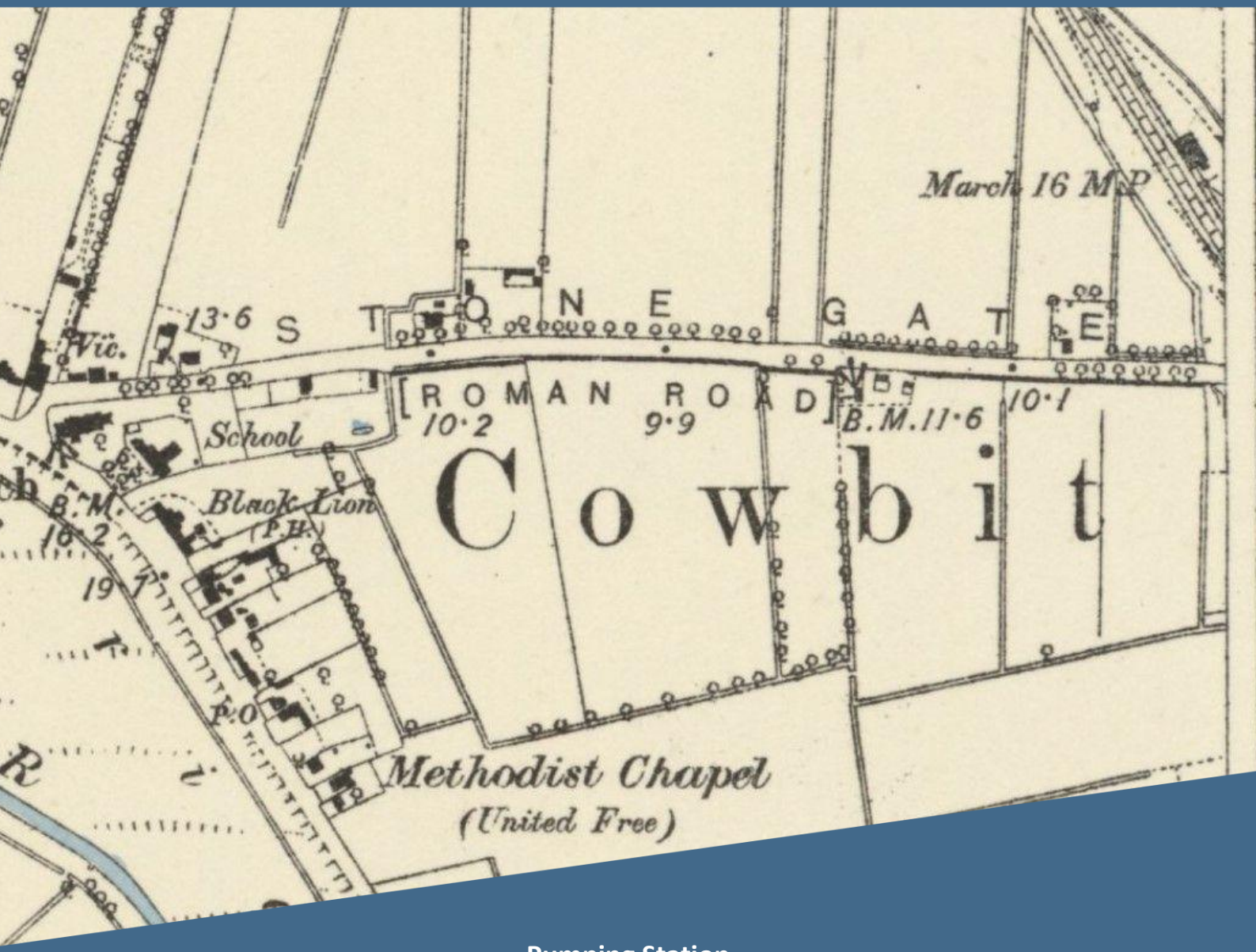
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Written Scheme of Investigation for Archaeological Field Evaluation



Pumping Station
Mill Drove South
Cowbit
Spalding
Lincolnshire
PE12 6FS
(NGR: TF 26591 18083; Planning Ref.: H01-0509-23)

On behalf of

Harrison & Cooke Developments Ltd

January 2024

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working throughout the UK

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1 Introduction

Border Archaeology (BA) has been instructed by Harrison & Cooke Developments Ltd to carry out a programme of Archaeological Field Evaluation (AFE) Pumping Station Mill Drove South Cowbit Spalding Lincolnshire PE12 8QD (NGR: TF 26591 18083) (*fig.1*) in connection with the proposed residential development of four dwellings.

In accordance with the *National Planning Policy Framework* (2023), planning permission for the proposed works (Planning Ref. H01-0509-23) has been granted by South Holland District Council subject to Condition 4 of the Planning Decision, as outlined below:

4/ No development shall take place until a written scheme of archaeological investigation has been submitted to and approved in writing by the Local Planning Authority. This scheme should include the following and should be in accordance with the archaeological brief supplied by the Lincolnshire County Council Historic Environment advisor on behalf of the Local Planning Authority:

1. An assessment of significance and proposed mitigation strategy (i.e. preservation by record, preservation in situ or a mix of these elements).
2. A methodology and timetable of site investigation and recording
3. Provision for site analysis
4. Provision for publication and dissemination of analysis and records
5. Provision for archive deposition
6. Nomination of a competent person/organisation to undertake the work
7. The scheme to be in accordance with the Lincolnshire Archaeological Handbook.

The archaeological site work shall only be undertaken in accordance with the approved written scheme.

Reason: To ensure the preparation and implementation of an appropriate scheme of archaeological mitigation in accordance with national guidance contained in Section 16 of the National Planning Policy Framework, 2023. This issue is integral to the development and therefore full details need to be finalised prior to the commencement of works. This Condition is imposed in accordance with Policy 29 of the South East Lincolnshire Local Plan, 2019.

This Written Scheme of Investigation (WSI) has been prepared with reference to *Universal guidance for archaeological field evaluation* (CI*f*A 2023) and Lincolnshire County Council's (LCC) *Archaeology Handbook* (Jennings 2019); it is for submission to Matthew Adams MCI*f*A, Historic Environment Officer for Heritage Lincolnshire (HEOHL).

2 Site Description

Cowbit is situated on the River Welland in S Lincolnshire in a distinctive flat, open fenland landscape designated as a National Character Area (NCA) in 2014 and designated NCA 46, The Fens, defined as … *a distinctive, historic and*

human influenced wetland landscape lying to the west of the Wash estuary, which formerly constituted the largest wetland area in England. The area is notable for its large-scale, flat, open landscape with extensive vistas to level horizons. Holbeach is identified as occupying a low island of high ground in the settled inland fens or 'townlands', which were once frequently subject to marine inundations, and is one of several medium to large settlement clusters which later spread out along the E-W A17 and this 19th century road, along with the A47, bisect the medieval pattern of N-S drove lines. The A17 runs E-W along ridge possibly denoting either a relict Roman sea-bank or a natural silt ridge deposited as a result of environmental changes (https://www.gov.uk/).

The Lincolnshire Historic Landscape Characterisation Project places Spalding in Character Zone WSH6— Townlands within The Wash Character Area, largely comprising arable fields, which are used to cultivate a variety of food and cash crops with pasture around historic settlements. The character zone encompasses most of the nucleated settlements in the wider Wash region, Spalding and Boston being the two largest settlements, the former representing the hub of the food production industry in the region, with an assortment of processing plants, canneries and distribution centres, while the latter is a medieval port which retains a strong maritime character.

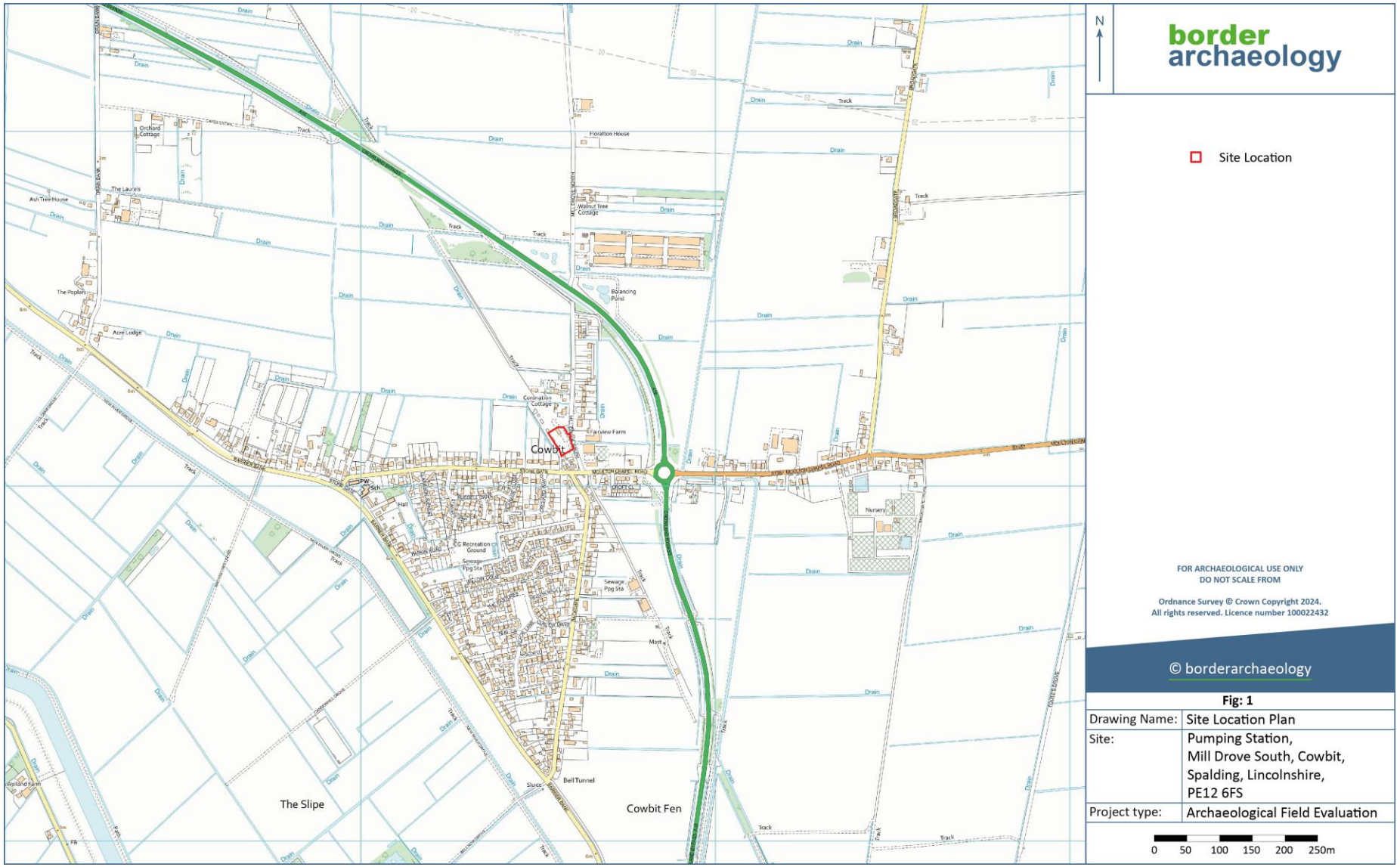
The application site lies to the W of Mill Drove South and forms part of a wider area of brownfield land, previously in use as a railway yard associated with the former line that ran through the site.

The site is located outside the Spalding Conservation Area and no Listed Buildings or Scheduled Ancient Monuments (SAMs) are situated within the site boundary. The Goods/Engine Shed of 1867 located on the site (NGR 266 180) was built by the Great Northern Railway and is a non-designated heritage asset contemporary with Cowbit Railway Station (MLI23554), which is listed in the gazetteer to *The Railway Goods Shed and Warehouse in England* (Minnis & Hickman 2016, 106).

The nearest SAM is the Roman Settlement between Broadgate Farm and Lower Delgate Farm (List Entry Number: 1004963) (NGR TF 27643 16891). The nearest Listed Buildings are The Mill at Backgate (Grade II) List Entry Number: 1359258) (NGR TF 26611 17921) and early 19th century four-stage red brick tower mill. With a tapering tower mill with corbelled out top c 200m SW of the site and the13th century Church of St Mary (Grade I) (List Entry Number: 1064482) (NGR TF 25979 18009) located c 600m to the WSW.

2.1 Soils & Geology

The British Geological Survey (BGS) identifies sedimentary mudstone bedrock of the Oxford Clay Formation which was laid down between 166.1 and 157.3 million years ago during the Jurassic period. The superficial geology is composed of clay and silt Tidal Flat Deposits formed between 11,800 years ago and the present during the Quaternary period (BGS 2023). No historic borehole data is available within a c 1km radius of the site.


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Site Location
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Fig: 1
Drawing Name: Site Location Plan
Site: Pumping Station, Mill Drove South, Cowbit, Spalding, Lincolnshire, PE12 6FS
Project type: Archaeological Field Evaluation
0 50 100 150 200 250m
Cowbit
The Slipe
Cowbit Fen
Bell Tunnel
Floraton House
Orchard Cottage
The Laurels
Ash Tree House
The Poplars
Acre Lodge
Walnut Tree Cottage
Balancing Pond
Coronation Cottage
Fairview Farm
Nursery
Hall
Sch
PW
Track
Drain


001
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Mill Drove South
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Site Boundary
Development
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Fig: 2
Drawing Name: Trench Location Plan
Site: Pumping Station, Mill Drove South, Cowbit, Spalding, Lincolnshire, PE12 6FS
Project type: Archaeological Field Evaluation
0 5 10 15 20 25m

3 Brief Historical & Archaeological Background

The Lincolnshire Historic Environment Record (LHER) will be consulted for information on the known cultural heritage features within a 1km study area around the site and the results will be presented in the final report in the form of maps and gazetteers. The *Spalding Extensive Urban Survey* (Grayson & Robertson-Morris 2022) was consulted for the purposes of this WSI for general background information.

3.1 Prehistoric & Romano-British

The South Lincolnshire fenland is characterised by soils formed over sediments accumulated during the Flandrian interglacial, the oldest being basal peat which probably began to form during the Mesolithic (the contemporary land surface underlying some 10m of Flandrian sediments around Cowbit). Radiocarbon dating of the peat returned dates of 4710-4380 Cal.BC and 4490-4360 Cal.BC. Peat formation became widespread during the Neolithic to Early Bronze Age period and which have been found to contain 'bog oaks'.

These peat deposits are overlaid by marine alluvial clays within which are raised silty features, or roddons, representing former creeks, which, due to their elevation, were attractive to early settlement (Hayes 5-6, 176). Overlying are deposits of pre-Roman silt (high silts), peat and freshwater alluvium deposited by the formerly braided channel of the river Welland.

The area is characterised in archaeological terms by remains of Iron Age and Romano-British settlement activity, with sites often found in association indicating continuity of settlement. Much of the evidence informing this characterisation was revealed during a survey carried out in 1986-6 as part of *The Fenland Project No.5: Lincolnshire: The South-West Fens* (Hayes & Lane 1992), during which the entire parish of Cowbit (although not all fields could be walked) was surveyed, along with other fen-edge settlements. Since publication, extensive further investigations have been carried out, most notably in connection with the A1073 Relief Road scheme. Stonegate itself would appear to represent the alignment of a possible E/W Roman road from Billingford to Cowbit (MLI22100) and is marked as such on the earlier Ordnance Survey mapping (*Figs 3-5*) and it was during the Roman period that drainage and reclamation works were undertaken on any scale.

Iron Age saltern sites were found to be particularly prolific, these mainly clustering close to the river in Cowbit Wash, but one probable example (T8) (COW 12) (MLI23105) recorded immediately to the N of the proposed development (NGR TF 2638 1838) consisted of a dark soil mark (but no pottery) located adjacent to a Romano-British settlement (MLI23103) comprising two sites (COW 10 & 11). COW 37 further to the SSE (NGR TF 2681 1768) comprised a small quantity of *briquetage* (T8) sited on top of a silt roddon. COW 34 (NGR TF 2549 1720) situated on a silt island with many peat-filled channels adjacent to the Welland was of particularly interest in containing abundant *briquetage*, together with a variety of supports and other objects. It is noted that … *proximity to both the peat and freshwater sources would have been a requirement for the Cowbit saltmakers* (178).

Further back from the river, domestic Iron Age pottery and 10 Romano-British sherds, together with 82 animal bones and *briquetage*, were also found at COW 35A (NGR 2618 1701) and the closely associated saltern site COW 35B (NGR TF 2622 1702) (Hayes & Lane 1992, 178) .

The adjacent Romano-British settlement activity (COW 10 & 11) (NGR TF 2631 1847; NGR TF 2633 1840) was represented by dark soil-staining, one soil mark lying adjacent to a (narrow) roddon, the other on a slightly elevated position on an area of silty clay, which contained finds of (Roman) pottery, animal bones (10 in all) and an iron nail. COW 9 slightly to the NE (NGR TF 2641 1860) produced a substantial assemblage of Romano-British pottery, querns, five probable Romano-British tiles and iron nail and fired clay. COW 8 (MLI23100) to the SE (NGR TF 2685 1817) again with an abundance of finds including much T3 *briquetage* on the E flank of a roddon together with Romano-British pottery.

To the SE of the site COW 38 (MLI23134) (NGR TF 2694 1768) revealed Romano-British pottery and 21 animal bones. However, later excavations forming part of a series of interventions in the 2000s undertaken along the route of A1073 relief road between Eye (near Peterborough) and Spalding revealed more abundant evidence which was thought to represent a small but relatively affluent farmstead located next to a palaeochannel, with a focus on raising livestock and some salt-making. The excavation revealed a slot forming two sides of a probable early Roman outbuilding or workshop around which was a rectangular ditched enclosure yielding sherds of Samian and Terra Nigra pottery suggesting a higher status site than is usual in fenland.

To the S of the outbuilding adjacent to a palaeochannel a concentration of a series of 2nd to 3rd century ditches and pits, the palaeochannel and ditches yielding a large ceramic assemblage representing 29 different vessels of 1st to early 3rd century date. Remains of burnt rushes and sedge were thought potentially to represent roofing material or flooring. A bone awl and a bronze brooch were also found as were pieces of fired clay with evidence of salt making, a subsequent watching brief recording further *briquetage*. Additionally, remains of two stock enclosures and some small post-built timber structures with an oven or kiln were recorded that may have been used in salt production (Peachey 2011).

Earlier excavation in advance of the A1073 improvement scheme in 2004 recorded a substantial Romano-British salt-making site (MLI86347) (NGR TF 268 162) consisting of salt-working debris amounting to nearly 10kg of *briquetage* underlying the topsoil. The termini of a ditch and a shallow curvilinear gully were also revealed but no pottery or other finds were recovered rendering dating somewhat problematic, although it was considered that the *briqueage* fabrics were Roman (Cambridgeshire Archaeological Field Unit 2004).

Further excavation in advance of the A1073 improvement scheme recorded a very Late Iron Age/Roman saltern site, which revealed two distinct phases of saltern activity, initially, a sub circular enclosure ditch with an eastern entrance, with a probable clay lining suggesting to a connection with water management associated with the saltern and which produced small *briquetage* fragments, silts and dumped (domestic) ash. Significant flooding halted production, the size of the *briquetage* fragments and the good condition of pedestals suggesting the site was dismantled quickly after flooding. Soon after, a second salt-making phase occurred with similar *briquetage* forms and fabric. Two settling tanks and a shallow trace of an enclosure ditch were recorded, from which a significant amount of *briquetage* was recovered, mainly supports and containers. Domestic activity was recorded

slightly to the S of the saltern and represented by ditches running on differing alignments and a spread of dark soils containing much Roman material, a pit and an irregular shaped feature. Large quantities of pottery, mainly greyware but also a sherd from a Roman triple vase for oils or other liquids which is a form rarely found in rural Lincolnshire, with another sherd of patera pan handle was recovered. The patera pan handle was related to a form found in military of urban contexts form is therefore also a rarity in the fenland (Archaeological Project Services 2011).

A small Romano-British settlement site (MLI81603) (NGR TF 264 177) was also recorded off Backgate, based on finds of mid-2nd century to the 4th century pottery recorded during a fieldwalking and geophysical survey in 2001. Trial-trench evaluation in the adjacent field in 2011 (NGR TF 2654 1770) resulted in the recovery of unstratified sherds and several ditches and pits, with finds also including fired clay, animal remains, a loom-weight and possible wall plaster denoting a probable domestic settlement which appears to have been most intensively occupied during the 2nd and 3rd centuries. The pottery and wall plaster point to a settlement of a relatively high status. However, trial-trenching opened along Curlew Drive c 100m to the S proved devoid of Roman features (Lane 2001, Malone 2002, 2011).

The most recent investigation was carried out in connection with land at Moulton Chapel Road opposite the Backgate in advance of housing (Cope-Faulkner 2017). Four trenches were opened, three of which contained ditches running on various alignments and cut to depths of 0.41m in Trench 3 to 1.12m in Trench 1. Trench 4 at the E end of the site revealed a shallow subcircular pit at its southern end measuring 1.2m in diameter and 0.13m deep. The ditches in Trenches 1, positioned at the W extent of the site, and the adjacent Trench 2 were devoid of pottery or other dating evidence but the latter contained the partial skeleton of a juvenile cow thought to represent food waste (Cope-Faulkner 2017).

The ditch in Trench 3, however, produced finds of Romano-British pottery of the mid-2nd to 3rd century AD while the subcircular pit in Trench 4 contained two fills, the upper dark grey silty fill again producing pottery of the mid-2nd to 3rd century. The assemblage amounted to 38 sherds representing around 16 vessels, these being a mix of domestic coarse and fineware, with a predominance of Nene Valley Greyware. The environmental assessment results pointed a domestic settlement occupying an open, seasonally marshy landscape, with evidence of food remains derived from both marine and terrestrial sources and which included charred grains of wheat, barley and oats with some probable chicken eggshell, mussel and cockle shell and bones of eel and other small fish present. All trenches encountered a yellow brown silt natural relating to the underlying marine alluvium (Cope-Faulkner 2017).

3.2 Saxon and Medieval

A period of retreating sea levels from around the 7th century rendered the fens more conducive to permanent settlement and it is thought that most of the villages in the district owe their origins to this period. However, evidence of Saxon activity was extremely tenuous prior to the investigations associated with the A1073 relief road, consisting of two sherds of pottery of inconclusive date recovered to the N of the modern village. An Early Saxon sherd (COW A4) (MLI23102) (NGR TF 2641 1860) came from a long-lived Roman site (COW 9) (see above), while the second (COW A3) was recovered some distance to the NW (NGR TF 253 189) and was identified as Early or

Middle Saxon. However, an evaluation off Backgate in 2004 (MLI86341) revealed two ditches with similar profiles but varying depths and a truncated pit containing Saxo-Norman pottery (Cambridgeshire Archaeological Field Unit 2004).

Cowbit (MLI23106) is first referenced in 1267 but a Saxon origin is nonetheless reflected in its etymology, comprising the Old English place-name elements *cū* suffixed by *byht* to give a meaning approximating to 'riverbend where cows are pastured' (Mills 2003, 135).

The medieval settlement was established along New Fendyke (a former Roman road, now modern Stonegate) (NGR TF 2640 1808) and formed a large part of the parish of Spalding. As such, the community were responsible in large part for funding the upkeep of Spalding Priory, which before the dissolution generated and controlled much of the economic wealth of the town. By 1300, the priory's investment in the wool trade proved highly profitable and it was under their direction that new tracts of fenland were brought into productive agricultural use. In 1251, the Abbot of Spalding was requested to supply Henry III with swans, cranes and other wild fowl from the wetland environment for the feast of St Edward (Grayson & Roberston-Morris 2022, 7-8) and there appears to have been a court known as the Swan Mark although little is known about it.

The Church of St Mary is the oldest surviving building in Cowbit and is a Grade 1 Listed Building/ the earliest fabric dates to 13th century when the church was built by Prior de Moulton of Spalding. The chancel and Perpendicular tower were added and the church reconsecrated in 1486-7. The fabric was restored in 1882.

Finds of medieval pottery (COW 13) are recorded near to the proposed development site on the high silty land to the N of Stonegate and the medieval fen bank. The sherds included material dating from 12th/13th century and later which have been traced to production sites at Bourne, Toynton and Nottingham.

There is also evidence for a continuation of the salt-making industry at Drain Bank (MLI98449) on the route of the A1073 relief road (NGR TF 253 193). The excavations revealed that the earliest of the two phases of medieval activity identified was in all probability associated with salt-making while the second concerned agricultural land boundaries. An ovoid pit measuring 3m x 1m x 0.20m was associated with the first phase of activity, with two closely spaced rectangular pits both positioned immediately adjacent to an E/W aligned ditch, the similarity of the ditch and pit fills suggesting a single phase. The pits contained sherds of late 12th to 13th century pottery, salt bleached fired clay fired clay and charcoal flecks. Assessment of the ditch fill identified burnt straw or cereal processing waste. The ovoid pit contained 13th century pottery and the possible remains of a hearth. Pottery that was probably the fragments of curfews (vessels for covering embers on an open hearth) or fish smokers was found. The saltern, although dated as medieval more closely resembles some of the Iron Age/Roman saltern sites in this area (Archaeological Project Services 2011).

A medieval stock enclosure (MLI98453) comprising an L-shaped ditch was recorded to the SE of the site (NGR TF 268 179) during excavation along the route of the A1073 improvement scheme. The ditch contained 12th to 14th century pottery while environmental assessment indicated the feature lay some distance from habitation and regularly maintained. A 14th to 15th century ditch (MLI86342) with a wide, steep-sided and flat based profile was

recorded immediately above the stock enclosure (NGR TF 269 178) containing pottery sherds (Archaeological Project Services 2011).

3.3 Post-Medieval

Little appreciable growth occurred at Cowbit during the earlier post-medieval period, from the 16th-18th centuries. The dissolution of Spalding Priory brought to an end the system of monastic land management. A replacement system of 'Town Husbands' was established in 1561 (and which still has a charitable function) but little was done of a practical nature to prevent a return to wetland.

In 1618, the stretch of the Welland between Spalding and Crowland was inspected by commissioners who suggested that the medieval High Bridge (MLI23608) at Spalding should be taken down, the river widened and a sluice erected at Cowbit Wash, a move which deprived the local population of the opportunities for collecting waterfowl and fish. However, as a result of the disruption caused by the Civil War, the banks and sluices fell into neglect and parts of the fens were flooded once more.

The earliest available map depicting the area in some detail is the 1819 enclosure map entitled 'Plan of part of Cowbit and Peakhill in the County of Lincoln', which names Mill Drove and Stone Gate and shows the fieldscape as it was prior to the coming of the railway. The site occupies the easternmost of a series of narrow linear plots running N off Stone Gate.

Although there is no tithe map available for the parish, the chief landowners recorded in 1842 were a Maurice Johnson and J. R Carter. The settlement underwent no significant expansion during the later post-medieval period and between 1831 and 1911, the population remained below 664. In 1870-72, the entry for Cowbit in John Marius Wilson's *Imperial Gazetteer of England and Wales* read … *The village stands near the Welland navigation and the March and Spalding railway… The parish includes also Peakhill hamlet, and allotments in Pinchbeck North Fen. Acres, 4, 590. Real property, £4, 591. Pop., 649. Houses, 141. The living is a vicarage in the diocese of Lincoln. Value, £625.* Patrons, Feoffees.*

Agriculture remained the principal industry, with locally-grown produce sold over a wide area, including into the markets of London. The economic role of the river declined following the arrival of the Great Northern Railway in 1867 (NGR TF 26630 17987) which was originally intended to supply the eastern counties with Yorkshire coal (Cope-Faulkner 2018).

The railway enabled larger amounts of goods and agricultural produce to be shipped by rail. As a result, the railway flourished and expanded to meet the demand for the shipment of goods: at one point there were 14 employees, mainly dealing with freight as passenger numbers remained low due to the relatively small population. The extensive freight-handling facilities included the large Goods/Engine Shed, a non-designated heritage asset, and the Railway Hotel opened to the rear of the Cowbit Station (MLI23554) which is shown on the 1st edition of the Ordnance Survey (*Fig. 4*), and which was still standing in the 1950s.

An undated pit and two ditches, one of which was a former field boundary, were revealed in March 2011, during the archaeological monitoring of groundworks for a new property near 18 Stonegate, Cowbit (PRN 23106c - TF 2606 1805). Medieval and post-medieval pottery was found within the topsoil. {4}{5}.

A post-medieval pottery scatter and possible brick clamp (MLI81606) were recorded off Backgate (NGR TF 2654 1770), when, following geophysical survey, trenching was opened to reveal two ditches recorded, together with deposits of building material and brick wasters. Post-medieval pottery was also recovered, together with glass and shells (Archaeological Project Services 2002). Also, on land E of Backgate (NGR TF 269 178) evaluation along the route of the relief road encountered two post medieval ditches (MLI86344), with nine subcircular ditches/gullies subsequently recorded during excavation, which were interpreted as hayrick drainage ditches (Archaeological Project Services 2011). A post-medieval dyke was (MLI86340) also encountered at Moulton Chapel Road (NGR TF 268 180), during trial trenching along the relief road route comprising a broad and deep ditch aligned east to west which was originally some 3m wide and 4m deep. The dyke appears to have become overgrown by marsh vegetation and probably represents part of a surviving, more extensive drainage system.

A number of undated ditches have also been recorded (MLI86339, MLI86336), these most likely associated with land division, together with several 19th century farmsteads.

3.4 Modern

After the Second World War, the railway lost freight to road transport and the line closed in 1961. The March-Spalding line was closed on the 27th November 1982. The track was lifted in two stages between 1983 and 1985 and, while the track-bed has been built over, the station buildings survive and included the refurbished station and the Goods/Engine Shed.

3.5 Cartographic Evidence

The first map to depict the village and surrounding landscape in any appreciable detail is the 'Plan of part of Cowbit and Peakhill in the County of Lincoln' published in 1819 which predates the railway.

The impact of the railway is shown on the Ordnance Survey 1st Edition 6-inch map of 1887 (*Figs. 3 & 4*) which depicts the landscape and topography in greater detail. The settlement and surrounding fenland are shown to comprise a reclaimed fieldscape of long rectilinear enclosures divided by drains, dykes and drove roads. The map identifies Stone Gate as a Roman road and it is shown as such on subsequent editions. The railway is shown running roughly NW/SE to the E of the village and Cowbit Wash to the SW between the New River drainage channel and the river Welland. These washlands along the river, which were traditionally used as pasture rather than arable as they were tracts of land where the river was periodically allowed to flood.

The Ordnance Survey 6-inch 2nd Edition map of 1906 shows very little evidence of change, with no evidence of further development (*Fig. 5*). Similarly, the OS edition of By 1951/52 shows very little evidence of postwar development (*Figs. 6 & 7*).

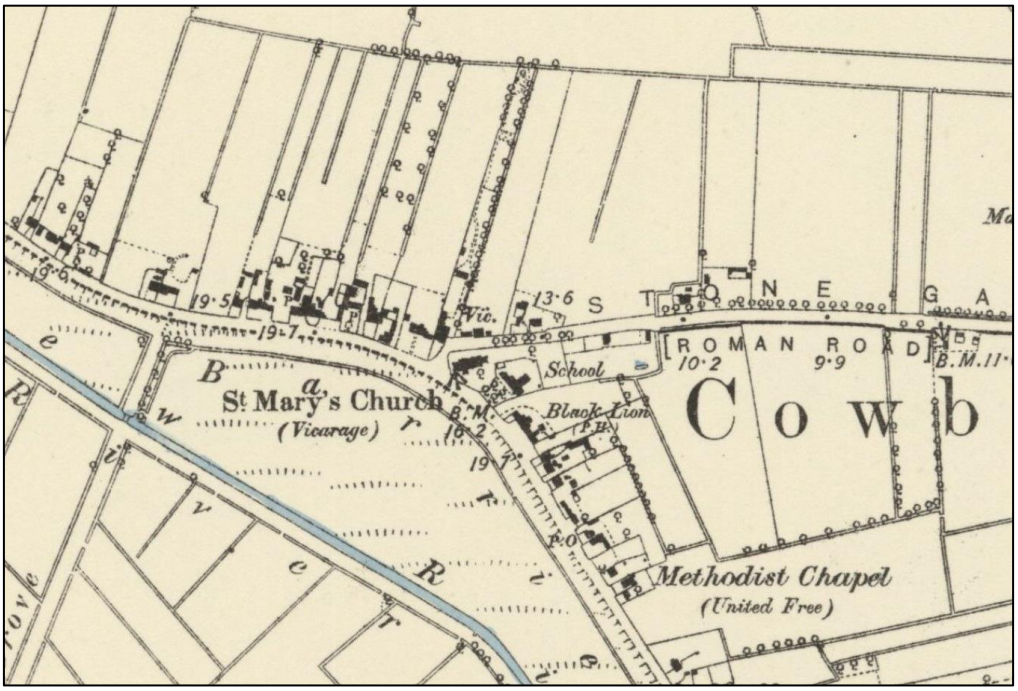


Fig. 3: Extract from the Ordnance Survey 6-inch 1st Edition map of 1887 showing the village centre and Roman road.



Fig. 4: Extract from the Ordnance Survey 6-inch 1st Edition map of 1887 showing Cowbit Station and the Railway Hotel

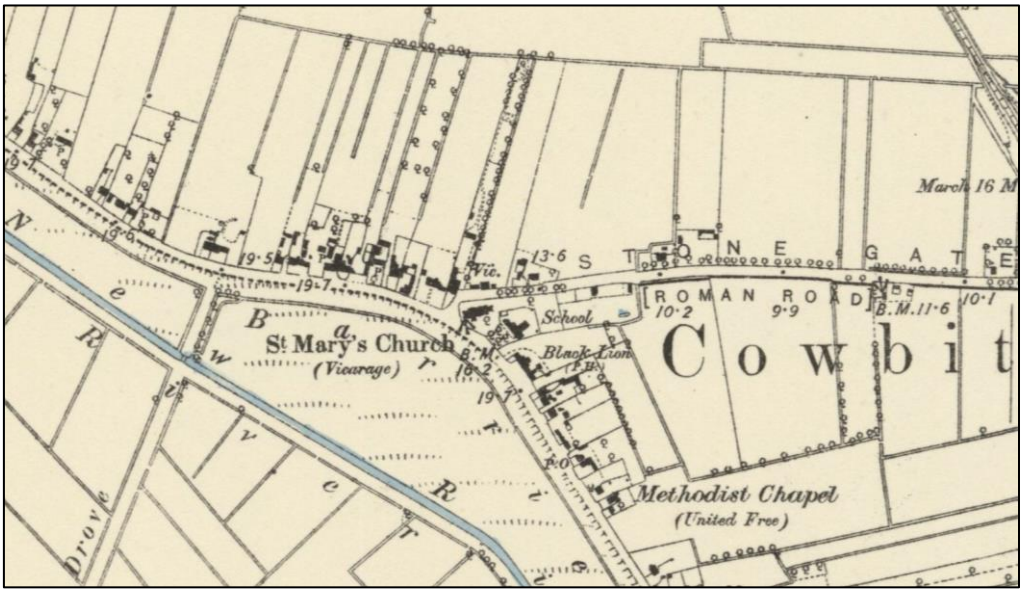


Fig. 5: Extract from the Ordnance Survey 6-inch 2nd Edition map of 1906

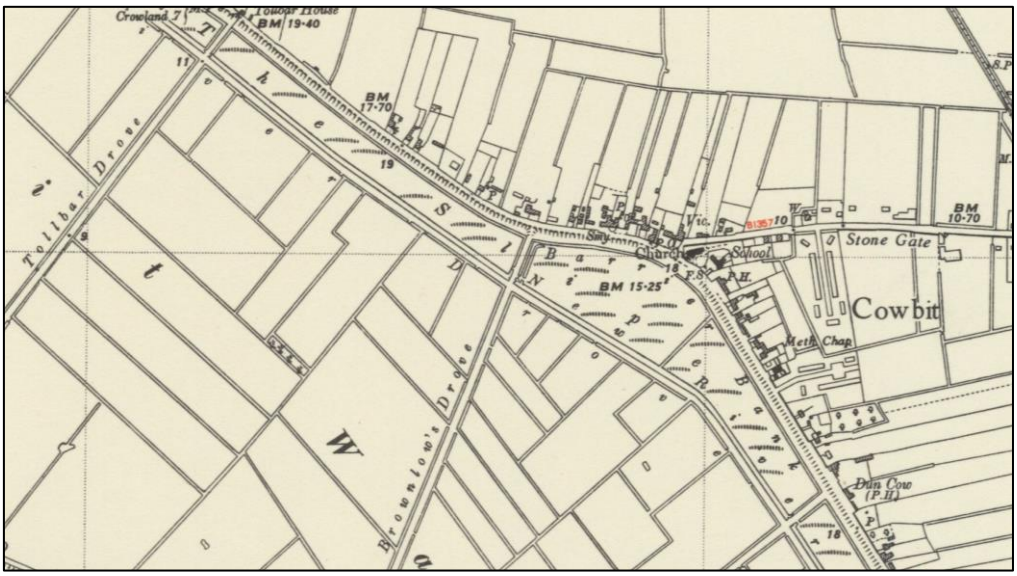


Fig. 6: Extract from the Ordnance Survey 6-inch Provisional Edition of 1952



Fig. 7: Extract from the Ordnance Survey 6-inch Provisional Edition of 1951

4 Aims & Objectives

The evaluation will seek to:

- ascertain the extent, depth below ground surface, depth of deposit, character, date, significance, and condition of any archaeological remains on site;
- establish the extent to which previous development and/ or other processes have affected archaeological deposits at the site;
- establish the likely impact on archaeological deposits of the proposed development;
- inform a further programme of mitigation, should such be required.

The results will be integrated into the wider historic and archaeological context of the landscape and address, where applicable, the research aims set out in the *East Midlands Historic Environment Research Framework* (https://researchframeworks.org/emherf/).

5 Methodology

All archaeological site works will be undertaken in accordance with BA's *Archaeological Field Recording Manual* (2023) and the *Archaeology Handbook* (Jennings 2019), together with accepted professional standards, including *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Lee 2015), *Universal guidance for archaeological field evaluation* (CIfA 2023), and *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2020a). BA abides by the requirements of the CIfA *Code of conduct* (2022).

CI*f*A (2023) define archaeological monitoring and recording as:

… a formal programme of observation, investigation and recording conducted during works carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed. This will be within a specified area or site on land, in an inter-tidal zone or under water. This definition and Standard do not cover chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains in situ.

5.1 Site Specific

In the absence of any recorded archaeological deposits on the site, trenches have been distributed so as to ensure comprehensive coverage of all areas impacted by housing. Four trenches, each of 20m × 1.8m, will be opened, representing a c. 5% sample of the total development area. If significant archaeology is identified, additional contingency trenching will be allowed in order to further examine any exposed features that cannot be adequately characterised by the trenching proposed within this WSI; this will be implemented only with the agreement of the HEOHL.

The trenches will be opened by a mechanical excavator equipped with a 1.8m wide toothless bucket operating under archaeological supervision. Undifferentiated topsoil and subsoil deposits will be removed in level spits, care being taken not to machine away seemingly homogenous layers that may include the upper parts of archaeological features; potentially significant deposits will not be removed by machine before their character is reasonably understood.

Topsoil, subsoil and archaeological deposits will be kept separate during excavation to allow for the sequential backfilling of trenches, which will not be carried out without the prior agreement of the HEOHL unless necessitated by health and safety concerns.

Machine-use will cease when a clear archaeological or geological horizon has been reached. All features of archaeological significance will be identified, cleaned-off by hand, planned at a suitable scale, accurately located, and examined in accordance with established criteria for the investigation of archaeological remains.

Individual complex features, such as kilns or burials, will be cleaned and recorded but, where possible, left *in-situ* (with specific protection against disturbance during backfilling if necessary); the area to be preserved will be clearly defined and a suitable preservation strategy will be produced. A sufficient sample of all other archaeological and suspected archaeological features or deposits will be excavated, including:

- 1m long sections excavated through linear features, with termini and relationships excavated as a matter of course; and
- half-sectioning of discrete features, with 50-100% excavated depending upon date and quantity of material culture present.

It is also anticipated that some naturally occurring layers and features, such as peat, alluvium, geoarchaeological deposits and palaeochannels, will be investigated. This is particularly likely when the deposits contain well-preserved biological remains and/ or were laid down during periods of archaeological interest.

A metal detector will be used throughout the programme of works to scan exposed features/ deposits and spoil heaps. No unauthorised metal detecting will be permitted anywhere within the site area and all such activity will be carried out in accordance with BA's *Metal Detecting Policy* (2018) incorporating Historic England and Portable Antiquities Scheme guidance.

All BA staff are suitably qualified and experienced to discharge their project roles effectively, are fully cognisant of aims and methodologies, and are suitably equipped to undertake the work.

5.2 Recording

The following reference numbers have been assigned to this fieldwork project:

- Site code: tbc;
- OASIS ID: borderar1-522221
- Museum Accession No.: LCNCC tbc

Full written, graphic, and photographic records will be made in accordance with BA's *Archaeological Field Recording Manual* (2023).

Records will include:

- A *pro-forma* trench record for each trench excavated;
- A *pro-forma* context record for each stratigraphic unit examined;
- A full graphic record of all excavated areas, with the primary record consisting, where possible, of hand-drawn plans and sections (produced on gridded, archive-stable polyester film), to show the extent of the area (tied into the Ordnance Survey National Grid and located on a 1:2500 plan), the extent of all stratigraphic units and appropriate detail within stratigraphic units. Plans will be produced at scales of 1:20 or 1:50 and sections at 1:10 or 1:20, depending on the complexity to be recorded; trench sides will also be drawn in section where they contain significant information. All plans, elevations and sections will contain grid and level information relative to OS data. Drawings will be numbered and listed in a drawing register cross-referenced to the written record;
- Temporary Benchmarks (TBMs), which will be established at appropriate locations;
- Survey using Total Station (TS) and/ or a survey-grade Global Positioning System (GPS) where appropriate;
- A detailed photographic record of all stratigraphic units and representative photographs showing the progress of archaeological work. The record will be made using a high-resolution digital camera, comprising photographs of archaeological features and appropriate groups of features and structures, as well as photos of each area or trench, general site shots and photographs suitable for publication; each

photograph will include an appropriate scale. All photographic records will be indexed and cross-referenced to written site records. Details of subject and direction of view will be recorded in a photographic register, indexed by frame number. A representative photographic record of the progress of the archaeological work will also be made.

The progress of the works will be recorded and assessed using the Company's ISO 9001 procedures.

5.3 Recovery, Processing & Curation of Artefactual Data

Finds are herein defined as…

…all artefacts, building materials, industrial residues, environmental material, biological remains (including human remains) and decay products (CI*f*A 2020a, 3).

All stratified finds will be collected and processed in accordance with the *Archaeology Handbook (Jennings 2019)*, *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (CI*f*A 2020b) and *First Aid for Finds* (Watkinson & Neal 2001). All such materials will be labelled with the Site code and context number before being removed off-site. They will be stored in accordance with *First Aid for Finds* (*ibid*.) and with Historic England technical standards and other relevant sources of information, including standards for data-gathering set out by Brown (2011a, 18-20). Unstratified finds will only be collected where they contribute significantly to the project objectives or are of particular intrinsic interest.

Each retained assemblage will be examined according to typological or chronological criteria and conservation needs identified, with all ceramics referenced to the county type fabric series.

Kate Smith MA ACI*f*A, Director: Performance Delivery, will contact The Collection, Lincoln for any specific guidance requirements in respect of the collection and subsequent archiving of finds. Decisions regarding selection and retention of archaeological materials are generally made at the pre-analysis stage of the project and will be carried out in consultation with the HEOHL and the museum, and informed by principles set out by Brown (2011a, 23), which in essence specify that this process should be sufficient to produce …

> *…a project archive that allows a full re-examination and interpretation of all the results of the project whilst avoiding replication, repetition or the retention of materials not germane to future analysis*.

BA refers additionally to *Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland* (Society of Museum Archaeologists 1993) and the CI*f*A *Toolkit* (https://www.archaeologists.net/selection-toolkit/).

5.3.1 Conservation requirements

Janice McLeish MA (Hons.) ACI*f*A, Director: Post Excavation Services, will supervise on-site conservation for the lifting and treatment of fragile objects.

Post-excavation conservation work, including cleaning sensitive finds, will be carried out by BA's conservator and/ or York Archaeological Trust (YAT).

Finds will be appropriately packaged and stored under the direction of BA's on-site conservation specialist (See Appendix for details). X-ray photographs of archaeological metalwork will be produced off-site by YAT.

5.3.2 Treasure

All finds identified in the Treasure Act (1996) and the Treasure (Designation) Order (2002) as being treasure will be recorded, removed to a safe place, and reported to Harrison & Cooke Developments Ltd, the HEOHL, the Lincolnshire Finds Liaison Officer (FLO) and the Coroner. If the finds cannot be removed from the site the same day as discovery, provision against theft will be taken. A Treasure Receipt will be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. The Treasure Receipt and Report will include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

5.4 Recovery & Assessment of Palaeoenvironmental/ Palaeoeconomic Data

Samples for palaeoenvironmental/ palaeoeconomic purposes will be collected and processed in accordance with the *Archaeology Handbook* (Jennings 2019), as well as guidance set out by Historic England in *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (Campbell *et al.* 2011), and the *East Midlands Historic Environment Research Framework* (https://researchframeworks.org/emherf/).

Samples of at least 40ℓ will be taken wherever possible and practicable using numbered sample buckets of 10ℓ capacity.

Processing will be undertaken by BA at its Palaeoenvironmental Processing Facility under the supervision and direction of Amy Bunce BSc MA MCI*f*A, Director: UK Operations & Palaeoenvironmental Sciences. This assists on-site guidance for sampling purposes and the ability to quickly determine their archaeoenvironmental potential whilst still under excavation; this will inform whether additional samples are taken.

Wherever practicable, at least 40ℓ or 100% of each sample (both dry and waterlogged) will be processed by flotation using Siraf-style tanks with a 500µm retent mesh and 250µm flot sieve as standard, with smaller retent meshes to 250µm considered where carbonised material is less likely to float. Heavily waterlogged samples will be considered for analysis without prior processing by flotation.

Retents will be initially scanned by magnet to retrieve archaeometallurgical debris such as flake and/ or spheroidal hammerscale. A sieve bank will be used to facilitate visual sorting with the smaller fractions sorted by means of magnifying lamp and/ or illuminated stereo zoom microscopy. Non-archaeological, -archaeobotanical, -

archaeoosteological and -archaeometallurgical material will be disposed of. Retents that are particularly rich in carbonised material may be re-floated once dry to assist the separation of archaeobotanical material.

Flots will be sorted using an illuminated stereo zoom microscope, which will have a trinocular head for digital microscopic photography where necessary. Charcoal will only be subjected to species identification where the contextual information suggests it would be advantageous in addressing aims set out in *East Midlands Historic Environment Research Framework* or in terms of national research strategies. Archaeological, archaeobotanical, archaeo-osteological and archaeometallurgical material from flot and retent will be retained as part of the site assemblage.

Sorting and identification of macro-botanical remains will use an in-house reference collection of botanical material, in conjunction with the consultation of academic, specialist reference books.

5.4.1 Other environmental sampling

Other environmental sampling, eg., coring and monoliths for pollen, foraminifera, testate amoeba, diatoms etc., will be undertaken under the guidance of the specialist carrying out the further analysis.

Residue analysis on materials such as ceramics will be advised by the finds department.

Further investigation of environmental material, eg., isotope analysis on bone or teeth, will be dependent upon discovery and will only be considered following discussion with the HEOHL and the Historic England Regional Science Advisor (East Midlands Region) as part of the post-excavation analysis stage.

5.4.2 Waterlogged wood

Waterlogged wood will be treated in accordance with *Waterlogged Wood Guidelines on the recording, sampling, conservation and curation of waterlogged wood* (Brunning & Watson 2010) and left *in-situ* where this is practical and its long-term preservation is achievable.

5.4.3 Building materials

Samples of construction materials including masonry, brick, roof tile, floor tile, wall tile and hypocaust elements will be recovered for assessment of their potential to assist in the analysis of building palaeotechnology.

5.4.4 Sampling for scientific purposes

A range of scientific dating methods may be employed, as appropriate. In addition to techniques such as ^{14}C and dendrochronology, dating methods applied to inorganic materials exposed to firing or burning may be used, e.g., thermo-luminescence for ceramics, flint artefacts and hearth stones, and archaeomagnetic dating for fired structural remains, such as furnaces and kilns and possibly domestic hearths and ovens.

As luminescence and archaeomagnetic dating will require a specialist site visit, this will be arranged by BA at the earliest possible opportunity when suitable features are encountered. Provision for other types of scientific

analysis will be discussed with the HEOHL and the Historic England Regional Science Advisor, should unexpected remains be encountered.

5.4.5 Geoarchaeology

Buried soils and sediment sequences considered to reflect the pedology of the site will be analysed for information on site formation processes. Highly significant, well-preserved remains, when encountered, will be investigated in a considered manner in order to assess the archaeological stratigraphy. Geoarchaeological works will in general aim to understand how deposits were initially laid down and subsequently modified through time (Canti & Corcoran 2015).

5.5 Human Remains

Should human remains be discovered, BA will inform the HEOHL and Harrison & Cooke Developments Ltd, the remains being covered, protected, and left *in-situ* in the first instance, although graves will be scanned by metal detector to assess whether any grave objects are likely to be present.

BA is cognisant of the deliberations by the Ministry of Justice (MoJ) in 2011 in respect of Section 25 of the Burial Act 1857 (Amended 2018), and any arrangements regarding the discovery of human remains will be at the discretion of HM Coroner, whose instructions/ permission will be sought.

Any recording of such remains will be in accordance with *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017) using BA's *pro-forma* Skeleton Recording Sheet and Coffin Recording Sheet.

Should removal of remains be required, this would be carried out under the supervision of Niamh Dyer MSc (maternity cover for BA's osteology specialist Dr Catherine Sinnott MA PhD ACI*f*A), subject to the appropriate MoJ licence, environmental health regulations and coroner information, with adequate security provided.
Human bone assemblages are treated at all times with due reverence and in accordance with the following guidelines:

- *Excavation and post-excavation treatment of cremated and inhumed human remains* (McKinley & Roberts 1993);
- *Guidelines to the Standards for Recording Human Remains* (Brickley & McKinley 2004);
- *Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports* (Mays, Brickley & Dodwell 2004);
- *Science and the Dead: A guideline for the destructive sampling of archaeological human remains for scientific analysis* (APABE; Mays *et al*. 2013);
- *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (2nd Edition; APABE; Mays 2017);
- *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017);
- *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (Mays, Brickley, Dodwell & Sidell 2018);

- *Burial Law and Policy in the 21st Century: The way forward* (MoJ 2007);
- *Statement on the exhumation of human remains for archaeological purposes* (MoJ 2011).

Where analysis of remains is undertaken, arrangements will be made for re-interment in full consultation with all relevant parties. Health and safety measures with regard to disease are strictly adhered to.

Where appropriate, the results of any osteological analysis may be submitted to Historic England for inclusion on the database of human skeletal remains.

6 Archive Review & Post-Excavation Assessment

An archive review will be completed by the site manager upon completion of site works comprising an audit of all archaeological materials recovered. Dependent upon the fieldwork results, assessment of the nature, date, and significance of the stratigraphic, artefactual and palaeoenvironmental evidence may be undertaken by BA's nominated specialists, as detailed in Appendix 2 to this document. This will be consistent with paragraph 3.3 of *Universal guidance for archaeological field evaluation* (CIfA 2023). Results will be placed in a local and regional context and address, where possible, specific research themes and priorities identified in *East Midlands Historic Environment Research Framework*.

Where it has been agreed in consultation with the HEOHL, materials identified at assessment as appropriate for further analysis will be processed by the relevant specialists and the resultant research archive will be checked and ordered according to *MoRPHE* criteria (Lee 2015). Any such additional analysis will be undertaken as part of an Updated Project Design (UPD) to inform eventual publication.

7 Archive Preparation

All records created during fieldwork will be checked for consistency and accuracy and will form part of the site archive. The archive will contain all data collected and other specialist materials and will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository, and signposted appropriately to ensure future use in research, as detailed in *MoRPHE* (Lee 2015).

The archive will be assembled in accordance with guidelines set out in Chapter 17 of the *Archaeology Handbook* (Jennings 2019). It will accord with guidelines published in *MoRPHE* (Lee 2015) and *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (CIfA 2020b), *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990), *Standards in the museum care of archaeological collections* (Paine 1992), *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown 2011a), *Safeguarding Archaeological Information: Procedures for minimizing risk to undeposited archaeological archives* (Brown 2011b) and *Toolkit* (https://www.archaeologists.net/selection-toolkit/).

BA undertakes that the following issues will be addressed and concluded to the satisfaction of the HEOHL within a reasonably defined timescale:

- The written, drawn and photographic records will be of sufficient quality to facilitate publication in an appropriate specialist journal;
- Data concerning complete identifiable and itemised objects will be transferred to specified object record sheets.

A museum accession number has been requested by Kate Smith MA ACI*f*A, Director: Performance Delivery, and processed assemblages will be boxed according to Chapter 17 of the *Archaeology Handbook* (Jennings 2019). A register of contents will be compiled prior to deposition of the Project Archive.

It is anticipated that the project archive will be presented to The Collection, Lincoln, by May 2025 following completion of the reporting process and subject to the agreement of the site owner with regards to any finds and availability of the appointed specialists. Digital archiving will be via the Archaeology Data Service.

The archive will conform to museum specifications as set out by The Collection and the Client will be consulted, where applicable, for permission for the transfer of title to any artefacts discovered. An OASIS (Online Access to the Index of Archaeological Investigations) data-capture form will be completed upon deposition of the final archive.

8 The Report

The specific requirements of the report will necessarily vary according to the scope of works, the nature of the results or other factors. However, the report will include the following sections, as mandated in *Universal guidance for archaeological field evaluation* (CI*f*A 2023, 7).

- Non-technical summary;
- Reference to Project Design/WSI
- Aims, objectives and methods used, including any departure from the project design;
- Results, referring to the research aims in the project design and including research implications;
- Illustrations, plans and essential technical and supporting detail, with accurate spatial Information sufficient to locate the areas of investigation in the future;
- Conclusions, including a confidence rating on techniques used, and any recommendations for further work that might improve that confidence;
- Archive locations (pre and post deposition if known);
- List of all sources used;
- Copyright.

Should significant archaeological remains be identified, the report will also include:

- Detailed descriptions and plans (at appropriate scales) of trenches providing significant archaeological information;
- Finds quantification and assessment;
- Environmental archaeology assessment;
- A summary of the extent, depth, and state of preservation of archaeological deposits across the site.

Where archaeological remains are identified, the report will include an assessment outlining the likely adverse impact of the proposed development on those remains and an appropriate mitigation strategy will be agreed and a WSI submitted to the HEOHL for approval.

Digital copies of the Report in PDF/A format will be sent to the HEOHL and Harrison & Cooke Developments Ltd for approval before being formally submitted to the Lincolnshire Historic Environment Record. Once the final report has been accepted by the County Archaeological Service, a digital PDF/A copy will be deposited with OASIS (http://www.oasis.ac.uk/) the Archaeology Data Service Access to the Index of Archaeological Investigations website.

Dependent upon discovery and where applicable, a summary report (including illustrations, where appropriate) will be submitted to the editor of *Lincolnshire History and Archaeology*, in addition to any relevant period journals, such as *Medieval Archaeology* or *Proceedings of the Prehistoric Society,* for wider dissemination.

9 Staff & Timescales

Joe France BSc ACI*f*A is the nominated site manager. Amy Bunce BSc MA MCI*f*A will be responsible for project management and staff deployment with support from Lyndsey Clark BSc (Hons.) MCI*f*A.

George Children MA MCI*f*A, Director: Quality and Compliance, will additionally provide overall technical and editorial guidance to all constituent aspects of the works programme.

The commencement of the fieldwork programme is currently scheduled for Monday 22nd January 2024.

10 Border Archaeology Operating Standards & Arrangements

All projects are carried out in accordance with the Company's *Archaeological Field Recording Manual* (2023) and with CI*f*A *Standards and Guidance* (2020, 2023).

A pre-works risk assessment will be completed and lodged in the site Health & Safety File. Site reporting procedures are completed daily.

George Children MA MCI*f*A retains overall responsibility for the qualitative elements of the project.

11 Monitoring

The site will be subject to monitoring by the HEOHL who will undertake at least one site visit unless otherwise agreed.

BA will advise the HEOHL of the project's progress on a regular basis and notify them at the earliest opportunity of any unexpected discoveries, especially where there may be a need to vary the project.

All issues of a technical nature should be addressed in the first instance to Amy Bunce BSc MA MCI*f*A.

12 Copyright

Border Archaeology Ltd shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988, with all rights reserved, excepting that it hereby provides a licence to Harrison & Cooke Developments Ltd, South Holland District Council and Lincolnshire County Council for the use of the report by Harrison & Cooke Developments Ltd, South Holland District Council and Lincolnshire County Council in all matters directly relating to the project as described in the Project Specification to use the documentation for their statutory functions and to provide copies of it to third parties as an incidental to such functions.

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14 Appendix 2: Specialists

The following specialists have been appointed to provide, where required, sampling, consulting, analysis & reporting services:

1. Geoarchaeology: Rob Batchelor BSc PhD MCI*f*A Director Quest University of Reading; ARCA, University of Winchester;
2. Pottery: Alex Gibson BA PhD MCI*f*A University of Bradford, Rob Perrin M.Litt MCI*f*A FSA Freelance Specialist, Jo Mills Freelance Specialist, Paul Blinkhorn BTech (Hons) Freelance Specialist;
3. Coins: Peter Guest BA PhD University of Cardiff;
4. Flint: Rebecca Devaney MA ACI*f*A Freelance Specialist;
5. Petrological Analysis: Imogen Wood BA MA PhD;
6. Glass: Nicola Powell MA MCI*f*A Freelance Specialist;
7. Clay Tobacco Pipes: Nicola Powell MA MCI*f*A Freelance Specialist;
8. Leather and Metal Objects: Quita Mould Barbican Research Associates;
9. Archaeometallurgy: Gerry McDonnell BSc PhD Gerry McDonnell Archaeometals;
10. Glass Working: John Shepherd BA FSA MCI*f*A Freelance Specialist;
11. Artefact & Materials Conservation: Ian Panter York Archaeological Trust;
12. Building Materials: Phil Mills BSc PhD MCI*f*A Freelance Specialist;
13. Worked Stone: Ruth Shaffrey BA PhD MCI*f*A Freelance Specialist;
14. On-Site Conservation: Janice McLeish MA ACI*f*A Border Archaeology Ltd;
15. Faunal Remains: Chris Faine MA ACI*f*A Freelance Specialist & Janice McLeish MA ACI*f*A Director: Post Excavation Services Border Archaeology Ltd & Clare Rainsford Freelance Specialist;
16. Human Remains: Catherine Sinnott BA PhD ACI*f*A Osteoarchaeologist Border Archaeology Ltd;
17. Archaeobotanical, Charcoal & Wood ID: Amy Bunce BSc MA MCI*f*A Director: UK Operations & Palaeoenvironmental Sciences Border Archaeology Ltd.

Other specialist suppliers will be sourced, if deemed appropriate; suitable management time will be expended to ensure that such external suppliers' work complies with accepted national guidance.

Document Title		Document Reference	
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