# Land Adjacent to the Westgate Entrance, Port of Immingham

Framework Written Scheme of Investigation for Archaeological Mitigation

Associated British Ports

January 2023

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|---|---|---|---|
| [redacted] | | | |
| Nick Finch<br>Associate Director | Rachel Wood, Senior Archaeological Consultant,<br>Iain Williamson<br>Associate Director, Heritage | Annie Calder<br>Associate Director, Heritage | Kirsty Cobb<br>Technical Director |

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Prepared for: Associated British Ports

## Prepared by:

Nick Finch
Associate Heritage Consultant

AECOM Limited
16 Toft Green
York YO1 6JT
United Kingdom

[redacted]

aecom.com

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# 1. Introduction

1.1 AECOM were commissioned by Associated British Ports (ABP) to produce a Heritage Statement for land off Humber Road, Immingham, North Lincolnshire (hereafter 'the Site').

1.2 Pre-application advice was provided for North Lincolnshire Council by Alison Williams (Historic Environment Record Officer). This advised that a Heritage Statement should be undertaken (see Section 1.6). In addition to the Heritage Statement, that mitigation measures should be detailed in the application including the provision of a Written Scheme of Investigation (WSI) for archaeological work to off-set the harm to the known and potential archaeological remains within the Site.

1.3 This Framework Written Scheme of Investigation (WSI) and accompanying figures set out the methodology required for an archaeological investigation of the Site.

1.4 The pre-commencement archaeological investigative works will comprise:

- A geoarchaeological survey and deposit model which will:
  - Refine understanding of the presence, nature and distribution of Quaternary superficial river, estuarine and tidal deposits and palaeoenvironmental sequences across the site;
  - Determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices;
  - Maximise recovery of geoarchaeologically significant deposits, lithics, waterlogged remains and other artefacts;
  - Establish the potential impact of the proposed development on deposits of geoarchaeological and archaeological potential;
  - Inform the scope of the subsequent excavation phase of archaeological works to mitigate the impacts of the development on the archaeological resource.
- A programme of archaeological excavation targeting the areas of interest defined by the results of the previous archaeological trial trenching. The results of the geoarchaeological survey and deposit model will help further define the area of excavation (the minimum extent of the archaeological excavation is shown on Figure 4 below). The aims of the excavation, as defined in the CIfA Standard and guidance for archaeological excavation (CIfA 2020c), are to:
  - examine the archaeological resource within the site within a framework of defined research objectives;
  - seek a better understanding of the resource;
  - compile a lasting record of the resource; and
  - analyse and interpret the results of the excavation, and disseminate them.

1.5 The Framework WSI has been prepared by AECOM ('the Consultant') on behalf of Associated British Ports (ABP) ('the Client') in accordance with guidance provided by the Chartered Institute for Archaeologists (CIfA) Standard and Guidance (2020a-e) and Code of Conduct (2022). The work detailed in this WSI will be carried out by an appropriate experienced and qualified archaeological contractor which should be a CIfA Registered Organisation ('the Archaeological Contractor').

1.6 The archaeological works specified within this WSI will investigate, record and report on the archaeological resource within the Site that may be impacted as a result of the development. The work detailed in this WSI will contribute to the wider understanding of the archaeological resource within North Lincolnshire and provide opportunities for public engagement with the archaeology of the Site.

1.7 Previous archaeological excavation (Stronarch, 2010) has revealed Bronze Age activity beneath alluvial deposits, indicating activity involving burning or heating in an estuarine environment. The Iron Age/ Romano-British activity on the western side of the Site suggests the presence of a possible settlement. Further east, and closer to the estuarine edge, deposits contained some fragments of pottery that may have been connected to salt-making activities, probably in the Iron Age. The potential for organic materials to survive in the deeper alluvial deposits in the eastern and, in particular, the northern part of the Site is also high.

# Site Location

1.8 The Site comprises one field of 9.2 ha overgrown with vegetation (see Figure 1). Humber Road runs to the south and west adjacent to the Site. To the north is a waterbody known as Rosper Road Pools Nature Reserve adjacent to the Site and to the east is an industrial storage facility.

1.9 The Site is generally flat and is situated topographically below the 2m contour line.

1.10 The wider landscape is characterised by mixed industrial and commercial development with industrial estates to the south of the site and business park estates to the north-east.

1.11 The docks comprise several operational areas, with bulk commodities such as liquid fuels, solid fuels and ores, as well as freight, being handled from in-river jetties.

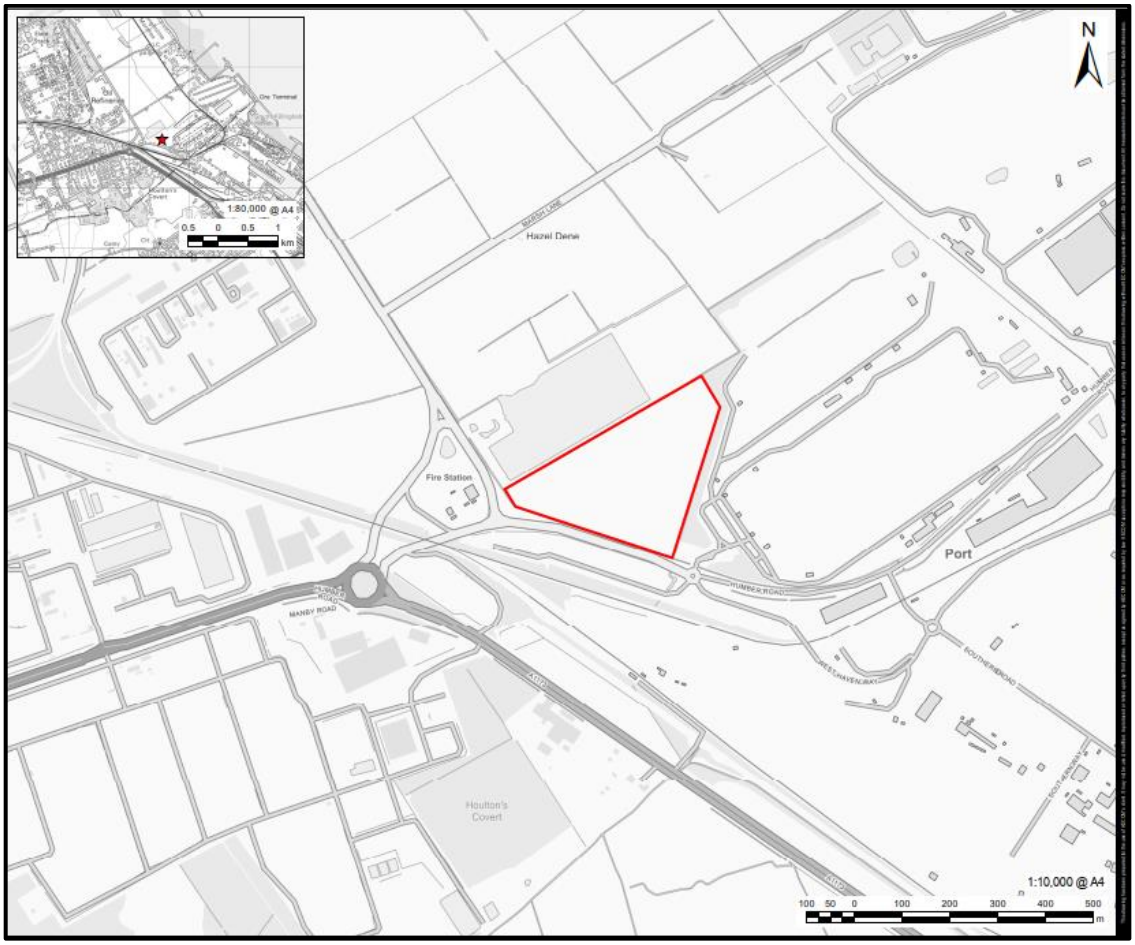


**Figure 1. Site Location**

1.12 The Client proposes to develop a vacant plot of land ('the Site') adjacent to the Port of Immingham in North Lincolnshire for port use. The Site comprises a triangular parcel of land of approximately 9.2 ha adjoining the northern boundary of the Port of Immingham, within the administrative boundary of North Lincolnshire Council. The Site is located outside of, but adjacent to, the boundary of the operational port, close to the West Gate entrance.

1.13 The Site is bounded to the north by a Local Wildlife Site (LWS), to the east by existing operational port land and to the west and south by an existing drainage channel, which separates the Site from Humber Road. Access to the Site for maintenance purposes is currently provided from Humber Road via a bridge over the drainage ditch on the south-western boundary.

# 2. Archaeological and Historical Background

2.1 Archaeological evidence reveals that the estuary has been a key trade and communication route between the North Sea and the Pennines, and to the Midlands (River Trent), since prehistoric times. Significant palaeoenvironmental and archaeological evidence is preserved within the wetland locations. For instance, Bronze Age boats, suitable for both river and sea use, and fish traps have been discovered in the intertidal areas. There is also evidence of early settlement (in the prehistoric period) on higher, drier land, while the lower wetlands provided fishing and fowling as well as summer grazing for the surrounding settlements.

2.2 Recent research on the Humber wetlands has suggested that, at the beginning of the Holocene, the onset of warmer conditions led to the establishment of dense vegetation cover over undulating boulder clay. At the same time kettle-holes and poorly draining hollows would have allowed the formation of a series of organic peaty sediments. Rising sea levels would have led to increasing sedimentation through the process of alluviation and the formation of salt marshlands (Macklin et al., 2000; Taylor et al., 2000; Van de Noort et al., 1993).

2.3 The Humber continued to have great importance throughout the Roman and medieval periods for trade and communication. It is possible that on the north bank some drainage of the marshes began as long ago as the second century AD.

## Prehistoric (to AD43) and Roman (AD43 to 410)

2.4 Within the Site, geophysical survey and archaeological trenching (Stronach, 2010) has revealed a late prehistoric (Bronze Age and Iron Age) and Roman settlement located on the edge of the Humber estuary, where there was evidence for salt-making and iron smelting occurring near the settlement (Stronach, 2010). The evaluation also recorded earlier Bronze Age activity located beneath 0.40m of alluvium and in association with a possible relic soil. The excavators concluded that the buried soil layer indicates that there was a period of perhaps a few decades when estuarine alluviation ceased, long enough for the site to be used by people. When sea levels rose, the site was buried beneath more flood-deposited alluvium.

2.5 There are several other enclosures and a series of linear features that could represent field systems in the study area, but these too are undated and could belong to any period between the prehistoric to post-medieval and modern periods. A possible enclosure of likely prehistoric or Roman date is shown on aerial photographs from 1946 but lies beneath the A1173 road, south-west of the Site.

2.6 Evidence for early prehistoric activity in the 1km study area is relatively scant and is restricted to finds of artefacts rather than archaeological sites. The largest assemblage was recovered during work at Conoco CHP plant (now VPI Immingham CHP Plant) and comprised worked flint, possibly dating to the Mesolithic or Neolithic, and pottery dating to the Late Bronze Age. A scraper probably of Neolithic date was found in 1966, 1 km to the west of the 1km Study Area. Further finds of early prehistoric material have been made in the area to the west and north of the Study Area. Three early/ middle Bronze Age planked boats, dated to between 2,020BC and 1,680BC, were previously located on the north bank of the Humber at Ferriby. This demonstrates the exploitation of the waterways as far back as the prehistoric period.

2.7 Evidence relating to later prehistoric (Iron Age) and Romano-British activity in the area is more substantial. Excavations in advance of the Conoco CHP Plant (HA8) revealed several phases of settlement from the early Iron Age through to the Romano-British period. Environmental evidence from these excavations suggests a mainly pastoral landscape, with some evidence of cereal cultivation.

2.8 Further evidence of Iron Age activity was revealed during the archaeological evaluation in advance of work at the Lindsey Oil Refinery. These excavations uncovered an Iron Age ditch running parallel and to the south of Rosper Road for over 400 m. This ditch was considered to date to the early to middle Iron Age and to represent either a drainage ditch or boundary marker. Other smaller Iron Age drainage or boundary features were found during this evaluation, leading the excavators to conclude that these represented the remains of an Iron Age field system.

2.9 The high level of activity during prehistory in the vicinity of the Site suggests a moderate to high potential for features of this period within the Site.

2.10 In 2012, Allen Archaeology Ltd carried out an extensive programme of trial trenching in advance of the construction of the proposed marine energy park. 39 trenches were excavated, mostly 30m x 2m (Glover 2012).

2.11 Further to the north, approximately 1km from the Site, geophysical surveys in 2011 (Stephens 2011) and 2012 (Bartlett 2012) recorded a series of magnetic anomalies in fields south of Station Road. Two conjoined enclosures and a linear ditch, possibly a trackway, were digitally recorded from aerial photography as part of the Inner Humber RCZAS NMP. The site was excavated in 2013.

## Early Medieval (410 to 1066)

2.12 Immingham and Killingholme are likely to have Anglo-Saxon origins. Both villages were under the control of pre-conquest Lords, Alwin in Immingham and Fulcric in Killingholme, as recorded in the Domesday Book, 1086. There are no heritage assets of early medieval (AD410-1066) date recorded within the study area.

## Medieval (1066 to 1540)

2.13 There is little evidence from the medieval period recorded within the study area.

2.14 Examination of the enclosure plan shows that the Site was in a very wet marginal areas used as permanent pasture prior to the Enclosure Act of 1776.

2.15 Immingham is mentioned in Domesday, the Lindsey Survey (c.1115) and the Early Yorkshire Charters (1090-6) and historically within the wapentake and deanery of Yarborough (Ekwall, 1960; Cameron, 1991). The parish also contains the hamlet of Roxton. At the end of the 19th century the parish measured roughly 4100 acres which included a large c.900-acre area of coastal marshland called Habrough Marsh which was previously a detached part of Habrough township. It has boundaries with Brocklesby, Habrough, Keelby, Killingholme, and Stallingborough. Part of the boundary with Stallingborough is formed by North Beck Drain, and the boundary with South Killingholme is also formed by a beck.

2.16 The form of the settlement appears to have been a chain of farmsteads or hamlets laid out along a pair of parallel roads, with a denser core around the parish church. Aerial photographs show some possible burgage plots to the south-west of the church, suggestive of at least some planning to the village. Roxton has no obvious topographic influence upon settlement form. The former earthworks of the hamlet have the appearance of a small, nucleated core around a moated manorial site, possibly with a tight grid like pattern of roads.

2.17 Along Stallingborough Road (Highfield House) archaeological trial trenching has revealed late medieval activity (mainly ditches, pits and postholes likely forming crofts and tofts) and pottery (of early medieval to early post-medieval date). Also, alluvial layers show that the site was prone to flooding and that some areas, which have no archaeological evidence, where more prone to flooding and were perhaps farmed rather than inhabited (APS, 2020b).

2.18 Domesday records saltpans at Habrough to the south, which likely indicates that there were salt production sites along the coastal margins from at least the medieval period, although earlier Roman evidence for salt working suggests earlier exploitation of this resource. The presence of a saltpan was recorded in 1186 when William Berner granted land in Habrough to Newhouse Abbey. At Northesse Marsh (a marsh that lay to the north-east of the development area) remains of medieval salt making was recorded during land drainage work (Loughlin et al., 1979). It is likely that the former marshland of the Site and its environs was outside of the permanent arable land that once surrounded the historic core of Immingham (indicated by the extent of former ridge and furrow cultivation features visible on historic aerial photographs). The marsh was likely subject to periodic seasonal flooding and would have likely been used for summer grazing.

2.19 Salt working was an important local industry along the coastal margins and is likely to have been carried out on a seasonal basis (salt extracted from salt-encrusted sand from the foreshore was treated and dumped in large mounds) (Historic England, 2018). Eventually, as the ground along the foreshore was

improved and raised to prevent seasonal flooding, the coastline gradually retreated and new salterns advanced seawards (Owen, 1984).

2.20 To the east of the Site, the HER records a large rectilinear multiple banked and ditched enclosure, with an associated linear ditch, visible as cropmarks on aerial photographs in a field to the north of Humber Road. The enclosure is 112m by 55m in size with the associated linear running roughly southwards from its narrowest side. Two parallel banks are also visible as cropmarks on aerial photographs cutting diagonally across the end of a field to the north of Humber Road. The features appear to continue the line of a boundary, marked on the 1st edition Ordnance Survey map, which runs divergent to (and therefore may predate) the post medieval field system in the area. The site was digitally plotted during the Inner Humber RCZAS NMP project. The features are probably of medieval or later date and are possibly flood defences or drains. The site has since been destroyed by a modern coal terminal.

2.21 Further to the east is a series of curvilinear mounds with associated hollows, visible as cropmarks on aerial photographs. They range in size from 22m to 54m across, are of uncertain date and function but may be historic saltern mounds. The site was digitally plotted during the Inner Humber RCZAS NMP project. The site has since been destroyed by a modern coal terminal.

2.22 Ridge and furrow is also recorded on the HER to the immediate north of the Site, digitally plotted during the Inner Humber RCZAS NMP.

2.23 Approximately 300m to the south of the Site was a possible area of medieval settlement just north-east of Houlton's Covert. The position is suggested by Cameron (Cameron 1991) from fieldname evidence. A farm or toft was mentioned in the 12th century as Enchetun or Enketoft. Its position may correspond to the small close shown on Russell's pre-enclosure map of Killingholme, on the edge of Summergates.

2.1 Due to the limited medieval evidence in the surrounding area and as the Site would have been very wet marshland in the medieval period; it is considered that there is very limited potential for previously unrecorded features of a medieval date within the Site boundary.

## Post-Medieval (1540 to 1900) to Modern (1900 to present)

2.2 Local abbeys began to promote drainage schemes in the area from the 12th century. However, from the 17th century, coastal reclamation, drainage and enclosure had a significant impact on the rural landscape on the north side of the estuary. On the south side, flood defences were built to protect the developing towns and industrial areas. Warping (the process by which water was deliberately flooded over the land to enrich the soil with riverine sediments) was introduced by the Dutch in the 18th century. Later, Parliamentary enclosures produced the landscape of regular, geometric fields, mostly enclosed by dykes, with associated large brick-built isolated farmsteads.

2.3 From the 16th and 17th centuries coastal defensive structures were constructed from this period onwards to protect the coastline from attack and the threat of invasion. The importance for defence continued into late 19th century with the construction of a coastal artillery battery, and a minefield control centre built at Paull Point on the north bank of the River Humber. In the 20th century, a World War I acoustic mirror was constructed near Kilnsea and two forts at the mouth of the Humber estuary. During World War II anti-aircraft batteries and bombing decoys were built on the north bank of the Humber estuary to protect Hull Docks.

2.4 The area around the Site was dominated by agricultural fields during the 18th and 19th centuries with farmsteads located across the landscape as evidenced by the historical mapping. Following the Enclosure Act of 1776, the wet land was drained and split into smaller fields for farming. Several extant field boundaries. around the Site appeared on the 1779 South Killingholme enclosure map.

2.5 1km North of the Site was Marsh Farm which is shown as a group of 4 buildings on the 1887 Ordnance Survey 25" first edition map, with a 'Spring' to the south-west. A parchmark in the grass shows the outline of one of the farm buildings on Google maps photographic coverage, 2009.

2.6 Three lighthouses were constructed on the edge of the Humber River in the mid-19th century. Killingholme North Low Lighthouse, Killingholme High Lighthouse and Killingholme South Low Lighthouse were built to provide navigation for ships sailing along the river.

2.7 During the 1800s, the Site was rural and undeveloped marshland, the historic maps show the Site within Killingworth Marshes.

2.8 A Brick Yard with two buildings and two cottages and a 'jetty' is marked on the OS 1st edition map 1km to the east of the Site. It is much expanded and marked as a Brick Works on the OS 2nd edition map. The foundations of buildings and the remains of associated clay pits are visible on aerial photographs taken in 1947. The site has since been destroyed by a modern coal terminal.

2.9 The Humber Commercial Railway was constructed 230m to the south of the Site in 1912 to link the eastern jetty at Immingham Dock with the mainline from Grimsby to New Holland line at Ulceby. There was a passenger station at Eastern Jetty in 1912 when the docks were first opened. A spur was later built to the Western Jetty. Connections were made with the Grimsby & District Light Railway.

2.10 RAF aerial photographs from 1941 showed a row of terraced houses to the south of Marsh Lane 830 m to the north of the Site. OS map evidence reveals that they were built at some time between 1902 and 1932. A 1975 aerial photograph showed that they had been demolished by that date. Modern Google Earth photography showed that there were still low earthworks on the site in 2008.

2.11 An extant building, formerly a Day School and associated schoolhouse, is shown on the Ordnance Survey map of 1945 off Rosper Road, to the north of the Site.

2.12 To the north of the site a 'Mission Room', built in the early 20th century, is shown on the Ordnance Survey 1945 6" map. The building was L-shaped and originally the structure contained a stable for the visiting Preacher. In 1923 a vestry was added.

2.13 A T-shaped arrangement of ditches is visible on wartime aerial photographs within the Site. Four other sections of ditch were also mapped in the fields to the east of Rosper Road. All the ditches were flanked by elongated mounds of spoil. They have now been mostly infilled and levelled. These ditches were not detected by a geophysical survey in 2009. In a later archaeological evaluation targeting other geophysical anomalies, there was also no evidence of these ditches, although only one trench crossed one of the ditches as plotted from the aerial photographs. It is possible that these may have been shallow anti-glider ditches.

2.14 A barrage balloon site, operated by 942 Squadron Balloon Command, was located on the north side of Humber Road, 450m to the south-east of the Site. Aerial photographs show the anchorage site with two associated buildings and an access road with turning circle which is typical of these sites.

2.15 The probable site of a Second World War searchlight battery, with associated gun posts is visible as earthworks on aerial photographs taken in 1947. This is sited on the north side of Humber Road, 750 m to the east of the Site. The asset comprises a circular earthwork 14m across with a central hollow which would have housed the searchlight. A small pit to the west and a double pit to the east are likely to be the anti-aircraft bren gun posts.

2.16 Two possible bomb craters, represented by small near-circular hollows, are visible on aerial photographs taken in 1947, 300m north and 600 m east of the Site respectively.

## Undated Assets

2.17 A former shoreline and system of creeks transect the western limits of the Site. Deposits located at approximately 1.90 m AOD have been identified as the buried shoreline in archaeological evaluations in 2004 (Donaldson 2004) and 2005 (Signorelli 2005) to the East of Rosper Road along with numerous other archaeological investigations in this area.

# Relevant Previous Archaeological Interventions

2.18 There have been two archaeological investigations carried out within the Site boundary as part of a previous planning application. A archaeological geophysical survey (Stonarch 2010) and a trial trench evaluation (Stronarch 2010).

## Geophysical Survey

2.19 A geophysical survey (Stronach 2010) was conducted by Headland Archaeology in 2009 on the Site as part of an Environmental Impact Assessment for the Heron Renewable Energy Plant, Immingham, North Lincolnshire. This was in response to a request from the North Lincolnshire Sites and Monuments (now Historic Environment) Record Office, that geophysical survey be undertaken to determine the archaeological potential of the Site.

2.20 The area surveyed was anticipated to be directly impacted by the construction and operation of the proposed renewable energy plant.

2.21 The area was surveyed using a fluxgate magnetometer and this did not identify any areas of high archaeological potential; however, several areas of low/medium potential were identified, particularly in the west and north of the survey area.

2.22 The survey was successful, as evidenced by the occurrence of anomalies interpreted as ditches, drainage ditches, plough furrows and former borehole locations. All these features were interpreted as of low archaeological significance or non-archaeological, apart from a series of ditches in the south-west of the survey area. It is difficult to determine whether these ditches in the south-west are archaeological and it is possible that they are the result of recent ground disturbance in this area.

2.23 It is important to note that this survey took place in an alluviated environment, which can affect the results of geophysical survey.

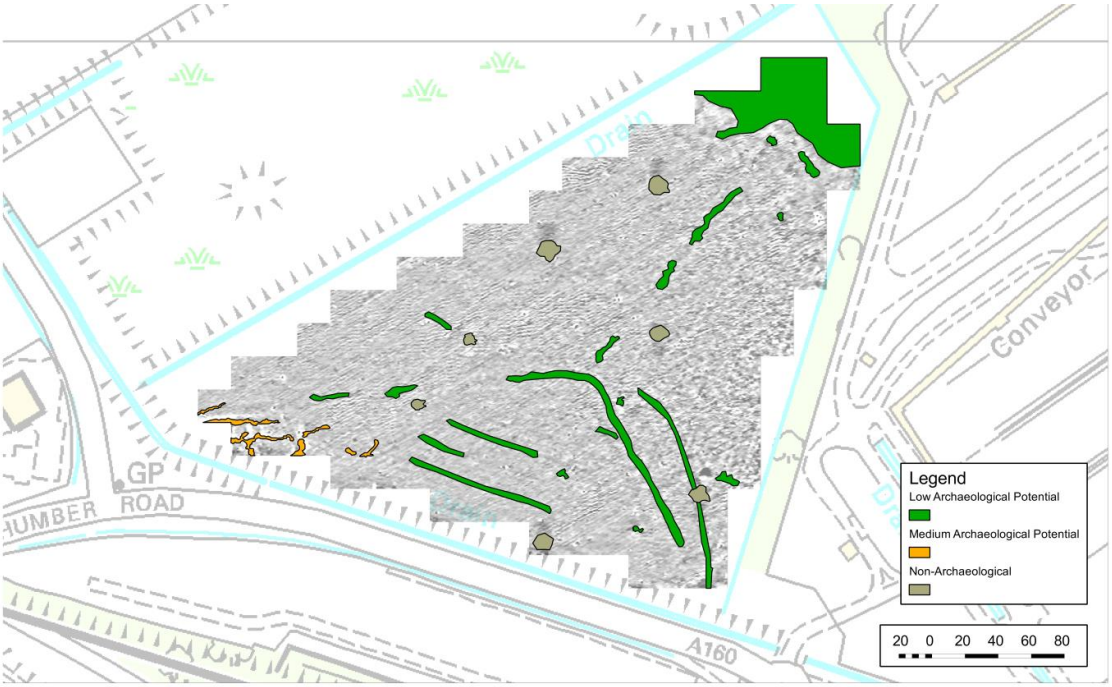


**Figure 2. Geophysical Survey Anomalies (reproduced from Stronarch 2010)**

## Trial Trench Evaluation

2.24 In 2009 Trial Trench evaluation was undertaken in connection with the proposed development of the Heron Renewable Energy Plant and was commissioned on behalf of Drax Power Limited by Sinclair Knight Merz (SKM). The Report (Stronach, 2010) provides supplementary information to the Cultural Heritage Chapter of the Heron Renewable Plant Environmental Statement (SKM 2009). The trenching established the presence of archaeological features, which appear to relate to a later prehistoric (Iron Age/Romano-British) settlement located near to the former western edge of an estuarine environment.

2.25 An early Bronze Age ditch was also recorded in the vicinity. To the east, the trial trenches encountered deep alluvial deposits and sondages excavated through these deposits encountered some spreads of burnt material within this alluvial sequence. Radiocarbon dating of this burnt material suggested that it originated at different times during the Bronze Age. The surrounding area contains extensive evidence for

Iron Age/ Romano-British settlement and the remains add to our knowledge of the landscape during the later prehistoric and early Roman period.

2.26 Due to the undated nature of several of the features found on site three samples were sent for radiocarbon dating. All were physically lower than the Iron Age/ Romano-British dated features, sealed by alluvial clay and it was unclear from which period they originated. The radiocarbon dates confirmed that these three features date from the early to late Bronze Age (Appendix 6) and include a charcoal spread (cal. 1010-840 BC), a possible ditch (cal. 2280-2030 BC) and a buried soil (cal. 1500-1380 BC). No pottery or bone was retrieved in association with any of these deposits and they do not appear to reflect midden waste from a typical domestic settlement. They are all tentatively interpreted as relating to exploitation of this coastal area from the early to late Bronze Age.

2.27 During the evaluation the trenches were generally excavated to the top of the first alluvial deposit (the level of Iron Age activity) and therefore the potential for discovering further Bronze Age archaeological features covered by alluvium is high within the Site. Marine ingression and the resulting accumulated alluvial deposits have intermittently sealed occupation phases.

2.28 Analysis of the pottery remains from the settlement activity recovered from the Site suggested that it was in use throughout the Iron Age and early Roman Periods, with domestic settlement indicated by the bone and pot assemblages. The small metal working assemblage gives some suggestion of smelting in the vicinity during the Romano-British period. Perhaps most notably the finds assemblage also contained ceramics thought to be associated with salt-making processes. The pottery assemblage contained possible tray “briquetage” corresponding well with known salt-making pottery in the local area.

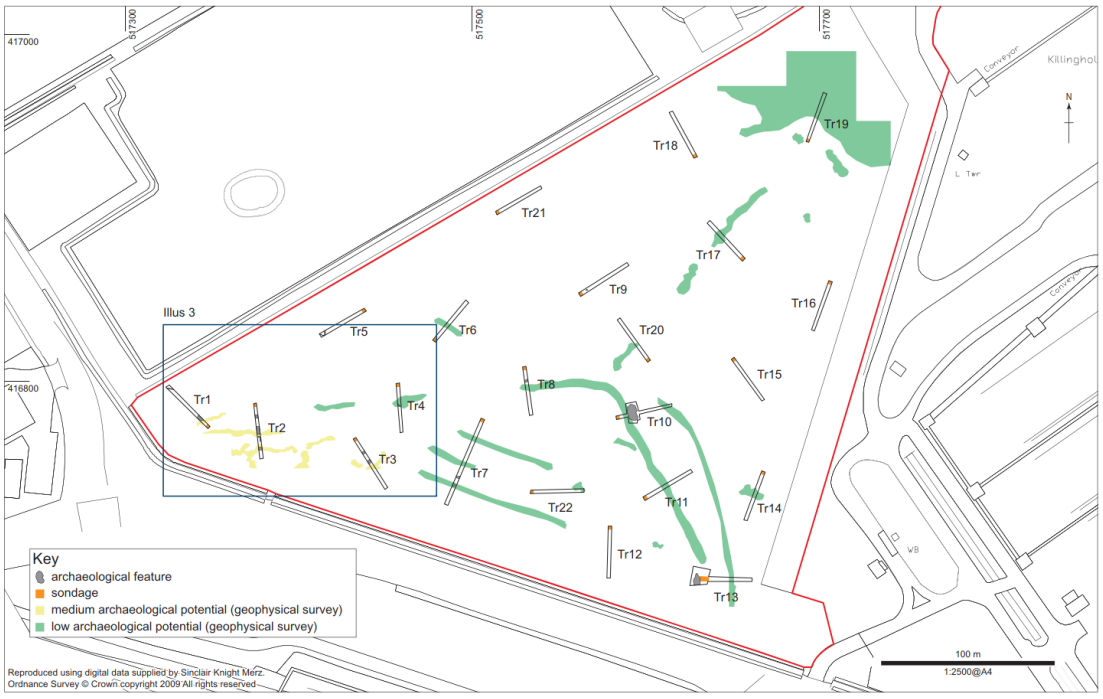


**Figure 3 Evaluation Trench Plan overlying geophysical Survey Anomalies (reproduced from SKM 2010)**

# 3. Aims and Objectives

3.1 The aims of the archaeological mitigation works are to investigate, record and report on the archaeological resource within the Site boundary. Evaluation has demonstrated that archaeological remains are present that relate to the following activities:

- the Bronze Age, revealed beneath alluvial deposits, indicating activity involving burning or heating in an estuarine environment;
- the Iron Age / Romano-British period, indicating activity on the western side of the Site, suggesting the presence of a possible settlement;
- further east, and closer to the estuarine edge, deposits contained some fragments of pottery that may have been connected to salt-making activities, probably of Iron Age date; and,
- the potential for organic materials surviving in the deeper alluvial deposits in the eastern and, in particular, the north parts of the Site.

3.2 Taking this into account, specific objectives guided by the East Midlands Historic Environment Research Strategy (see https://researchframeworks.org/emherf/) are:

Late Bronze Age and Iron Age: Strategic Objectives

- Strategic Objective 4B: *Refine first millennium BC ceramic chronology by additional radiocarbon dating and typological analyses*.
- Strategic Objective 4C: *Characterise the Late Bronze Age and Early Iron Age settlement resource and investigate intra-regional variability.*

3.3 The ability of the archaeological remains on the Site to address further research questions may come to light as the archaeological investigation progresses and as the project archive generated from fieldwork is assessed. The aims and objectives of the investigation will be kept under review and an updated series of objectives will be provided as part of the updated project design following assessment of the fieldwork archive.

# 4. Scope of Work

4.1 The pre-commencement archaeological investigative works will comprise:

- A geoarchaeological survey and deposit model which will:
  - Refine understanding of the presence, nature and distribution of Quaternary superficial river, estuarine and tidal deposits and palaeoenvironmental sequences across the site;
  - Determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices;
  - Maximise recovery of geoarchaeologically significant deposits, lithics, waterlogged remains and other artefacts;
  - Establish the potential impact of the proposed development on deposits of geoarchaeological and archaeological potential;
  - Inform the scope of the subsequent excavation phase of archaeological works that may be required to mitigate the impacts of the development on the archaeological resource.
- A programme of archaeological excavation targeting archaeological remains present (a preliminary area of excavation showing the minimum likely extent is shown on Figure 4) and will be further defined by the results of the geoarchaeological survey and deposit model). The aims of the excavation, as defined in the CIfA Standard and guidance for archaeological excavation (CIfA 2014a), are to:
  - examine the archaeological resource within the site within a framework of defined research objectives;
  - seek a better understanding of the resource;
  - compile a lasting record of the resource; and
  - analyse and interpret the results of the excavation, and disseminate them.

## Geoarchaeology and Deposit Model

4.2 The geoarchaeology survey and deposit model phase will comprise:

- Two transects along the northern and eastern boundary with a third shorter, perpendicular, transect roughly bridging the first two. This would cover the majority of the northeast of the site where the Till is low lying.
- 14no geoarchaeological boreholes (windowless sample type to a maximum depth of c. 2- 6m) log review and deposit modelling, integrating the results of previous archaeological and geotechnical investigative works with those of the new borehole survey;
- record sequences and obtain representative samples from suitable deposits;
- establish the potential of the superficial deposits to preserve archaeological and/or palaeoenvironmental remains (via geoarchaeological assessment of deposit characteristics and depositional environments represented);
- palaeoenvironmental assessment of a single sequence, comprising two radiocarbon dates (inclusive of plant macrofossil assessment and pollen analysis) will be undertaken;
- select and submit suitable samples for fast-turnaround radiocarbon dating to inform interpretation where required;
- report on the results, with recommendations and proposals for appropriate further work where appropriate; and,
- reporting and archiving.

# Archaeological Excavation

4.3 The preliminary area of excavation represents the minimum anticipated extent of the excavation as shown on Figure 4. Following the deposit model and geoarchaeology survey assessment further definition will be developed, in consultation with Alison Williams of North Lincolnshire County Council for the archaeological excavation programme of work.

4.4 The deposit model will include a summary of the archaeological potential alongside the depth below ground level (bgl) at which the uppermost archaeological horizon was encountered within the previous evaluation trenches.

4.5 The final extent of the archaeological excavation will be set out in the archaeological contactor's detailed WSI for archaeological excavation to be submitted to and approved by the LPA advised by the North Lincolnshire HEO.

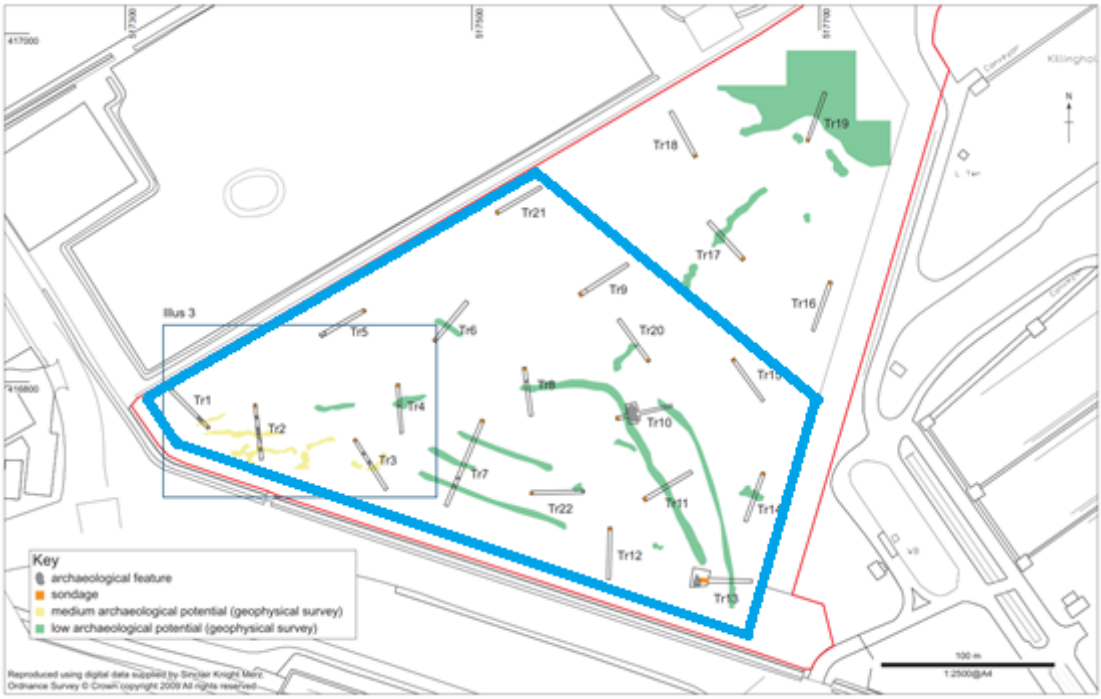


Figure 4 Preliminary area of excavation

# 5. Methodology

5.1 All archaeological works will be carried out in accordance with this framework WSI and the subsequent detailed WSI's prepared by the archaeological contractor appointed to carry out the archaeological investigations and following guidelines in the Standard and Guidance for Archaeological Excavation (CIfA 2020c), and the Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (CIfA 2020a); and other current and relevant good practice, and standards and guidance (refer to Appendix A).

5.2 The archaeological contractor appointed to undertake the archaeological investigations shall prepare a detailed WSI that accords with this framework WSI to be submitted to the NLHEO and the LPA for their written approval prior to the commencement of archaeological fieldwork. The detailed WSI will confirm the extent and scope of the investigations, methodologies, post-fieldwork processes, reporting, publication and archiving, timescales and monitoring arrangements, staffing details including specialists to be used, and arrangements for community participation and heritage enhancements, and shall include a Selection Strategy and Digital Management Plan.

5.3 The Archaeological Contractor shall prepare and submit a Risk Assessment and Method Statement (RAMS) for the works prior to the start of the fieldwork for approval by the Client. If appropriate, the Method Statement shall be prepared in association with the Principal Contractor, taking account of their Environmental Management Procedures and Health and Safety Plan(s).

5.4 The Archaeological Contractor shall ensure that the archaeological investigations are undertaken in an organised, efficient and professional manner. The Archaeological Contractor shall therefore have full regard for the safety of all personnel on site, including measures to ensure the safety of all, including any effects the investigations may have on the daily operations of the landowner and members of the general public.

5.5 All paper and digital records made during the course of the investigation, and the treatment of artefacts and environmental remains, will be reviewed continuously. Record checking and collation will be completed at regular intervals, as appropriate, and before an area is considered complete, abandoned, backfilled or the site closed. Errors or omissions in recording discovered during post-excavation cannot be recovered. The Archaeological Contractor will make suitable allowance for this task.

## Geoarchaeological and Palaeoenvironmental Investigations

### Recording

5.6 The sedimentary record shall be recorded through use of graphic logs and written description by the Archaeological Contractor’s suitably qualified geoarchaeologist. As a minimum, all logs must include the following descriptive information in a table format:

- Sample Unique Identification Number
- Location (XY coordinates)
- Level of the top of the sample (e.g. m OD)
- Depth for top and bottom of each lithological unit
- Depths for poor / no sediment retrieval
- Sampling locations.

### Boreholes

5.7 14 No. boreholes, approximately 100mm in diameter, will be drilled. The locations are the proposed and may have to be modified in the light of service runs and/or other constraints found when on the site.

5.8 The locations will be drilled by a sub-contracted drilling crew, under the supervision of a geoarchaeologist. While the drilling rig is running the geoarchaeologist will remain outside the active working area of the rig. The geoarchaeologist will signal the lead driller when they wish to approach the rig and will approach only

when it is safe to do so. Upcast or core samples will be brought by the drilling crew outside of the active drilling area, to a safe designated area, and made available to the geoarchaeologist for recording.

5.9 Cores will be preliminarily opened and described on-site and then securely wrapped (to avoid sediment loss/contamination and moisture loss), labelled and retained for further off-site investigation at laboratory/ processing facilities. Preliminary interpretation of the deposit sequence sampled in the cores will be made on site. An onsite overview of the lithology and stratigraphic character will identify formation processes and palaeoenvironmental/ archaeological potential in light of any further sampling needs (e.g. for OSL). As a general rule cores have a shelf life limited to 3-4 years. Once in laboratories, the cores may require extrusion or further cleaning/examination. Descriptions will follow standard geological criteria on pro-forma logs sheets.

5.10 As a minimum all logs will be tabulated to include the following descriptive information:

- Sample Unique Identification Number
- Location (XY coordinates)
- Level of the top of the sample (e.g. m OD)
- Depth for top and bottom of each lithological unit
- Depths for poor / no sediment retrieval
- Description of each lithological unit, follow conventional standards (see Historic England 2015) and including sediment structure;
- colour
- texture;
- sorting and boundary characteristics; and
- Sampling locations (including purpose of sampling and unique sub-sample code).

5.11 Soil core sample holes will reinstated with bentonite to protect the groundwater, minimise contamination pathways and/or address any other residual hazards. Should a significant obstruction be encountered before reaching the target depth an additional hole shall be drilled, at a distance of at least 1.0m from the survey point, at the discretion of the Archaeological Contractor. Should the additional core encounter an obstruction of a similar nature the circumstances shall be recorded, and the excavation ceased. Such additional cores will be assigned the same unique number as the original core along with a suffix (e.g. A, B, etc for each additional drilling attempt).

5.12 A colour photographic record in digital format will be made of the site survey works whilst they are in progress to graphically demonstrate each activity. Archeologically significant soil core samples shall be photographically recorded (in colour) whilst onsite. These may include significant contacts revealed in the sample window or deposits containing significant palaeoenvironmental or cultural assemblages. All records shall be cross-referenced to the unique core sample number.

## Palaeoenvironmental Sampling

5.13 Provision shall be made for the removal of samples from all securely stratified deposits which shall be scatter sampled for retrieval and assessment of biological remains. A sampling strategy appropriate to the archaeological features and deposits will be adopted. Where appropriate natural deposit sequences will also be sampled should important palaeoenvironmental evidence and/or important sequence dating be possible.

5.14 As a minimum this will include bulk samples for most archaeological contexts as well as provision for column and/or other necessary sampling as set out in the paragraphs below.

- Samples are to be obtained within a plastic liner, to be split on site and logged by the geoarchaeologist undertaking the watching brief;
- Geoarchaeology samples are then to be re-sealed for transportation to the Archaeological Contractor's storage unit for potential future assessment / testing.

- Samples will be retained until such time when all palaeoenvironmental work has been completed, at which point they can be returned to the Geotechnical Contractor as required.

5.15 Processing and assessment of samples shall be undertaken in line with the agreed strategy for the recovery and sampling of environmental remains and Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (English Heritage 2011). Subject to variations agreed in writing based on this, samples shall be processed and assessed under the supervision of the contractor's palaeoenvironmental specialist(s).

5.16 Using professional judgment, suitable samples for scientific dating shall also be recovered during the GI works for carbon dating analysis to provide a range of dates across the site. Dating techniques shall only be applied where required to meet the aims and objectives of the investigations and on written instruction from the Lead Heritage Consultant. These may include:

- Radiocarbon dating;
- Radiocarbon dating (Accelerator Mass Spectrometry);
- Dendrochronological dating.

5.17 Appropriate techniques for assessment of the range, diversity, abundance and state of preservation of environmental remains should be employed. Such assessment must be sufficiently robust to determine the potential of the full range of environmental evidence for contributing to the existing or updated archaeological research objectives.

5.18 All processing, recording, cleaning, storage and conservation of samples shall be in accordance with the Chartered Institute for Archaeologist's Standard and guidance for the collection, documentation, conservation and research of archaeological materials (2014d).

5.19 The results of the sampling and dating of deposit sequences (both archaeological and natural) will be incorporated by a suitably qualified Geoarchaeologist into the existing deposit modelling for the area.

## Deposit Modelling

5.20 Collating geotechnical data from the ground investigation programme being undertaken for the Scheme and previous geoarchaeological data from the area;

- Undertaking purposive geoarchaeological reconnaissance alongside the ground investigation programme across the Site, noting the locations are indicative and subject to change following further design amendments;
- Producing a series of outputs to model the vertical and lateral extent of deposits across the scheme;
- Interpreting the sediments in their local and regional geoarchaeological context;
- Assessing the likely archaeological and geoarchaeological potential of the deposits present.

5.21 The different lithologies recorded will be entered into industry standard software (such as Rockworks ™ v17.0 or similar) and assigned to a stratigraphic unit. A stratigraphic framework for the scheme will be produced. This can be linked to the geotechnical interpretation produced by the Geotechnical Contractor, as agreed with the Principal Contractor and Client, to provide a consistent model for the Site.

5.22 The data will then be exported into Arc GIS (or similar) and used to create a range of outputs, potentially including thickness plots, digital elevation models (DEMs) and representative transects mapping the subsurface topography beneath the Site. The readability of the data will need to be in a format that is accessible for both archaeological and non-archaeological parties for wider circulation.

## Reporting

5.23 Following completion of the deposit model, the report will include the following elements:

- Non-technical summary;

- Project background;
- Aims and objectives;
- Archaeological and geoarchaeological context;
- Methods;
- Results – deposit modelling outputs, stratigraphy, palaeoenvironmental analysis and dating;
- Conclusions in relation to the project research themes and specific research objectives, and discussion in relation to the wider local, regional or other archaeological and geoarchaeological contexts and research frameworks etc;
- Recommendations;
- Appendices;
- Illustrations; and
- References.

5.24 Digital data from the deposit model will be provided in AGS Data Format.

### Provisional Programme

5.25 The fieldwork is provisionally programmed to be undertaken in spring / early summer 2023. The Archaeological Contractor will develop the detailed programme and sequencing of the works (including detailed Gantt chart baseline programme).

5.26 The post excavation assessment report will be produced within 8 weeks of completion of fieldwork. This is to allow for specialist palaeoenvironmental proxy assessment and scientific dating techniques to be fully complete and integrated into the final report.

# Archaeological Excavation

## Machine Excavation

5.27 The archaeological works will be carried out in accordance with this framework WSI for archaeological mitigation and the Archaeological Contractor's approved detailed WSI.

5.28 The excavation areas will be set out using electronic survey equipment by the Archaeological Contractor. The extent of the stripped excavations will be clearly demarcated and secured with appropriate barrier fencing (such as Heras fencing) to ensure that persons or vehicles cannot inadvertently traverse the areas of investigation while archaeological works are in progress. The fencing will be regularly inspected and maintained until archaeological works in the area have been completed, inspected, approved and signed off by the Archaeological Advisor.

5.29 The Contractor will be responsible for identifying all hazards on site, including the location of overhead and buried services, and ensure it is safe to excavate. The excavation area will be scanned by the Contractor using a Cable Avoidance Tool (CAT scanner) and Genny prior to and during the excavation (mechanical excavation and hand excavation) to ensure that no live services are present.

5.30 The machine excavation will be undertaken using an appropriate 360° mechanical excavator fitted with a toothless ditching bucket, to be provided by the Contractor. A toothed bucket or breaker may only be used temporarily if concrete, tarmac or other hard standing is encountered. A toothless bucket is to be used at all other times.

5.31 Upon removal of the topsoil, the underlying subsoil shall be removed by mechanical excavator under close archaeological supervision until either the top of the first archaeological horizon or undisturbed natural deposits are encountered. Particular attention should be paid to achieving a clean and well-defined horizon with the machine. The mechanical excavator will not traverse any stripped areas.

5.32 Topsoil overburden and subsoil will be stockpiled separately at locations specified by the Client. These locations will be included in the Archaeological Contractor's Method Statement.

5.33 The machined surface will be hand cleaned, if necessary, and inspected for archaeological features. Pre-excavation planning will be undertaken to record all identified archaeological features.

5.34 Should archaeological evidence, revealed within the excavation areas defined on Figure 4, have the potential to continue outside of the areas, the excavation areas may need to be extended to sufficiently characterize the archaeological remains and identify its limits. This will only be undertaken with the agreement of the Archaeological Advisor and the Client.

5.35 Hand excavation, recording and sampling will proceed in accordance with the methodology outlined in this framework WSI and confirmed in writing in the Archaeological Contractor's detailed WSI, in order to meet the aims and objectives of the excavation.

5.36 All investigations will be recorded on a suitable digital base map / development plan and the stratigraphy and depth of excavation will be recorded. Details on recording procedures, where archaeological remains are discovered, are detailed in the section below.

# Hand Excavation

5.37 The areas of excavation/ ground disturbance (even if they reveal no archaeological features) will be surveyed using suitable electronic surveying equipment, resulting in a digital pre-excavation plan.

5.38 The archaeological investigation strategy will be determined by the range and complexity of the mapped archaeological features and their artefactual and palaeoenvironmental content.

5.39 Any archaeological remains identified for sample excavation will be cleaned and hand excavated in an archaeologically controlled and stratigraphic manner sufficient to meet the aims and objectives of the archaeological investigation. Machine assisted excavation may be permissible, if large deposits are encountered, at the discretion of the Archaeological Advisor. A sufficient sample of deposits/ features will be investigated, through sample excavation in each area where archaeological remains have been identified, in order to record the horizontal and vertical extent of the stratigraphic sequence to the level of undisturbed natural deposits. Sample excavation will also target the interrelationships between features and major feature intersections to understand and record their relationships, where these are revealed / identified.

5.40 A flexible excavation sampling strategy will be utilized guided by the aims and objectives of the project. As a generic standard the following sample excavation will be carried out and may be varied to suit the research value of particular deposits.

5.41 Linear features: a minimum sample of 20% of each linear feature (each sample length will be not less than 1 m), excepting those of clearly modern date. Sample sections shall always be positioned to record accurate profiles of any deposit and to identify structural/ phasing sequences (for example terminus and intersections). Further, all intersections between features will be investigated to determine the relationship(s) between the component features. All termini will be investigated. It is possible that additional segments will need to be archaeologically excavated where good quality artefact/ ecofact assemblages have been recovered from initial segments, or where insufficient data to address the project aims and objectives has been recovered. This will be undertaken by hand excavation by the Archaeological Contractor, or by careful machine excavation in spits, following recording of sufficient hand-excavated sections, and following consultation and agreement between the Archaeological Consultant and the Archaeological Advisor.

5.42 Discrete features: all pits, post-holes and other isolated features will normally be half-sectioned, and stake-holes fully excavated. If large pits or deposits (over 1.5 m in diameter) are encountered, then the sample excavated should be sufficient to define the extent and maximum depth of the feature and to achieve the aims and objectives of the excavation, and should normally be excavated in quadrants.

5.43 Structural evidence: investigation shall determine phasing, dates, character, and nature of associated deposits to achieve the research objectives of the excavation.

# Recording

5.44 Areas subject to archaeological monitoring and excavation, and all archaeological remains, will be accurately recorded using metric survey-grade equipment to an accuracy of +/- 10 mm (or its equivalent) (English Heritage, 2015) and fixed in relation to any existing survey markers. The data will be overlaid at an appropriate and recognizable scale onto the Ordnance Survey national grid (using digital map data).

5.45 A full written, drawn and photographic record will be made of all archaeological remains, in accordance with standard archaeological methodologies (see Appendix A).

5.46 Detailed hand-drawn plans and sections of features will be produced at an appropriate scale (normally 1:50 or 1:20 for plans and 1:10 for sections). All plans and sections will include spot heights relative to Ordnance Datum in metres, correct to two decimal places.

5.47 Photography will be taken using digital photography of not less than 10 megapixels (MP) resolution. The standards for site photography shall be in accordance with the requirements of the Archaeological Advisor for NCC. Digital photography should follow the guidance given by Historic England in Digital Image Capture and File Storage: Guidelines for Best Practice, July 2015. Digital images will only be acceptable if each image is supplied as both a JPEG and TIFF versions. The latter as an uncompressed 8-bits per channel TIFF version 6 file of not less than 25 Mbs (see section 2.3 of the Historic England guidance). The Archaeological Contractor must include metadata embedded in the TIFF file. The metadata must include the following: the commonly used name for the site being photographed, the relevant centred OS grid coordinates for the site to at least six figures, the relevant township name, the date of photograph, the subject of the photograph, the direction of shot and the name of the organization taking the photograph.

5.48 In addition to records of archaeological features, a number of general site photographs will also be taken to give an overview of the site. Particular attention should be paid to obtaining shots suitable for displays, exhibitions and other publicity.

## Reporting

5.49 An interim statement of the results of the archaeological investigation will be prepared and submitted to the Archaeological Consultant within one week following the completion of the works. The statement will include the following:

- a brief summary of the results;
- a plan of the area of archaeological investigation showing mapped features; and
- a quantification of the primary site archive.

5.50 If appropriate, a post-fieldwork assessment report will be prepared within twelve weeks following the completion of the archaeological investigations within the Site. Each category of find (including samples) will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the fieldwork report.

5.51 The preparation of the site archive and post-fieldwork assessment report will be undertaken in accordance with current good practice standards and guidance. The precise format of the report is dependent upon the findings of the investigations, but it will contain the following:

- a quality assurance (QA) sheet detailing as a minimum: title, author, version, date, checked by and approved by;
- a non-technical summary;
- the archaeological and historical background (including an assessment of the results of previous phases of fieldwork);
- a full detailed methodology;
- a description of the aims and objectives of the archaeological mitigation works;
- the results of the investigations (to include full description of importance and significance of the remains, in their local, regional and national context cross-referenced to the Regional Research Framework);
- a general and detailed plan showing the location of the fieldwork accurately positioned on an Ordnance Survey base map (at an appropriate and recognised scale);
- detailed plans and sections illustrating archaeological features and relationships between features (at an appropriate and recognised scale);
- a statement that addresses the future retention of the material, if human remains are encountered, including, if appropriate, options for reburial;

- a list of all finds that fall within the scope of the Treasure Act and associated legislation;
- depending upon the complexity of the remains, a stratigraphic matrix for each excavated area and, if applicable, how areas interlink;
- an assessment / conclusion and a statement of potential (stratigraphic, artefactual, environmental);
- recommendations for reporting and publication;
- photographs that illustrate work in progress and archaeological discoveries;
- the current and proposed arrangements for long term conservation and archive storage (including details of the accredited repository);
- specialist artefact reports; palaeoenvironmental/ geoarchaeological reports or their equivalent;
- an appendix illustrating specific finds and general working shots or portraits of specific features or structures as appropriate; and
- a cross-referenced index of the project archive.

5.52 The report will specifically comment on the results of the archaeological works and will highlight relevant information on the spatial extent, character, depth, preservation, date and detail of the archaeological resource, where appropriate. The report will comment on the potential for extrapolating the results onto adjacent areas, if applicable.

5.53 The Archaeological Contractor shall ensure that the report contains a quality assurance sheet that is appropriately signed-off to confirm that the report has gone through an in-house technical review process, before it is presented for external comment.

5.54 A digital PDF copy (complete with illustrations and plates) of the completed report will be submitted to the Archaeological Consultant as a draft for comment. The Archaeological Consultant will pass on the draft report to the Archaeological Advisor for and the Client for comment. In finalizing the report the comments of the Archaeological Consultant, Archaeological Advisor and the Client will be taken into account.

5.55 A digital version (Word and PDF) of the finalized report will be submitted to the Archaeological Consultant within four weeks of the receipt of comments on the draft report. The finalized report will be submitted in digital format to the Archaeological Advisor and the Historic Environment Record, and to the Client. If required a hardcopy will be submitted on request.

5.56 The digital report shall comprise a CD (or equivalent digital media storage device) containing a complete version of the report in PDF format, separate digital text (Microsoft Word) and image files in JPEG or TIFF format. The CD should be an archival quality gold CD, in accordance with the requirements of HAP. Drawings/ figures shall be presented in AutoCAD format and ArcView shapefile/ geodatabase format. The digital drawing output in GIS will have the feature list and descriptions embedded into it.

5.57 An OASIS entry shall be completed at the end of the fieldwork, irrespective of whether a formal report is required. The Contractor will complete the online form at http://ads.ahds.ac.uk/project/oasis/ within one month following completion of the fieldwork. Archaeological contractors are advised to contact OASIS (oasis@ads.ahds.ac.uk) for technical advice.

### Provisional Programme

5.58 The fieldwork is provisionally programmed to be undertaken in summer/early Autumn 2023. It is anticipated that the fieldwork will take approximately 2-3 months. The Archaeological Contractor will develop the detailed programme and sequencing of the works (including detailed Gantt chart baseline programme).

5.59 The post excavation assessment report will be produced within 8 weeks of completion of fieldwork. This is to allow for specialist palaeoenvironmental proxy assessment and scientific dating techniques to be fully complete and integrated into the final report.

## Artefact Recovery

5.60 All artefacts will be collected, stored, and processed in accordance with standard archaeological methodologies and national guidelines (refer to Appendix 1). All archaeological finds, except modern

artefacts where these do not contribute to project objectives, will be collected and retained. The Archaeological Contractor will clarify in their detailed WSI the Collection Policy of the recipient repository/ museum and will ensure that it is in-line with relevant local authority guidelines. Each 'significant find' will be recorded three dimensionally. Similarly, if artefact scatters are encountered these should also be recorded three dimensionally. Bulk finds will be collected and recorded by context.

5.61 All recovered artefacts will be stabilised, conserved and stored in accordance with current national conservation guidelines and standards (refer to Appendix 1). If necessary, a conservator will visit the Site to undertake 'first aid' conservation treatment.

5.62 Artefacts will be stored in appropriate materials and conditions and monitored to minimise further deterioration.

## Finds Processing

5.63 Initial processing of finds (and if appropriate other samples) will be undertaken concurrently with the fieldwork. The processing of finds will be finished shortly after completion of the investigation. The finds will be retained (according to the Collection Policy), washed, marked, bagged and logged on a Microsoft (MS) Access or GIS database (or equivalent), together with their locations according to the National Grid References (including eastings, northings) and Ordnance Datum (height) accurate to two decimal places.

5.64 The finds assemblage will be treated, labelled and stored in accordance with the appropriate Historic England guidance documents, local authority guidelines (if appropriate) and the Institute of Conservation guidelines (refer to Appendix A). The Archaeological Contractor will ensure that the processing of the assemblage is in accordance with the requirements of the recipient repository.

5.65 If appropriate, the Archaeological Contractor will ensure that each category of find, or each material type will be examined by a suitably qualified archaeologist / specialist and the results incorporated into the fieldwork assessment report.

## Treasure

5.66 Any artefacts which are recovered that fall within the scope of the Treasurer Act 1996 and Treasure (Designation) Order 2002 will be reported to the Archaeological Consultant immediately. The Archaeological Consultant will contact His Majesty's Coroner, and will ensure that the Treasure regulations are enforced and that all the relevant parties are kept informed. A list of finds that have been collected that fall under the Treasure Act and related legislation will be included in the fieldwork report.

5.67 Artefacts that are classified as 'treasure' will be removed to a safe place, but where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from damage or unauthorised removal.

# 6. Completion of Fieldwork

6.1 The Archaeological Contractor shall prepare and submit a Completion Statement to the Client within one day of the end of the geoarchaeology survey on site. All completion statements must include the agreement of the archaeologist for North Lincolnshire Council Archaeology Services.

6.2 The Archaeological Contractor shall ensure that all materials that they bring onto the site are removed, and that it is left in a tidy condition.

6.3 An OASIS entry shall be completed within two weeks of the end of the fieldwork, irrespective of whether a formal report is required (available online at: http://ads.ahds.ac.uk/project/oasis/). If appropriate the entry should include caveats about conclusions drawn in advance of analysis. The OASIS entry may be updated and re-submitted no later than two months after the completion of the report. When completing the form, the Archaeological Contractor must make reference to the Regional Research Framework.

# 7. Monitoring, Progress Reports & Meetings

7.1 The Archaeological Contractor will notify the local planning authority archaeologist (North Lincolnshire Council Archaeology Services) at least two weeks in advance when the fieldwork is due to start. Access to the Site will be accorded to the local planning authority archaeologist to enable them to evaluate the work being undertaken on site against the methodology detailed in the Archaeological contractor's detailed WSI. If significant or unusual deposits are revealed, the Historic England Science Advisor will be contacted by the Archaeological Consultant to discuss excavation and sampling techniques and, if necessary, to arrange a site visit.

7.2 Progress meetings involving the Archaeological Contractor, the Principal Contractor, and North Lincolnshire Council Archaeology Services may be held on site, as appropriate, to sign-off the area for construction, following the completion of elements of the fieldwork.

7.3 Verbal progress reports will be provided to the Client and North Lincolnshire Council Archaeology Services upon request, and weekly written progress reports will be provided if requested.

7.4 The Archaeological Contractor will only accept instruction from the Principal Contractor, or the Client as appropriate.

# 8. Resources and Programme

## Resources

8.1 All archaeological personnel involved in the project should be suitably qualified and experienced professionals. The Archaeological Contractor shall provide the Archaeological Consultant with staff CVs of the Project Manager, Site Supervisor and any proposed specialists that might be involved in the post-excavation work. Site assistant CVs will not be required, but all site assistants should have an appropriate understanding of excavation procedures.

8.2 All staff will be fully briefed and aware of the work required under this WSI and will understand the aims and objectives of the investigation and the methodologies to be employed.

8.3 The fieldwork is anticipated to be programmed in accordance with the Principal Contractor's timetable for the start of the construction of the primary infrastructure (subject to the approval of the Archaeological Contractor's WSI's and RAMS). The Archaeological Contractor will notify the Archaeological Consultant of the start date. The Archaeological Consultant shall notify North Lincolnshire Council Archaeology Services of the of the start date as least two weeks prior to the commencement of the works.

## Programme

- An indicative period of time of c.6-9 months for the undertaking and completion of the mitigation fieldwork stages (boreholes, deposit modelling, reporting, updating WSI and on-site excavations).
- It is envisaged that the geoarchaeological survey and deposit model will be undertaken in spring 2023.
- It is envisaged that the excavation will be undertaken in summer 2023 due to the wet nature of the site works.

# 9. Archive Preparation and Deposition

9.1 All archaeological material recovered from fieldwork is irreplaceable and data recorded in the course of fieldwork should be held securely in a separate location in line with current good practice.

9.2 The site records and assemblages (list of fieldwork interventions, notebooks/ diaries, completed pro forma record cards, records of site geometry (drawings), photographs and films, finds records and associated datafiles) will constitute the primary site archive. This is the key archive of the fieldwork project and the raw data upon which all subsequent assessment, analysis and future interpretation will be based. The archive will, therefore, not be altered or compromised; it remains the original record of the fieldwork. The site archive should be quantified, ordered, indexed and made internally consistent, and prepared in line with Archive Selection Toolkit: A toolkit to aid in the selection of the working project archive (CIfA 2019b) and current good practice (CIfA 2020c; Brown 2011a & 2011b).

9.3 The Archaeological Contractor will, prior to the start of fieldwork, liaise with the relevant Museum to obtain agreement in principle to accept the documentary, digital and photographic archive for long-term storage. The Archaeological Contractor will be responsible for identifying any specific requirements or policies of the recipient repository in respect of the archive, and for adhering to those requirements. As a minimum the Archaeological Contractor will keep the repository informed of the likely quantification and content of the archive throughout the progress of the fieldwork. Any charges levied by the repository for the long-term storage of the archive will be met by the Archaeological Contractor.

9.4 The archive of finds and records generated during the fieldwork will be removed from the Site at the end of each day and kept secure at all stages of the project until it is deposited in the agreed repository. The archive will be produced to current national standards (refer to Appendix A).

9.5 The deposition of the site archive forms the final stage of the project. The Archaeological Contractor shall provide copies of communication with the accredited repository and written confirmation of the deposition of the archive. The Archaeological Contractor shall deal with the transfer of ownership and copyright issues.

# 10. Confidentiality and Publicity

10.1 Detailed information regarding the development may be in the public domain and the archaeological works may attract interest.

10.2 All communication regarding the development is to be directed through the Client. The Archaeological Contractor will refer all enquiries to Client without making any unauthorised statements or comments.

10.3 The Archaeological Contractor will not disseminate information or images associated with the development for publicity or information purposes without the prior written consent of the Client.

10.4 It is considered that community engagement is unlikely to be practical during the site work. However, the use of digital media, on-line updates, online talks or presentations to local interest groups and wider audiences will be considered in consultation with the Contractor and Employer's community engagement teams. The results of the investigations will be disseminated to the wider public in due course, as appropriate, via the OASIS online report archive and ultimately through the deposition of the physical project archive.

# 11. Copyright

11.1 The Archaeological Contractor shall assign copyright in all reports, documentation and images produced as part of this project to the Client. The Archaeological Contractor shall retain the right to be identified as the author or originator of the material. This applies to all aspects of the project. It is the responsibility of the Archaeological Contractor to obtain such rights from sub-contracted specialists.

11.2 The Archaeological Contractor may apply in writing to use or disseminate any of the project archive or documentation (including images). Such permission will not be unreasonably withheld.

# 12. Access Arrangements and Site Information

12.1 Access to the area for investigation will be arranged/ organised by the Principal Contractor. The Archaeological Contractor shall be given reasonable notice of the start date for the area where the archaeological investigation is required, to allow the Archaeological Contractor to mobilise. Routes into and out of the Site will be identified by the Principal Contractor and will be adhered to at all times.

12.2 The timetable and programme for the investigations will be agreed in advance with the Principal Contractor.

12.3 The Archaeological Contractor shall not excavate outside of the area designated for archaeological investigation. If the archaeological investigation area requires extending, the additional work shall be agreed with the Archaeological Consultant and the Client prior to its implementation, and subject to approval by North Lincolnshire Council Archaeology Service.

12.4 The Archaeological Contractor will record photographically (digital photographs) the ground conditions in the area required for archaeological investigation prior to works commencing, and at the end of excavation.

# 13. Insurances, Health and Safety

13.1 The Archaeological Contractor will provide the Contractor with details of their public and professional indemnity insurance cover.

13.2 The Archaeological Contractor will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation and good practice. A copy of the Archaeological Contractor's Health and Safety policy will be submitted to the Archaeological Consultant with their RAMS prior to the start of the fieldwork.

13.3 The fieldwork shall be carried out under the Construction Design and Management (CDM) regulations.

13.4 The Archaeological Contractor shall follow the instructions of the Principal Contractor or Archaeological Consultant as appropriate and will liaise closely with the Principal Contractor and comply with their site rules for the drainage diversion works.

13.5 The Principal Contractor shall be responsible for identifying any buried or overhead services and informing the Archaeological Contractor of their location, depth and any exclusion zones.

13.6 All staff involved in the fieldwork should be CSCS qualified to a minimum standard as a Professionally Qualified Person or Academically Qualified Person. Staff CVs should include CSCS qualifications.

13.7 Prior to the start of the archaeological works, all staff involved in the project will be required to attend a Contractor's Health and Safety induction. A copy of the Archaeological Contractor's detailed WSI and RAMS will be provided to the Contractor during the induction process.

13.8 The Archaeological Contractor shall at all times adhere to the Principal Contractor's requirements and conditions with regards to working within the development site and in the vicinity of buried or overhead utilities (such as power lines) in order to maintain a safe minimum working distance at all times.

13.9 The Archaeological Contractor shall not start any excavation works unless authorised to do so by the issue of a 'Permit to Dig' by the Contractor.

13.10 All site personnel will familiarise themselves with the following:

- site emergency and evacuation procedures;
- the Site’s health and safety co-ordinator;
- the first aider; and,
- the location of the nearest emergency hospital and doctor’s surgery.

13.11 The Archaeological Contractor will maintain a record of site attendance and complete a daily briefing at the start of work for each day that there is a team in the field.

13.12 All site personnel will wear full PPE compliant with the mandatory requirements of the Principal Contractor. Additional PPE will be provided by the Archaeological Contractor as required. Any visitors to the investigations will require a site induction in accordance with the Contractor’s health and safety requirements, and will have read and signed the Archaeological Contractor RAMS. The Archaeological Contractor will ensure that any visitors to the investigations are equipped with suitable PPE prior to entry to the site.

13.13 All equipment that is used in the course of the fieldwork must be 'fit for purpose' and be maintained in a sound working condition that complies with all relevant Health and Safety regulations and recommendations.

13.14 The Archaeological Contractor will liaise with the Principal Contractor with regards to the provision of suitable welfare facilities. The locations for temporary site welfare facilities, that the Archaeological Contractor shall have access to at all times whilst on site, will be agreed with the Contractor prior to the start of the works.

## COVID-19

13.15 All work should be undertaken in line with current government advice, which, at the time of writing includes the Site Operating procedures (Construction Leadership Council 2021, and any subsequent updates).

# 14. General Provisions

14.1 The Archaeological Contractor will undertake the works according to this framework WSI and subsequent approved detailed WSIs and any subsequent written variations that must be agreed with the planning authority before implementation. Variation from or changes to this framework WSI and subsequent approved detailed WSIs and any subsequent written variations must be agreed with the planning authority, the Archaeological Consultant and the Client.

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