Phillips 66 Site – Humber Zero

Framework WSI for Archaeological Trial Trenching Investigation Works

Phillips 66

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Quality information

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1. Introduction

1.1 AECOM (the Archaeological Consultant) have been commissioned by Phillips 66 Limited (the 'Client') to prepare a Framework Written Scheme of Investigation (WSI) for a programme of archaeological trial trenching works to be undertaken at the Humber Refinery, within the proposed development area (the 'Site') for a proposed Post-combustion Carbon Capture (PCC) plant and associated infrastructure (the 'Proposed Development'). The work is located within the extant Phillips 66 Humber Refinery – centred at NGR 515591, 416883.

1.2 A planning application for the Proposed Development is currently being determined by North Lincolnshire Council (planning application reference PA/2023/422).

1.3 Previous archaeological investigations to inform the planning application consisted of a Desk-Based Assessment (DBA) (Hounsell, 2022). This concluded that it was very likely that below ground archaeological remains would have been removed or severely truncated by the extant refinery development in 1966; however, this could not be conclusively proven and as a result the potential to encounter such remains (low as this is) still exists. If present such remains may be associated with the ancient foreshore (and potential associated palaeochannels), a known nearby Iron Age / Romano-British settlement and medieval to post-medieval agricultural land evidence nearby ridge and furrow.

1.4 A programme of geotechnical investigation (GI) works will be undertaken to better understand the geological makeup of the Site to inform design and construction. Archaeological monitoring of these works provides an opportunity to assess the level of below ground disturbance at the Site and the likelihood of deposits with the potential for archaeological survival being present. The results of these geotechnical investigations will feed into this framework trial trenching WSI to inform where (if identified) deposits with the potential to preserve archaeology may exist and the most suitable trial trench locations to investigate these deposits.

1.5 The works specified in this document will be undertaken by a competent and suitably qualified Archaeological Contractor (the 'Archaeological Contractor') who should be a Registered Archaeological Organisation with the Chartered Institute for Archaeologists (CIfA). They will be employed by the Client.

1.6 This document sets out the methodology, specification and protocols to be adhered to during the completion of the archaeological fieldwork, as well as the interim reporting and preparation of the fieldwork reports which will be completed by the Archaeological Contractor. In addition, the requirements and responsibilities of the Archaeological Contractor, the Archaeological Consultant and the Client have been set out to assist the Archaeological Contractor in the completion of the archaeological works.

1.7 The WSI has been prepared by AECOM on behalf of the Client in accordance with guidance provided by the CIfA, including the Standard and Guidance for archaeological field evaluation (2020a). The WSI will be submitted to the Historic Environment Officer for North Lincolnshire Council (NLC) for comment and approval before works commence.

2. Site Description Location and Geology

2.1 The Site lies 1.6 km north of Immingham, located within the administrative boundary of North Lincolnshire Council, in the ward of Ferry and Parish of South Killingholme, centred at NGR 515591, 416883.

2.2 The Site is a 15.7 hectare (ha) brownfield site located largely within the operational Humber Refinery. The majority of the area required for the proposed PCC plant is currently used for open storage (and associated safety stand-off areas) and temporary uses such as site cabins for maintenance contractors, which will be relocated to other parts of the Humber Refinery. There are also areas of existing utilities (above ground pipelines on racks), internal roadways and to the east of the site, railway sidings and part of the Network Rail operated railway line between Grimsby, Immingham and Ulceby. The proposed CO_2 pipeline will cross both the railway sidings (owned by Phillips 66) and railway line (owned by Network Rail). The westernmost part of the proposed PCC plant area is used for car parking and whilst this is not anticipated to be required for the PCC plant, a proposed new access from Eastfield Road will pass through this parking area.

2.3 The Site is situated on a low mound forming a high point in the local topography at an average height of *c.*12 m above Ordnance Datum (AOD), with the landform sloping down to *c.*10 m AOD towards the north and west, to *c.* 8 m AOD to the east and south, with a maximum height of *c.*17 m towards the middle of the Site.

2.4 The proposed PCC plant is located 2.2 km to the west of the Humber Estuary Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site and falls within the SSSI impact risk zone. The Site is entirely within Flood Zone 1 (low risk).

2.5 The geology and soils of the Site are described on the British Geological Survey (BGS) Geology Viewer (BGS Geology Viewer) and the Cranfield Soilscape Maps. The superficial deposit which underlies the Site is Till, Devensian deposits comprising diamicton. The Till is described by the BGS as "*unsorted and unstratified drift, generally over consolidated, deposited directly by and underneath a glacier without subsequent reworking by water from the glacier. It consists of a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape*." The Till is classified as a secondary (undifferentiated) aquifer which is assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

2.6 A thin ribbon of Tidal Flat deposit also extends into the north-east edge of the Site. Tidal flat deposits are described by the BGS as "*normally consolidated soft silty clay, with layers of sand, gravel and peat; characteristically low relief; from the tidal zone*". These Tidal Flat Deposits are designated as unproductive strata with low permeability; however, permeable sands are likely to contain groundwater.

2.7 The underling bedrock geology beneath the entire Site forms part of the Burnham Chalk Formation. The BGS describes this as "*white, thinly-bedded chalk with common tabular and discontinuous flint bands; sporadic marl seams*". The Burnham chalk formation is designated as a Principal Aquifer.

2.8 Soils across the Site are described as "*slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with a high leaching potential*".

3. Planning Background

3.1 This Framework WSI is for archaeological trial trenching works, which are to be undertaken in advance of the construction of the Proposed Development. Geotechnical monitoring works will take place prior to these works and will inform the need for, and nature of the trial trench evaluation (if required). These archaeological works are anticipated to be secured by a condition placed upon the planning consent for the Proposed Development by the Historic Environment Officer for North Lincolnshire Council.

4. Archaeological and Historical Background Summary

4.1 A DBA has been produced for the Site (Hounsell 2022); the results are summarised below.

Previous Archaeological Investigations

4.2 The Site has been previously heavily developed. It is currently entirely covered in concrete and other areas of hard standing and all of the structures and utilities associated with the operational refinery. There are no recorded, intrusive archaeological investigations within the bounds of the Site. Previous work within the Site has been limited to non-intrusive surveys including aerial photographic surveys carried out in 1989 and 2009, and a gradiometer survey in 2007 which did not identify any clear archaeological activity.

4.3 Land adjacent to (and immediately east of) the Site (referred to as 'the VPI Site' which relates to the related planning application for another carbon capture plant for the VPI Immingham Combined Heat and Power Plant (PA/2023/421)) has been subjected to a number of archaeological investigations, specifically:

- A field walking exercise carried out in 1999 which collected a number of Iron Age and Roman artefacts. This was followed by a geophysical survey.
- Following on from the above, a series of excavations were carried out in the central area of the VPI Site between 1999 and 2002. This work identified an Iron Age settlement consisting of several round houses and other features associated with an ancient creek identified by a borehole survey (see below), this settlement appearing to extend into the Roman period. Further remains were encountered and recorded in a later watching brief.
- A borehole survey was carried out as part of the excavations in 2002 to the east of the VPI site, which identified foreshore deposits and an east – west aligned palaeochannel which was connected to the River Humber.
- A LiDAR topographic survey carried out between 1998 – 2006. Whilst this also covered the Site, the Site is entirely covered in concrete and refinery structures and so the LiDAR survey was of no value in identifying potential archaeological remains.
- A watching brief carried out in 2007 towards the east edge of the Site, which did not identify any archaeological finds or features.
- A geophysical survey was carried out in the south-east quadrant of the VPI Site in 2009 which identified a number of possible archaeological anomalies.
- Further geophysical survey, trial trench evaluation and geoarchaeological evaluation was undertaken at the VPI Immingham site in 2023. This work clarified the extent and alignment of the palaeochannel and demonstrated that the Iron Age – Roman activity extended across much of the VPI Site (Wilson 2023).

4.4 These are mentioned, as there is a possibility that some of the archaeological remains identified by this work, in particular the large Iron Age – Romano-British settlement and the east - west aligned palaeochannel, have the potential to extend west into the Site.

Geoarchaeological Background

4.5 Between 27000 – 6000 Before Present (BP) the north coast of England was an area of significant climatic flux and this is particularly true of the area around the Humber Estuary. The geological sequences at these locations have the potential to inform of these changes to the landscape, and human use of it.

4.6 At around 27000 – 21000 BP (towards the end of the Palaeolithic period), the Site would have sat under the North Sea Ice sheet of the Devensian glaciation, a little to the south of the great meltwater lake known as the "Humber Lake". As the ice receded the lake silted up and it, and the area around it, became a peaty woodland (Straw 2016) and over time marshland (Green 2015). This is important as recent studies have demonstrated that these peaty marshlands near the Humber estuary offered valuable resources to prehistoric - medieval populations which made them attractive settlement locations. This combined with

the high degree of archaeological preservation afforded by this environment makes these locations archaeological very significant (Van der Noort, 2004).

4.7 From around 11000 BP the coastline of north Lincolnshire / north-east Lincolnshire lay *c.* 50 km to the east of its current position (Shennan *et al*, 2000) and what is now the North Sea was an area of dry land (known as Doggerland) which extended as far north as Shetland and, in places, connected the British Isles with continental Europe. As the North Sea Ice sheet began to melt Doggerland began to flood and by *c.*6000 BC the coastline was only a little to the east of its modern location. This flooding had a dramatic effect on the vegetation of the region, with the mature mixed deciduous forest that had once stretched out onto the North Sea plain being replaced by wetlands and a coastal landscape. The tree stumps and trunks that are revealed at very low tides and in excavations all along the Lincolnshire coast from Immingham to Ingoldmells have their origins in this lost prehistoric forest, which was first subject to waterlogging as the water-table rose and was then submerged by the rising tide (Berridge & Pattison, 1994). As ice continued to melt, sea levels continued to rise and by *c.* 2000 BC the Lincolnshire coastline lay significantly inland of its current position, retreating back westwards as sea levels stabilised towards the end of the Iron Age (*c.*43 AD). This resulted in some of the earlier (western) Lincolnshire marshland draining and drying out, whilst new (eastern) marshlands became established in previously flooded areas (Green 2015). The coastline continued to steadily move eastwards for the next *c.*1000 years, reaching a position which broadly resembles the modern coastline around the 17th century.

4.8 Archaeological work carried out in 2002 at the adjacent VPI Site demonstrated the presence of deposits associated with the flooding and subsequent drying of this area – including significant organic deposits. In addition, an ancient east-west aligned tributary (palaeochannel) which would have fed into the Humber Estuary was identified. Deposits in an around such features also have the potential to inform on past climates and human use of the adjacent landscape. This is particularly true in this instance as the archaeological works identified an Iron Age – Romano-British settlement built adjacent to this channel.

4.9 Recent works (Taylor and Roy, 2023) at the VPI Site have clarified and refined the depositional sequence within the VPI site and have confirmed the archaeological and palaeoenvironmental potential of these deposits. The work also refined the location of and depositional sequence within the palaeochannel.

4.10 It is very likely that the original line of the palaeochannel present in this area ran through the area of the Site. There remains the possibility that deeper deposits associated with this palaeochannel and indeed organic deposits associated with what was once dry land, may remain under the Site. One of the aims of the monitoring will be to determine the presence/ absence of such deposits.

Archaeological Background

Prehistoric (*c.* 700,000 BC to AD 43)

Palaeolithic - Bronze Age (*c.* 700,000 – 750 BC)

4.11 Evidence for this period within and around the Site is sparse. Of the Palaeolithic to Neolithic periods, there are no archaeological feature, finds or deposits (assets) recorded within the Site and only a handful of flint scatters attest to the Palaeolithic to Neolithic periods within the wider region. These artefact scatters tend to be clustered towards Killingholme (900 m to the north-west) of the Site, suggesting that this area may once have been a focal point for early people. A single Mesolithic end scraper was recovered during a trial trench evaluation in 2023 at the adjacent VPI Site. The end scraper is likely residual but (along with the other flint scatters) does demonstrate that these early populations were present in this area.

4.12 Bronze Age activity is a little better represented within the wider vicinity of the Site. Centralised, permanent settlement and associated agricultural activities intensify during this period with more and more land being cleared. The environment, generally, takes on a much more open aspect and field systems begin to emerge, although the regular occurrence of deer bones and antler in the archaeological record suggest that there are still significant areas of woodland. There is generally a picture of the widespread accumulation of colluvial material in the archaeological record at this time, presumably derived from the human clearance of woodland and subsequent agricultural activity.

4.13 Material culture reflects these changes; new pottery forms emerge (Renfrew and Cherry, 1986) and metal tools also emerge for the first time, although flint tools are still commonly used, albeit with changed forms (Humphrey 2003, 2007). Ritual activity also changes; the long barrows of the Neolithic period being replaced with round barrows, these also being more common than their predecessors and seemingly having a territorial, as well as funerary function (Roskams and Whyman, 2005).

4.14 A scheduled Round Barrow (Howe Hill, NHLE 1009346) is located 8.5km to the west of the Site, whilst further round barrows are located near Ulceby (Galley Hill Round Barrow) 6.9km to the west of the Site (HER 2290) and near Kirmington (Micklow Hill), 10km to the south-west of the Site (HER 2259).

4.15 A little to the south of the Neolithic site at Halton (East Halton, *c.* 6km north of the Site) a group of three possible subcircular barrows (all *c.* 10m in diameter) are visible as earthworks on aerial photographs (HER 26259, 26260 & 26261).

4.16 A significant Bronze Age occupation site is present *c.* 350m to the south-east of the Site (found during evaluations in 2009, MLS21554, MLS21555 and MLS21553) and a borehole survey, undertaken *c.*530m to the northwest of the Site, located former stream beds of Bronze Age to Iron Age date. The work identified various deposits (including burnt stone and charcoal) which were found in association with other features such as ditches. The finds (and the scientific dating of the charcoal) dated the site to the later Bronze Age. The site did not appear to be domestic in nature but rather appeared to be associated with exploitation of the estuarine environment, with semi-permanent industrial and marine resource exploitation activities being present.

4.17 Flint scatters of this date are also known from within the wider area surrounding the Site (e.g.,1.7km to the north-east (MLS22737)).

4.18 From within the Site itself, asset MLS1614 is the find spot of a probable Bronze Age flint knife and Roman greyware pottery (discovered prior to the construction of the Refinery). The location of this material from within the Site means that any local archaeological context from which they may have originated may have been removed or truncated during the construction of the Refinery. The likelihood of any below ground archaeological features surviving in this area is one of the primary aims of this monitoring works.

Iron Age (*c.* 750 BC – 43 AD).

4.19 The intensification of settlement and agriculture seen in the Bronze Age period continues throughout the Iron Age period, cremation becomes the main burial custom and material culture continues to develop, not the least of which is the introduction of the new forms of metal working. Occupation centres become more visible as Hillfort settlements are established. In Lincolnshire Hillforts tend to be small in both size and number and as a result cannot be seen as functioning as the citadels of elites. The scarcity of these contributes to the perceived absence of this period in this region – undefended settlements are less easy to find and more difficult to plan. However, lack of hillforts does not necessarily equate to less numerous or advanced communities (May 1976).

4.20 The area around North Killingholme appears to become a focus for occupation at this time, with a number of archaeological sites noted. A square enclosure, 50m x 50m in size (2km north-west of the Site) was recorded during a geophysical survey west of Eastfield Road in 2011. When investigated by trial trench evaluation in 2012 the enclosure was seen to contain a number of internal linear features. The fill of these contained Middle Iron Age pottery, as well as fuel ash slag, animal bone, burnt animal bone, fuel material, fire-cracked stones and fired clay. An environmental sample from a later ditch also contained some fired clay and fuel material, along with spelt wheat, barley grains and other plant remains from various habitats. This mixture of finds appeared to suggest that the enclosure was occupied by humans rather than livestock, and that metalworking and crop processing took place during that occupation (HER 22604).

4.21 Within the area around the Site, a number of Iron Age assets are noted. This includes an extensive field system identified via Aerial Photography (AP) and trial trench evaluation, *c.*900m to the north-east of the Site (MLS20422 and MLS20124). A programme of archaeological evaluation and investigation of this area in 2011 – 2012 uncovered an extensive Iron Age – Roman settlement (MLS21567) associated with the field system, a little to the north-east of it (1.7km north-east of the Site). The archaeological sites, broadly, consist of a multi-phased arrangement of interconnected, rectangular, ditched enclosures orientated on a north-south axis. Within these enclosures are numerous features representing structures, animal enclosures, and the subdivision of land plots and fields. Evidence from this period demonstrates that

crops are being grown and processed, animals are being reared and that iron is being worked. In 2012-2013 further work in this area uncovered another Iron Age to Roman occupation site *c.*450m to the south of MLS21567 (1.5km to the north-east of the Site). It is unclear if this archaeological site (MLS21569) was an entirely separate site to MLS21567, or simply an extension of it. Dating evidence indicates they were active at the same time at the very least.

4.22 The Bronze Age site MLS21554, located *c.* 350m to the south-east of the Proposed Development, is also active into this period.

4.23 A further Iron Age to Romano-British occupation site (MLS19771) also develops within the bounds of the adjacent VPI Site. At its closest point, the remains of this settlement is located *c.*270m to the east of the eastern edge of the Site. Work undertaken in 2000, combined with a further evaluation of the area in 2023 (Wilson 2023), demonstrates the presence of a large, multiphase, Iron Age domestic settlement located close to the Iron Age foreshore and sitting on either side of a tributary river (costal inlet) of the Humber. The economic lifestyle of these peoples was agrarian in nature, based around pastoral farming. There is evidence for round houses as well as animal enclosures and land management and drainage features. It also appears as if the wetter, marshy, areas of the coastal inlet and foreshore are being demarked by ditches and fences, possibly to stop animals straying into them.

4.24 The extensive nature of this archaeological site means that there is a possibility that, at one time, the remains of this settlement continued westward, along the tributary into the area of what is now the Phillips 66 Humber Refinery. Indeed, the presence of a rectilinear cropmark within the Site (MLS20078), seen in AP's dating to 1958, may be indicative of such an extension of the settlement. Again, understanding the likelihood for any below ground archaeological features surviving in this area is one of the primary aims of the archaeological monitoring works.

Roman (AD 43 – 410)

4.25 During the pre-Roman Late Iron Age period, north Lincolnshire was occupied by the Corieltauvi tribe (according to Ptolemy's 2nd century *Geography*) whose capital was Ratae Corieltauvorum (now Leicester). The Roman Ninth Legion *Hispana* arrived in Lincoln (Roman *Lindum Colonia*) sometime between 50-60AD and established a major fort, which became the functional capital of the region. Other major forts were built at Ancaster, Louth, Stamford, Tattershall and nearest to the Proposed Development at Caistor (although this is still 15km to the south-west of the Site).

4.26 Three main Roman Roads were established in Lincolnshire, crossing at Lindum. This includes Ermine Street (connecting London to York via Lincoln), the Fosse Way (Exeter to Lincoln), Tillbridge Lane (linking Lincoln with the small town of *Segelocum* (Littleborough on Trent). More locally to the Site the aforementioned 'High Street' (more correctly the 'Caistor High Street') was a pre-existing prehistoric trackway which ran along the eastern edge of the Lincolnshire Wold linking settlements at Horncastle, Ludford, Caistor and the major settlement of Yarborough Camp (which has Iron Age origins) before heading on to South Ferriby and Winteringham.

4.27 Many of the Iron Age archaeological sites previously noted continue in use into this period, indeed a few expand becoming more significant settlements. This is true of the Iron Age settlement at North Killingholme (MLS17461) which sees significant growth in the early Roman Period. During the first part of the 2nd century, it appears that a road (MLS20965) is constructed at the site which headed west, linking the settlement with Ermine Street. This would expand the communication network at this site, it already being near to the 'High Street' and linked to Yarborough Camp. However, the site appears to diminish from the late 2nd century AD onwards, with the site being largely abandoned by the 3rd century AD.

4.28 Closer to the Site, settlement MLS21554 was found to the southeast, which was founded during the Bronze Age and continues in use into this period, though evidence suggests it is not as intensively occupied at this time.

4.29 The Iron Age settlement(s) and field system to the northeast of the Site (MLS20442, 20124, 21567 and 21569) continue in use into this period and appeared to expand, with field systems associated with settlement spreading south (MLS22743), to the extent that they appear to almost link up with the Iron Age settlement (and its field system) seen within the VPI Site (MLS19771).

4.30 This archaeological site (MLS19771) does continue in use into this period, however, evidence from the various archaeological investigations appear to indicate that it suffered a similar fate to the settlement at Killingholme, going into decline during the 2nd century and eventually being abandoned.

4.31 A single sherd of Roman greyware (MLS1614) has been recovered (as a find spot) from within the bounds of the Site (prior to the construction of the Refinery). It is likely derived from occupation site MLS19771, either as a result of the manuring and ploughing of fields across the area surrounding the VPI Site, or derived from elements of the occupation site which continued underneath what is now the Humber Refinery.

Early Medieval (AD 410 – 1066)

4.32 North Lincolnshire formed part of the Anglo-Saxon Kingdom of Lindsey until the 7th century when it was absorbed into Northumbria. The period witnesses marked changes in mortuary practice and settlement form. These have been summarised by the contributions of Loveluck (2003) and Hall (2003) and point towards increasing social stratification, with the advent of richly furnished or prominently located individual burials, and settlements which have been identified as trading emporia, 'estate centres' and monasteries. These changes relate to the growth of aristocratic power and its expansion and consolidation across the regions. Such development underlies the creation of the kingdom of Northumbria, and the royal and ecclesiastical institutions to which our historical knowledge of the post-Roman centuries in this region is largely owed. Within the wider region, a Saxon *Burh* (a fortified, typically walled, settlement) is known at Stallingborough (6.6km to the south-east of the Site).

4.33 The early medieval period is, generally, far less visible in the archaeological record than both the preceding and subsequent periods, and this remains true of the archaeological record around the Site. A single Saxon pottery sherd was recovered from archaeological site MLS21567 to the north-west, indicating that this site may have continued in use into this period. Nearer to the Site, asset MLS1606 (Blows Field) is a moated enclosure situated 177m to the west of the Site. Whilst largely of medieval date, both fieldwalking in 2011 and trial trench investigation in 2012 produced quantities of pottery of a late Saxon date, suggesting an earlier origin. It is not impossible that field systems associated with the early medieval presence at this location once extended into the location of what is now the Humber Refinery.

4.34 There are no remains of this period recorded within the footprint of the Site.

Medieval (1066 – 1540)

4.35 The wider region within which the Site sits appears likely to have been largely underdeveloped until the early 1900s when the Great Central Railway began developing Immingham Dock. It is likely that the region was dominated by agricultural land interspersed with hamlets and villages. Archaeological and historical evidence demonstrate that the modern villages of East Halton, North Killingholme and South Killingholme may have had medieval predecessors. There is a strong probability that these medieval centres represented the movement and centralisation of populations which were already in these locations during earlier (Roman and Iron Age) periods. The same is true for population centres further afield such as Kirmington and Croxton which were also foci of Iron Age and Roman settlement.

4.36 The most populated centralised settlement in this region during the medieval period would have been Immingham, 2.5km to the south of the Site, and Stallingborough 6.6km to the south-east of the Site. The village of Immingham includes the Church of St Andrew, which dates to the 13th century (with 15th century alterations), which would have been the focus for a community based around it. The Domesday book of 1086 records that Immingham was held by William of Percy and consisted of 39 households (12 villagers, 13 freemen and 14 smallholders) and that there were four ploughlands and 80 acres of meadow. Stallingborough is recorded as being a smaller settlement. It was held by Herbert (Son of Aubrey) and tenanted by the Archbishop of York. There were eight households (five villagers, three freeman and one smallholder) with two and a half ploughlands, 80 acres of meadow as well as half a mill and two salt houses.

4.37 Nearer to the Site, Assets MLS1620, MLS1606, MLS1621 and MLS1613 are earthworks noted on aerial photographs which appear to represent traces of the shrunken medieval villages of North (MLS1620) and South Killingholme (MLS1606, MLS1621 and MLS1613). These remains intermittently span a "ribbon" *c.* 2.5km long to the north-west and west of the Site. At their closest point the remains sit 175m to the south-

west of the Site (MLS1613). It is possible that field systems associated with these sites once extended into the location of what is now the Humber Refinery. Indeed, ridge and furrow activity (MLS20104) is mapped as having extended into the Site on aerial photographs prior to the construction of the Refinery. It is likely that this industrial development has removed all traces of the ridge and furrow. Again, understanding the likelihood of any below ground archaeological features surviving in this area is one of the primary aims of this monitoring works.

Post-medieval (1540 – 1900)

4.38 A map of the North and South Killingholme area post-enclosure (1776 – 1779) shows that what was once the “East Field” is now subdivided into numerous smaller parcels of land (including the area of the Site). It also shows that the area which was labelled as “Marshes”, to the east of the Site has now also been parcelled up and enclosed, suggesting the lowering or stabilisation of sea levels and the subsequent drying of the coastal wetlands had made these areas usable for arable agriculture.

4.39 The Ordnance Survey (OS) map of 1887 indicates that a number of field boundaries would once have run through what is now the Humber Refinery. If archaeological remains survive below the extant Humber Refinery, depositional evidence for these boundaries (bank material and fill material) may be present.

Modern (1900 – Present)

4.40 The region remains largely unchanged until 1912 when the Immingham Docks were constructed (following the passing of the Humber Commercial Railway and Dock Act in 1904), at which point the region undergoes significant industrialisation, including a network of rail lines to transport goods between Immingham and Grimsby. This includes an extant freight line, linking Grimsby, Ulceby and Immigham Docks, and a passenger line linking Goxhill, Ulceby and Grimsby, as well as the Barton and Immingham light railway which linked Goxhill to Immingham Dock and Grimsby via North Killingholme. This light railway closed, in stages, between 1963 and 1969.

4.41 The extant freight link between Ulceby and Immingham Docks runs through the easternmost part of the Site.

4.42 The area of the Proposed Development remained as open agricultural land until the construction of the Humber Refinery in 1966 (the adjacent VPI Immingham Combined Heat and Power Plant was constructed in 2004).

4.43 No heritage assets of this period sit within the footprint of the Site, nor particularly close to it.

5. Aims and Objectives

5.1 The aim of the archaeological trial trench evaluation is to provide further information on the archaeological resource within the Site in advance of construction.

5.2 Specific objectives of the investigation are:

- to assess the extent, date, character and state of preservation of any archaeological remains within the Site;
- to assess the potential that the Site has to address research questions presented in the East of England Regional Research Framework (https://researchframeworks.org/eoe/).
- to further assess the effect that later activity has had on the state of preservation of any archaeological resource within the Site (if required following geotechnical works);
- to inform the scope of any archaeological mitigation that may be required.

5.3 The fieldwork will be carried out in accordance with the Chartered Institute for Archaeologists (CIfA) Standards and Guidance for Archaeological Field Evaluation (2020a) and Code of Conduct (2021).

6. Scope of Work

6.1 The archaeological investigation will comprise trial trench evaluation in the form of trenches. The number and size of the trenches will be agreed following the result of geotechnical investigations and consultation with the Historic Environment Officer for North Lincolnshire Council (NLC).

6.2 It may be necessary for the Archaeological Contractor to undertake a preliminary hazard assessment of the fieldwork area prior to the commencement of the fieldwork. The Archaeological Contractor will notify the Client and Consultant of any areas unsuitable for trial trenching due to hazards or ground conditions.

6.3 The Archaeological Contractor will produce a method statement in response to the updated WSI (following agreement of trench details) detailing the methods for the archaeological investigation and CVs of the site manager, site supervisor and proposed post-excavation specialists for submission to and approval by the Historic Environment Officer for North Lincolnshire Council (NLC).

Site Mobilisation

6.4 The Archaeological Contractor will be responsible for establishing and decommissioning their own temporary site welfare facilities as necessary (compound, welfare facilities etc). If temporary site welfare facilities are proposed on Site their location, access routes, ground protection measures and security arrangements will be agreed prior to the start of the evaluation, in consultation with the Client.

6.5 The Archaeological Contractor shall keep a photographic record at each location where temporary welfare facilities are proposed, both prior to installation and after decommissioning.

7. Site Constraints

7.1 The Site (the Humber refinery) is an Upper Tier Control of Major Accident Hazards (COMAH) Site and thus subject to a specific set of safety regulations (COMAH regulations 2015). The safety specific requirements of work in this environment will be communicated to the Archaeological Contractor during the scoping, inductions and briefings given to them. The Archaeological Contractor will adhere to all the requirements of the Client and the Site's operating and health and safety procedures at all times. Site specific information and constraints will be provided by the Client and will be incorporated into the Archaeological Contractor's RAMS. It may be appropriate to operate a permit system for all work to ensure control measures have been considered and implemented in relation to site constraints.

7.2 The Archaeological Contractor will obtain an updated utilities search (PAS128 D). The Archaeological Contractor will be supplement this updated search with observations from the initial site inspection (PAS128 C) prior to mobilisation to Site and will review and adjust intrusive works accordingly.

7.3 Prior to intrusive works the Archaeological Contractor will undertake a PAS128 B survey.

8. Methodology

General Requirements

8.1 All archaeological works will be carried out in accordance with this WSI and any further instructions from the Client. This WSI takes account of the guidance provided by the CIfA Code of Conduct (CIfA, 2021), the Standard and Guidance for An Archaeological Watching Brief (CIfA, 2020a), and other current and relevant good practice and standards and guidance (refer to Appendix A).

8.2 All works outlined within this WSI, and detailed in the Archaeological Method Statement, will conform to the Historic England procedural document Management of Research Projects in the Historic Environment (MoRPHE) (Historic England, 2015). The Archaeological Contractor shall also apply any other relevant standards and guidance and good practice.

8.3 The Archaeological Contractor will undertake the works according to this WSI and any subsequent written variations. No variation from or changes to the WSI will occur except by prior agreement with the Archaeological Consultant and in consultation with the Historic Environment Officer for North Lincolnshire Council.

Machine Excavation

8.4 The Consultant will agree access for plant, and the location of temporary parking and welfare facilities with the Client. The Archaeological Contractor will be advised of the arrangements by the Consultant prior to entering the development area.

8.5 The Archaeological Contractor shall be responsible for identifying any buried or overhead services. The Archaeological Contractor's supervisor will employ the use of a CAT Scan device to detect buried services. The supervisor will also ensure that everyone involved in the works knows about safe digging practices and emergency procedures. The Archaeological Contractor's Project Manager for the works will enforce these procedures and ensure that all staff are inducted regarding the site health and safety plan and risk assessment prior to commencing works on site. Any services that are disturbed during excavation shall be immediately notified to the utility company owner(s), and restored by the Archaeological Contractor, at their own cost, to the utility company's requirements and specifications.

8.6 The number, size and location of trial trenches will be determined following consultation with the Archaeologists for North Lincolnshire County Council following the conclusion of geotechnical investigations. It is envisaged that the geotechnical investigations will provide clarity to what level of modern disturbance has taken place within the Site. The results will assist in the number (if required) and location of any trial trenches necessary to further evaluate the archaeological potential of the Site,

8.7 The trenches should be positioned to an accuracy of ± 100mm using survey-grade GPS (Historic England 2015) or equivalent metric-survey equipment. The Consultant will provide the Archaeological Contractor with the trench locations (Ordnance Survey grid co-ordinates of the trench corners or a digital drawing of the trench locations on an Ordnance Survey basemap).

8.8 The extent of the trial trenches will be clearly demarcated to ensure that persons or plant cannot inadvertently traverse across the area of investigation whilst archaeological works are in progress. Pedestrian barrier fencing will be erected around each trench (including adjacent spoilheaps) by the Archaeological Contractor. The fencing will be regularly inspected and maintained by the Archaeological Contractor until works in the area have been completed, inspected and approved by the Consultant.

8.9 The trial trenches will be opened under direct archaeological supervision using an appropriate mechanical excavator fitted with a toothless ditching bucket.

8.10 The excavation of all trenches will be carried out in such a manner that avoids undue damage the development area. The sides of each trench will, as far as possible, be even and vertical with no significant undercutting.

8.11 The excavation will proceed under direct archaeological supervision, in level spits, until either the top of the first archaeological horizon or undisturbed natural deposits are encountered. Archaeological trial trenches that exceed a safe working limit will be stepped or battered (site specific, but generally in excess

of 600mm in depth) to ensure the stability of the sides of the trenches. Should the trench uncover unstable ground (for example, loosely backfilled cellar backfill material), the full width and depth of material will not be excavated; a sondage will be inserted through the material, by machine, to establish the depth of the made ground. Particular attention should be paid to achieving a clean and well-defined horizon with the machine. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits. All trenches are to be the stated dimensions at their base. The surface achieved through machine excavation will be inspected for archaeological remains. The mechanical excavator will not traverse any stripped areas.

8.12 The machined surface will be cleaned by hand, where required, to enable the definition of archaeological remains. Following cleaning, all archaeological deposits and remains will be planned to enable the selection of features and deposits for sample excavation.

8.13 The Archaeological Contractor will be responsible for ensuring a safe and appropriate mode of entry into and out of each trench.

8.14 The Archaeological Contractor will ensure that petrol or diesel-powered equipment such as generators, compressors or pumps are not sited on, or near to, the edge of an excavation unless fumes can be ducted away or the area can be ventilated.

8.15 A competent person must inspect trenches:

- at the start of each working day prior to work commencing, and during the working day, as appropriate;
- after any event likely to have affected the strength, stability or integrity of the trenches; and
- after any accidental fall of earth or other material.

8.16 The Archaeological Contractor will leave the site tidy and in a workmanlike condition and remove all materials brought onto the site.

8.17 Excavated material will be retained on site and stockpiled within the confines of the trench fencing, at a safe distance from each trench edge and will be prevented from entering any drainage system or water course. The Archaeological Contractor must ensure that the edges of the trenches are protected against falling materials and collapsing sides. This must be done in accordance with HSE recommendations. Toe boards will be provided where necessary.

Hand Excavation

8.18 Any archaeological deposits / features will be hand excavated in an archaeologically controlled and stratigraphic manner in order to meet the aims and objectives of the trial trench evaluation. The complete stratigraphic sequence, down to naturally occurring deposits will be investigated and the work will investigate and record all inter-relationships between features /deposits. Areas without archaeological features will be recorded as sterile. The stratigraphy of all trenches will be recorded, even where no archaeological deposits have been identified.

8.19 The following sampling strategies will be utilised as a minimum:

- All features will be investigated – discrete features will be half-sectioned in the first instance; linear features will be sampled a minimum of 20% along their length (each sample section to be not less than 1m), or a minimum of a 1m sample section, if the feature is less than 5m long. Deposits at junctions or interruptions in linear features will be sufficiently excavated for the relationship between components to be established;
- Structures will be sampled sufficiently to define their form, extent, character, date, stratigraphic complexity and its associated deposits to achieve the objectives of the investigation; and
- Where possible / feasible, no archaeological deposits should be entirely removed, unless this is unavoidable. Excavation must be undertaken with a view to avoiding damage to any features or deposits which appear to be worthy of preservation *in situ*.

Recording (undertaken by the Archaeological Contractor)

8.20 The perimeter of each trench and all archaeological remains within the trenches will be recorded in plan using metric survey-grade equipment (or its equivalent) (Historic England, 2015) and overlain onto the Ordnance Survey national grid using digital map data.

8.21 A full written, drawn and photographic record will be made even where no archaeological features are identified. Hand drawn plans and sections of features will be produced at an appropriate scale (normally 1:20 for plans and 1:10 for sections). At least one long section of each trench will be drawn at not less than 1:50, but only after the features / deposits within the trench have been excavated. All plans and sections will include spot heights relative to Ordnance Datum in metres, correct to two decimal places.

8.22 Colour transparency and monochrome negative photographs will be taken at a minimum format of 35mm. Digital photography will be used to supplement the archive at a minimum of 10 megapixels resolution. In addition to records of archaeological features, a number of general site photographs will also be taken prior to, during and after the works have been completed. Particular attention should be paid to obtaining shots suitable for displays, exhibitions and other publicity.

Backfilling

8.23 The trial trenches will not be reinstated without the prior approval of the Consultant and the Historic Environment Officer for NLC, although in exceptional circumstances backfilling will be permitted on health and safety grounds. The trenches will only be backfilled by machine when conditions are appropriate and with direct archaeological supervision. Arisings will be returned strictly in the correct sequence and will be compacted. If specific requirements for reinstatement are required these will be stipulated by the Client.

8.24 Where services and drains are encountered during the archaeological works these will be left in situ and retained on a suitable raised earth baulk. At the end of the investigation they will be carefully covered with soil arisings from the excavations and consolidated using hand tools to avoid damage during the backfilling process.

Artefact Recovery

8.25 All artefacts are to be retained for processing and analysis except for 20th century material, which may be noted and discarded. All ‘significant finds’ will be recorded three dimensionally. If artefact scatters are encountered these should be recorded three dimensionally. Bulk finds will be collected by context. Finds will be stored in appropriate controlled conditions. If necessary, a conservator will visit the site to undertake ‘first aid’ conservation treatment or provide specialist advice.

8.26 All hand excavated spoil will be scanned for ferrous and non-ferrous metal artefacts using a metal detector capable of making this discrimination, operated by an experienced metal detector user employed by the Archaeological Contractor. Modern artefacts are to be noted but not retained (19th century material and earlier are to be retained).

8.27 All artefacts that are retained will be collected, stabilized, conserved, stored and processed in accordance with standard methodologies and national guidelines (refer to Appendix A). The Method Statement will provide an indicative artefact collection policy.

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

Environmental sampling

8.29 Sampling will be carried out in consultation with the Consultant, and the Historic England Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples taken during the evaluation will be processed if securely correlated with features during mitigation.

8.30 All sampling for environmental and biological material will take place in accordance with the recommendations contained in the papers Environmental Archaeology and Archaeological Evaluations, Association for Environmental Archaeology (1995) and Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post -Excavation 2nd Edition (English Heritage 2011).

8.31 The sampling programme shall assess the potential for palaeoenvironmental remains across the site in support of the aims of the mitigation. Samples shall be taken as routine from securely stratified deposits irrespective of their apparent 'organic' content as judged in the field or the presence of datable material. Samples shall be processed and assessed by appropriately qualified specialist staff.

8.32 The sampling regime may include samples of the four types of deposit sample described below:

- Bulk-sieved Sample (BS). Sample size will depend upon the context/feature size, but should be up to 40-60 litres in size (if the context size allows). They are taken for the recovery of charcoal, burnt seeds, bone and artefacts. The samples will be processed (flotation) with 1mm and 500micron sieves on a rack to collect the carbonised washover.
- The retents and flots will then be dried, sorted and assessed to advise the potential for further analysis.
- General Biological Sample (GBA): These are only taken if a deposit is waterlogged. A 10 litre sample size will be used (if the context size allows). These samples will be processed in the laboratory, to recover macrofossils and microscopic remains such as pollen and insects.
- Column monolith: Kubiena tin samples may be taken for soils and pollen analysis and to determine soil accumulation processes.
- Spot samples: these samples are taken as required. they may be contexts or material not suited to sieving, such as caches of seeds, pieces of eggshell or any specific finds of organic material. They may also be specialist samples (e.g. charcoal for radiocarbon dating).

8.33 Samples will be taken for scientific dating where necessary for the development of the site phasing/dating or to place the main historical processes that have affected landscape development within an absolute chronological framework. Material removed from site will be stored in appropriate controlled environments.

8.34 If industrial activity of any scale is detected, industrial samples and process residues will also be collected. Separate samples (c. 10ml) will be collected for micro-slags (hammerscale and spherical droplets).

Human Remains

8.35 Should human remains be discovered during the course of the excavations the remains will be covered and protected and left in situ in the first instance, in accordance with current good practice. The removal of human remains will only take place in accordance with a licence from the Ministry of Justice and under the appropriate Environmental Health regulations and the Burial Act 1857. In the event of the discovery of human remains the Archaeological Contractor will notify the Consultant immediately, who will contact the Historic Environment Officer for North Lincolnshire Council (NLC) to establish whether it is necessary to contact the office of H.M. Coroner.

Treasure

8.36 Any artefacts which are recovered that fall within the scope of the Treasure Act 1996 and Treasure (Designation) Order 2002 will be reported to the Consultant and H.M. Coroner immediately. The Archaeological Contractor will ensure that the Treasure regulations are enforced and that all the relevant parties are kept informed. In addition, the Archaeological Contractor shall maintain a list of finds that have been collected that fall under the Treasure Act and related legislation and this list shall be included in the fieldwork report.

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

Finds Processing

8.38 Initial processing of finds (and if appropriate other samples) will be carried out concurrently with the fieldwork. The processing of finds will be finished shortly after completion of the investigations. The finds will be retained (according to the collection policy), washed, marked, bagged and logged on a MS Access or GIS database (or equivalent), together with their locations (if applicable) according to the National Grid (eastings, northings) and Ordnance Datum (height), accurate to 2 decimal places.

8.39 The finds assemblage will be treated, labelled and stored in accordance with the appropriate Historic England (formerly English Heritage) guidance documents and the Institute of Conservation guidelines (refer to Appendix A). At all times the Archaeological Contractor shall ensure that the processing of the assemblage is in accordance with the requirements of the recipient repository.

8.40 If appropriate, each category of find or each material type will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the report.

Specialist Assessment

8.41 The Archaeological Contractor will include the list of staff they will use for specialist assessment prior to the commencement of fieldwork.

8.42 The stratigraphic information, artefacts, soils samples and residues will be assessed for their potential and significance for further analysis and study. The material will be quantified (counted and weighed). Specialists will undertake a rapid scan of all excavated material. An assessment will be made of each artefact type.

8.43 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration will be given to possible investigative procedures (e.g. glass composition studies, residues on pottery, and mineral preserved organic material). Allowance will be made for preliminary conservation and stabilisation of all objects and a written assessment of long-term conservation and storage needs produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), CIfA (2020b) and Museums and Galleries (1992).

8.44 All finds will be cleaned, marked and labelled as appropriate prior to assessment. For ceramic assemblages any recognised local pottery reference collections and relevant fabric codes will be used.

9. Completion of Fieldwork

9.1 The Archaeological Contractor shall prepare and submit a Completion Statement to the Consultant within one working day of completing the survey.

9.2 The survey areas will be left in a tidy and workman-like condition and the Archaeological Contractor will ensure that all materials brought onto site are removed.

9.3 An OASIS entry shall be completed at the end of the fieldwork, irrespective of whether a formal report is required. The Archaeological 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.

10. Monitoring Arrangements

10.1 To ensure that archaeological work is conducted in accordance with the agreed WSI, fieldwork and post-fieldwork reporting may be monitored by the Consultant and the Historic Environment Officer for NLC. A minimum of one week notice will be given to the Historic Environment Officer for NLC of the commencement of the trial trench evaluation.

10.2 The monitors are not liable in any way for the failings of the Archaeological Contractor and such monitoring is not intended to take the place of proper self-regulation.

10.3 Verbal progress reports will be provided to the Consultant upon request and weekly written progress reports will be provided to the Consultant if requested. In addition, progress meetings between the

Consultant, the Historic Environment Officer for NLC and the Archaeological Contractor may be held on site during the course of the works.

10.4 The Archaeological Contractor will only accept instruction from the Consultant.

11. Report Requirements

11.1 Within four weeks of completion of the field work for the archaeological trial trenching a post fieldwork assessment report will be produced to include the following:

- A non-technical summary;
- Introduction including the Archaeological Contractor's site code and project number, planning reference number (if available), HER casework number (if appropriate), site grid reference, and dates when fieldwork took place;
- An account of the methodology and detailed results of the fieldwork, phased and spot-dated by ceramics where appropriate, describing structural data, archaeological features, associated finds and environmental data. This account will include a discussion and assessment of the deposits identified, in relation to other sites in the region, and a conclusion;
- A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, trench locations, selected feature drawings, selected artefacts, and phased plan features where appropriate;
- Specialist artefact and environmental reports for each major find category which will include as a minimum: Identification; • Quantification by context;
- Statement of significance and potential;
- Recommendations for analysis and illustration;
- Recommendations for retention and discard.
- Details of archive location and destination (with accession number, where known), together with context list and a catalogue of the archive;
- A copy of the key OASIS form details; and
- Copy of the WSI.

11.2 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 and necessary.

11.3 Environmental assessment is to include identification of the remains, quantification by context, discussion / interpretation, if warranted, and a description of the processing methodology. Radiocarbon results must be presented in full (laboratory sample number, conventional radiocarbon age, calibration programme). Copies of the laboratory-issued dating certificates must be included as an appendix to the report.

11.4 The Archaeological Contractor will ensure that the report contains at the front 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.

11.5 An electronic copy of the draft report and drawings/figures will be submitted to the Consultant for comment. Allowance will be made for the up to six bound hard copies may be required, one unbound master-copy and a digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report from the Consultant. The digital report shall comprise a complete version of the report in PDF format and separate digital text (in Microsoft Word format) and CAD mapping (in AutoCAD format) and any other illustrations or plates as appropriate (in JPEG or TIFF format).

11.6 Submission of the final report to the Consultant should take place within four weeks of fieldwork completion. Interim results should be provided by email within one week.

12. Archive Preparation and Deposition

12.1 Archaeological material recovered from fieldwork is irreplaceable and data recorded in the course of archaeological investigations should be copied and additionally held securely in a separate location in line with current good practice (refer to Appendix A).

12.2 The Archaeological Contractor should compile a Data Management Plan in line with CIfA guidelines (2020b) and include it in their Method Statement.

12.3 The site records and assemblages (list of fieldwork interventions, notebooks / diaries, context records, feature records, structure records, site geometry (drawings), photographs and films, finds records and associated data files) will constitute the primary Site Archive. This is the key archive of the fieldwork project and the raw data upon which all subsequent assessment and analysis and future interpretation will be based. The archive will therefore not be altered or compromised.

12.4 The Site archive should be quantified, ordered, indexed and made internally consistent, and in line with current good practice (refer to Appendix A). All finds and coarse-sieved, and flotation samples will have been processed and stored under appropriate conditions. The archive will also contain a site matrix, a summary of key findings and descriptions of artefactual and environmental assemblages. Arrangements should be made for the proper cataloguing and storage of the archive during the project life-cycle (it may be appropriate to liaise with an archive specialist). The content of an outline structure for a fieldwork archive is presented in MoRPHE, PPN3 Appendix 1, Product P1 and Product P3 (MoRPHE 2008).

12.5 The Archaeological Contractor will, prior to the preparation of the Archaeological Contractor's Method Statement, liaise with the recipient museum to obtain agreement in principle to accept the physical, documentary, digital and photographic archive for long-term storage. The Archaeological Contractor will be responsible for identifying any specific requirements, archiving costs or policies of the museum in respect of the archive, and for adhering to those requirements.

12.6 The archaeological works will have their own unique accession number, which will be obtained by the Archaeological Contractor from the recipient museum in advance of the preparation of the Archaeological Contractor's Method Statement, to ensure that the project is recorded in accordance with the requirements of the local authority. The unique accession number will be recorded in the Archaeological Contractor's Method Statement.

12.7 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 with the recipient museum. The archive will be produced to current national standards (refer to Appendix A).

12.8 The deposition of the archive forms the final stage of this project. The Archaeological Contractor shall provide the Archaeological Consultant with copies of communication with the recipient museum and written confirmation of the deposition of the archive.

13. Health, Safety and Environment (SHE)

13.1 The Site (the Humber refinery) is an Upper Tier Control of Major Accident Hazards (COMAH) Site and thus subject to a specific set of safety regulations (COMAH regulations 2015). The safety specific requirements of work in this environment will be communicated to the Archaeological Contractor during the scoping, inductions and briefings given to them.

13.2 The works will be carried out under The Construction (Design & Management) (CDM) Regulations (Health and Safety Executive 2015).

13.3 All relevant preconstruction and health and safety information will be provided to the Archaeological Contractor by the Client prior to works commencing on Site.

13.4 The Archaeological Contractor will provide the Client with details of their public and professional indemnity insurance cover. This will be provided (at the latest) 3 weeks prior to the start of works on site.

13.5 Project staff are required to follow health and safety procedures and a risk assessment should be carried out by the Archaeological Contractor and submitted to the Client prior to commencing work, to ensure the safety of workers on site.

13.6 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 along with their tender to the the Client prior to work commencing on Site.

Risk Assessment and Method Statement

13.7 The Archaeological Contractor will prepare a Risk Assessment and Method Statement (RAMS) that will be submitted to the Client for approval, 20 working days prior to commencing the work. The RAMS may be issued back to the Archaeological Contractor with comments requesting amendments to be made to the document, before it is reissued, reviewed and approved. The Archaeological Contractor will not start work until the RAMS has been approved by the Client.

13.8 If amendments are required to the RAMS during the works, the Client and any other interested party must be provided with the revised document at the earliest opportunity.

13.9 The contents required of all RAMS are as follows:

a. Scope of Works
b. Project Specific Hazards / Risks / Environmental Factors
c. Reference Documents
d. Subcontracted and third-party workers
e. Areas of Work (access and egress)
f. Resources
g. Plant and Equipment
h. Materials
i. Mandatory PPE (Including a H2S monitor)
j. Task Specific PPE
k. Methodology of Works
l. Environmental Protection
m. HSE Hold Points

n. Attachments

o. Risk Assessment

p. Environmental Risk Assessment

q. Amendments Record

13.10 Briefing to those individuals involved in the work tasks will be delivered by the respective Archaeological Contractor's Site Manager or Supervisor and client/site representative (who is responsible for all the works prior to works commencing). Site staff are to ask questions on anything that is unclear or requires repeating. At the end of each shift, any feedback will be provided to the work supervisor / Site Manager on the RAMS performance via the Task Hazard Assessment procedure with a view to this being incorporated into future revisions of the documents as necessary.

13.11 All site personnel will familiarise themselves with the following (ensured by the archaeological contractors site manager):

- Site emergency and evacuation procedures.
- The site's health and safety coordinator.
- The first aider.
- Site fire safety procedure.
- Emergency muster points.
- The location of the nearest hospital (with an Accident and Emergency Department) and doctor's surgery.

13.12 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. A review of any equipment will be undertaken prior to being brought on to site by the client.

13.13 The Archaeological Contractor will liaise with the Client and any other contractors to ensure that the archaeological work is undertaken in an organised, coordinated, safe and professional manner.

13.14 All parties will have full regard for the safety of all personnel on site, including measures to ensure the safety of all.

Mandatory Training

13.15 Mandatory training requirements for all site staff are:

- Construction Skills Certification Scheme (CSCS) card (or equivalent United Kingdom based scheme), appropriate to the role they are undertaking.
- Manual Handling Course – as mandated by the Archaeological Contractor.

13.16 Archaeological Contractor Site Supervisors are to hold the following mandatory training:

- Site Supervisors Safety Training Scheme (SSSTS) or equivalent.
- Construction Skills Certification Scheme (CSCS) card (Blac Card).
- Manual Handling – as mandated by the Archaeological Contractor.
- First Aid at Work (3-day course).

On-Site Training

13.17 Toolbox Talks will be undertaken weekly, on relevant subjects and delivered by the Archaeological Contractor's Site Manager or Supervisor to all persons on site. The briefing will be held within the site welfare facility and following the talk the opportunity to raise health and safety concerns, improvement suggestions, good practices, etc., will be opened up to all present.

13.18 Daily Site Briefings (delivered by the Archaeological Contractor's Site Manager or Supervisor) also provide a media for employees to discuss Health and Safety issues and for training to be delivered as part of the delivery of key tasks. These are undertaken prior to any works being undertaken on site each day. The proposed works for the day is discussed and all controls / work procedures reinforced to ensure that all members of the site team understand their role. At the end of these briefings the workforce can then discuss the proposed work methods and other issues.

14. Resources and Timetable

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

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

14.3 The Archaeological Contractor on behalf of the Client (Phillips 66) will notify the Historic Environment Officer for NLCof the start date prior to the commencement of the works.

15. Confidentiality and Publicity

15.1 All communication regarding this project is to be directed through the Client. The Archaeological Contractor will refer all inquiries to the Client without making any unauthorised statements or comments. The Archaeological Contractor will not disseminate information or images associated with the project for publicity or information purposes without the prior written consent of the Client.

15.2 Publicity regarding the work will be managed by the Client. No publicity regarding the works will be disclosed without prior agreement from the Client (Phillips 66).

16. Copyright

16.1 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.

16.2 The results of the work shall be submitted to the Client and the North Lincolnshire Council HER and will ultimately be made available for public access following the Clients (Phillips 66) approval.

17. Access Arrangements

17.1 Access to the Site is restricted to authorised personnel only.

17.2 Access to the Site and instruction for access/ egress to each area will be arranged by Client and communicated to the Archaeological Contractor.

17.3 The Client will provide the Archaeological Contractor with the details for access and any known constraints prior to the start of fieldwork.

18. General Provisions

18.1 The Archaeological Contractor shall make the minimum of disturbance during the fieldwork and will avoid any unnecessary damage. Access for temporary parking and the location of site welfare shall be agreed with the Client prior to commencement of the archaeological evaluation works.

18.2 The Archaeological Contractor will undertake the works in accordance with this evaluation strategy and any subsequent Written Scheme of Investigation. No variation from, or changes to, the specification will occur except by prior agreement with the Consultant and the Historic Environment Officer for NLC.

18.3 The Site will be left in a tidy and workman-like condition and the Archaeological Contractor will ensure that all materials brought onto site are removed.

19. References

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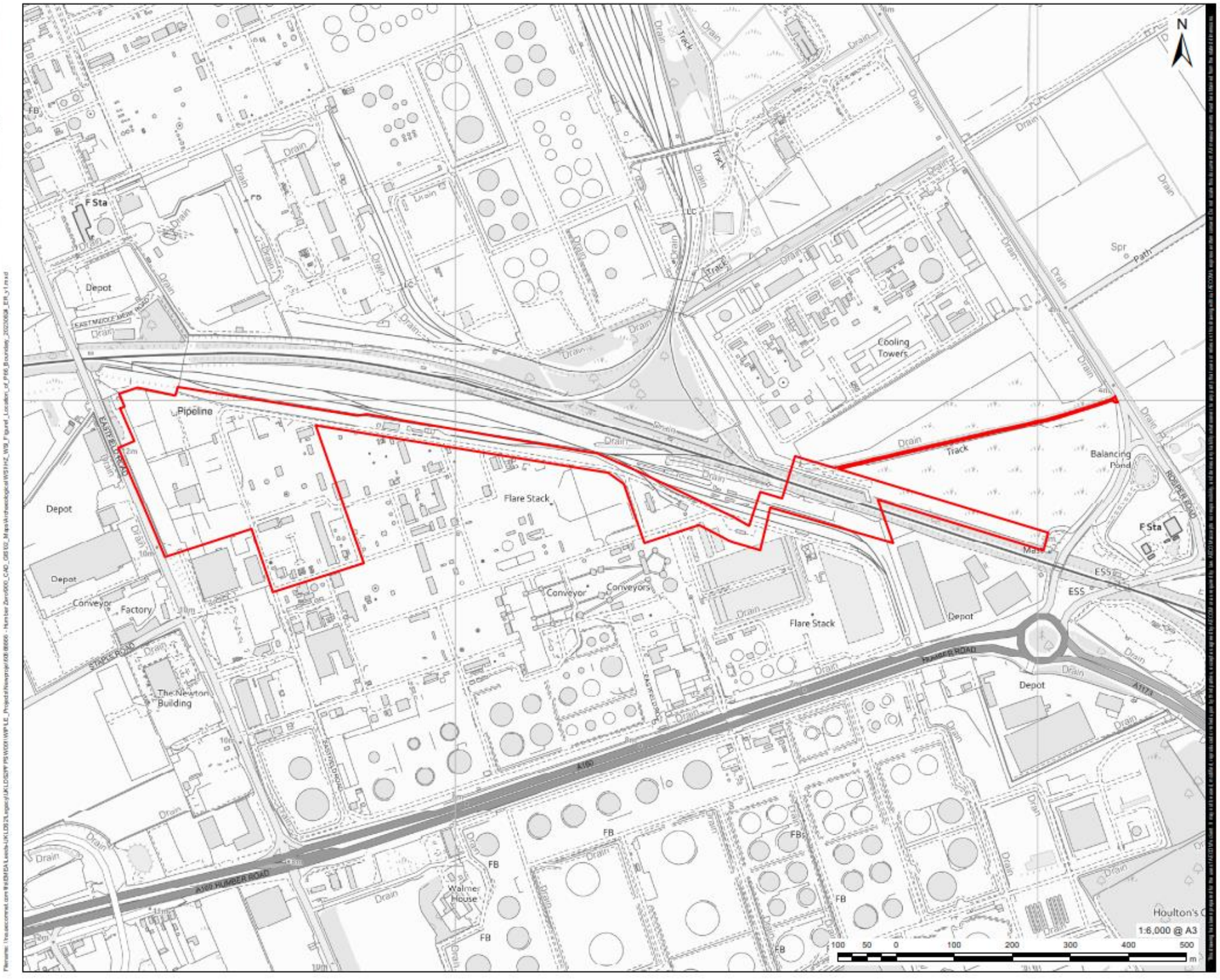
Appendix B Figures

Figure 1 Site Location



Revision: 1 Drawn: ER Checked: LC Approved: KF Date: 2023-08-24

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Proposed Phillips 66 Development Application Boundary (the Phillips 66 Site)

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ISSUE PURPOSE
FINAL

PROJECT NUMBER
60668866

FIGURE TITLE
Location of P66 Site

FIGURE NUMBER
Figure 1

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