Report no. 047/2021.

York Archaeology. 2022. Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station). Written Scheme of investigation.

APPENDIX 1: PLATES

Plate 1: Feature [0105], looking south

Plate 2: Feature [0405], looking northwest

Plate 3: Feature [1005]

Plate 4: Feature [1007], looking east

Plate 5: Feature [1105], looking east

Plate 6: Feature [1206], looking north

Plate 7: Feature [1209], looking north

Plate 8: Feature [1604], looking north

Plate 9: Features [1906], [1910] and [1912], looking east

Plate 10: Feature [2705], looking north

Plate 11: Feature [2704], looking northeast

Plate 12: Features [3206] and [3210]

Plate 13, Feature [3605], looking north

Plate 14: Feature [3606], looking northwest

Plate 15: Feature [4404], looking southwest

Plate 16: Feature [4305], looking north

APPENDIX 2: SAMPLE REGISTER

Sample no.	Trench no.	Context type	Sample size	No. buckets	% context	Reason for sampling	Further sheet?
01	45	Column	1x 0.41m L column	/	>1%	C14, Microfossils	Y
02	45	OSL	1 tube	/	>1%	OSL dating	N
03	45	Bulk from ES 01	X3 10L	3	>1%	Waterlogged	
04	45	Moisture control for ES 02	1 small bag	/	>1%	OSL dating	N
05	46	Column	1x 0.5m L column	/	>1%	C14, Microfossils	Y
06	46	Bulk from ES 05	X4 10L	4	>1%	Waterlogged	
07	41	Column	1x 0.5m L column	/	>1%	C14, Microfossils	Y
08	41	Bulk from ES 07	X4 10L	4	>1%	Waterlogged	
09	27	Bulk of [2705]	10L	1	>1%	Dating	
10	36	Wood from [3606]	1 large bag	/	>1%	Species ID	
11	06	Bulk from ES 12	X3 10L	3	>1%	Waterlogged	
12	06	Column	1x 0.42m L column	/	>1%	C14, Microfossils	Y
13	12	Bulk from ES 14	X3 10L	3	>1%	Waterlogged	
14	12	Column	1x 0.52m L column	1	>1%	C14, Microfossils	Y
15	10	Bulk	<10L	1	>1%	Dating	
16	32	Bulk	<10L	1	>1%	Dating	Y
17	19	Bulk of [1912]	<10L	1	>1%	Dating	
18	19	Bulk of [1906]	<10L	1	>1%	Dating	Y

19	06 (from ES 11 1/3)	Grab. Assoc. ES 12	1 bag	/	>1%	C14, species ID	N
20	06 (from ES 11 2/3).	Grab. Assoc. ES 12	1 bag	/	>1%	C14, species ID	N
21	09 from (0903)	Grab	1 bag	/	>1%	C14, species ID	N
22	12 (from 1204).	Grab Assoc. ES 14 0.22-0.23m	1 bag	/	>1%	C14, species ID	N
23	02 from (0204)	Grab.	1 bag	/	>1%	C14, species ID	N
24	12 from (1204).	Grab. Assoc. ES 14 0.35-0.38m	1 bag	/	>1%	C14, species ID	N
25	12 from (1204).	Grab	1 bag	/	>1%	C14, species ID	N

APPENDIX 3: FIGURES