The Drax Power (Generating Stations) Order

Land at, and in the vicinity of, Drax Power Station, near Selby, North Yorkshire

Environmental Statement
Appendix 8.3 – Archaeological Evaluation Report

The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

Drax Power Limited

Drax Repower Project

Applicant:	DRAX POWER LIMITED
Date:	May 2018
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University of Salford MANCHESTER

Archaeological Evaluation Report

Drax Repowering Project,
Rusholme Lane,
Drax,
North Yorkshire

Client:
WSP UK Ltd

Technical Report:
Oliver Cook and Andrew Radford

Report No:
SA/2018/12

The Centre for Applied Archaeology

REGISTERED ORGANISATION CIfA

Site Location:	Rusholme Lane, Drax, North Yorkshire
NGR:	Centred at NGR SE 69563 26558
Internal Ref:	SA/2018/12
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Summary

Drax Power Ltd is devising proposals for the repowering of up to two existing coal-powered generating units at the Existing Drax Power Station Complex with new gas turbines that can operate in both combined cycle and open-cycle modes. This scheme will require a new gas pipeline of approximately 3km, together with a range of associated development, which will necessitate earth-moving works across a tract of agricultural land adjacent to the power station. In order to inform a development consent order for this national infrastructure project, Drax Power Ltd has commissioned a programme of archaeological works to establish the potential of the proposed development to impact on any below-ground remains of archaeological interest that may survive across the site.

A desk-based study undertaken by WSP UK Ltd on behalf of Drax Power Ltd as part of an Environmental Impact Assessment for the proposed scheme concluded that there was potential for important buried remains of Iron Age / Romano-British and medieval periods to be present within the site and the wider area. In order to investigate this potential further, WSP UK Ltd commissioned a programme of geophysical survey. This investigated a combined area in excess of 100ha, divided into 21 survey areas, and identified the presence of two small archaeological complexes made up of enclosures, one of which included ring ditches and associated settlement features. Based on the layout of the enclosures, the features are thought to represent part of an Iron Age / Romano-British settlement, an interpretation that aligns with the physical remains excavated along the route of the Asselby to Aberford pipeline in 2007-08.

In the light of the results obtained from the geophysical survey, and following consultation with the Principal Archaeologist for North Yorkshire Council, it was recommended that a programme of intrusive archaeological investigation via evaluation trenching was merited. This aimed to confirm the presence of archaeological remains, and establish their extent, date and significance to enable an appropriate strategy to offset the harm of development on the archaeological resource. It was further recommended that the scope of the archaeological evaluation allowed for a 2% sample of the specified area, which equated to the excavation of 17 trenches.

The archaeological evaluation has concluded that buried remains dating to the 13th / 14th century, together with a series of undated and enigmatic features survive across the site. These probably relate largely to medieval field systems, boundaries, drainage and associated features, although given the recovery of a sherd of Iron Age / Romano-British pottery, there is certainly potential for at least some of these features to be of prehistoric / Romano-British date, potentially of regional importance.

The results obtained from the evaluation trenching indicate that it would be appropriate to implement a strategy that will offset the impact of development on the archaeological resource in advance of future development.

1. Introduction

1.1 Background

In February 2018, Salford Archaeology was commissioned by WSP UK Ltd to carry out an archaeological evaluation on behalf of Drax Power Ltd. The work was carried out in accordance with a Written Scheme of Investigation produced by Salford Archaeology in March 2017, and was undertaken to inform an Environmental Impact Assessment in support of a development consent order application to repower up to two existing coal-powered generating units at the Existing Drax Power Station Complex with new gas turbines. As part of this major infrastructure improvement scheme, Drax Power Ltd is also seeking consent to erect a battery storage facility and associated development that will include the installation of a new gas connection, necessitating the construction of a *c* 3km long pipeline.

The evaluation comprised the excavation of 17 trenches, and was intended to establish the presence and condition of the below-ground archaeological resource, thereby enabling informed recommendations to be made for the future treatment of any surviving remains.

1.2 Aims and Objectives

The main objective of the evaluation, as stated in the approved Written Scheme of Investigation (*Appendix 1*), was to provide an assessment of the archaeological resource that survived across the study area to enable informed decisions to be made for their treatment in advance of the development of the site. This objective was supplemented in academic terms by more specific research aims which have been taken from the current Archaeological Research Framework for Yorkshire (Roskams and Whyman 2005; Roskams and Whyman 2007). These can be summarised briefly as follows:

Where Iron Age and Romano-British archaeology is encountered, it is of particular importance to provide an understanding of the transition between the two periods. The lowland areas of Yorkshire are less well understood, partly due to the survival of the archaeological record, *ie* ploughing, and the nature of the archaeological record itself, primarily made up of agricultural land and small scattered settlements. Increased understanding of chronology has demonstrated that changes to Iron Age trajectories in the Romano-British period generally occurred in pockets of more intensive development rather than across the board sweeping changes (Roskams and Whyman 2007). Traditional ideas of Romanisation and 'Romans' vs 'natives' have come under heavy scrutiny (Russell and Laycock 2011) and new the challenge in Romano-British archaeology in Yorkshire is to move beyond simply military and political dynamics in explaining the changes that were occurring and of course, the practices that continued.

The Research Framework stresses that particular reference should be given to field systems, which are the most likely features to be encountered for the Iron Age and Romano-British periods in current study area. Significantly, previous excavation in West Yorkshire has suggested that even in cases where co-axial field systems are encountered, they developed over time and with considerable complexity, rather than necessarily being of one phase, with a Roman or military surveyor (Chadwick 2009, 20).

Compared to other parts of Yorkshire, such as Harrogate and the Vale of York, the lowland area around Drax is reasonably well understood for the medieval period (Roskams and Whyman 2005, 78). Drax is recorded in the Domesday Survey of 1087, and the prefix of 'Old' suggests early medieval activity as well. The surrounding medieval archaeological and historical features in the vicinity will be further discussed below, but the objective for the medieval period at Drax must be to better understand the rural landscape and its exploitation. As with other lowland parts of Yorkshire, this is likely to be complex.

Previous archaeological work around Drax has suggested that during the Iron Age and Romano-British periods, this area was used for mixed agriculture with an emphasis on crops. By the post-medieval period when major draining had taken place cattle was the most important commodity (Byford 2005). The present understanding of the economy during the medieval period is less clear; particular attention should be given to field systems and potentially ridge and furrow, if dateable. Additionally, Roskams and Whynam (2007, 34-6) have suggested that for such projects, archaeologists should take an inter-disciplinary approach, combining archival research, place-name evidence, historical literature and the archaeological record.

As is the case for most regions across England, the archaeology of the post-medieval and industrial periods has tended to concentrate on data collection, which is then used to relate to increasingly outmoded, simplistic functionalist interpretations (Roskams and Whyman 2007, 37). For this investigation, it must be acknowledged that regionally significant changes to the landscape were taking place, in particular the draining of marshland, the construction of dykes, and the general population increase that resulted from the increase in pastoral land. As will be outlined below, the large scale draining of this lowland area occurred in the mid-17th century, followed by new field systems in the 18th and 19th century that remain in use today. Any further information that can inform us about the transition and changes that were occurring from the end of the medieval period up to the early 19th century will be of local importance.

1.3 Location, Geology, Topography

The study area (centred on NGR SE6956326558) lies on the fringe of Drax village, close to the hamlet of Rusholme. Historic settlement is reserved to small islands of high ground, excepting more recent agricultural buildings. The study area occupies an irregular plot of land bounded by the Rusholme Lane to the north, the Dickon Field Drain to the east and south (Plate 1), and lies at a height of approximately 4m above Ordnance Datum (aOD). The site is a single field which is 4.9ha in total which, at the time of the archaeological evaluation, comprised a section ploughed arable land.

Plate 1: Aerial view showing the boundary of Area 5. Note: ridge and furrow cropmarks (arrow)

The solid bedrock of the site is mapped at 1:50000 as Sherwood Sandstone Group, a sedimentary formation originating approximately 237 to 272 million years ago in the Triassic and Permian Periods. This is overlain by superficial deposits of clay and silt, which were formed up to 2 million years ago in the Quaternary Period. The local environment was previously dominated by rivers (British Geological Survey, 2018).

The immediate landscape character of the study area comprises the Camblesforth Lowlands and the Wharfe-Ouse River Corridor. The lowlands are flat and low-lying and feature tracts of modified land, woodland and semi-enclosed farmland. The river corridor is traditionally a principal trade highway with strategically placed historic villages throughout and known for its wetlands, and is strongly influenced by large-scale industry and infrastructure development, including Drax Power Station.

1.4 Settlement and Land Use

The study area is flat and low-lying, benefitting from fertile alluvial soils close to the rivers Ouse, Don, and Aire. Conversely, in prehistory and prior to drainage and farming, the lad around Drax is likely to have shared similarities with the nearby Hatfield Peat moors and Skipworth Common (Dinnin, Whitehouse and Lindsay 2018; Selby District Council 2018). Small drier islands of fluvio-glacial deposits formed islands within these fertile wetlands (Natural England 2014, 8-9). These islands proved attractive to medieval settlement before major drainage began to be carried out in the 17th century. Placename evidence gives some indication to the nature of the historical environment. The nearby 'Barmby on the Marsh' and 'Newland' are fairly self-explanatory while the name Rusholme occurs in several forms within Area 5 and may be interpreted as 'Holm's island' (Smith 1961), potentially linked to early medieval settlement associated with the islands of higher ground.

The nature of the environment, along with archaeological, zooarchaeological, archaeobotanical and historical data, suggest that the area was used primarily for cereal production during the Romano-British period, with animal husbandry being of less importance. It seems likely that despite the wetland nature of the environment, some industrial activity was also taking place, including pottery production and iron-working, with the latter potentially taking place at the Scurff Hall 'villa', some 400m from the study area (Millett and Halkon 1988, 43).

The evidence for the medieval period is weaker with potentially a greater diversification in cultivation. Hazelnuts and other charred remains were found during archaeological works carried out at Drax Abbey Farm in the 1960s, suggesting coppicing was being carried out (Wilson 1966, 680).

This part of Yorkshire had begun to be drained by the 17th century, in part by Dutch immigrants, with the construction of dykes and field drains. Once drainage had begun Historical records indicate a shift towards animal husbandry in the wake of widespread drainage. From this point, the rural economy was based around cattle, flax, and animal fodder (Byford 2005, 231).

The sequence of historical maps, spanning the 19th and 20th centuries, highlights a great deal of continuity in the division and land use, and concentration of settlement. The area has retained a rural prospect and continues to support arable farming. The aspect of the study area is largely unaltered, although at a distance it has been surrounded by frequent, modern residential and commercial development.

2. Historical Background

2.1 Contextual Background

2.1.1 Introduction

The landscape around Drax has been exploited by humans for agricultural purposes for over 2,000 years. This section will briefly discuss the history and archaeology the area, working chronologically through the periods listed below (Table 1), to provide a contextual setting in which to consider the development of the study area.

Period		Date Range
Prehistoric	Palaeolithic	Pre-10000 BC
	Mesolithic	10000 – 3500 BC
	Neolithic	3500 – 2200 BC
	Bronze Age	2300 – 700 BC
	Iron Age	700 BC – AD 43
Romano-British		AD 43 – AD 410
Early Medieval		AD 410 – AD 1066
Late Medieval		AD 1066 – AD 1540
Post-Medieval		AD 1540 – AD 1750
Industrial		AD 1750 – AD 1914
Modern		AD 1914 – Present

Table 1: Summary of British archaeological periods and date ranges

2.1.2 Prehistory

While there is some evidence of Palaeolithic activity in the north of England, there is no evidence for any such activity within the study area. There is no evidence to suggest that there was significant activity within the study area during the Mesolithic and Neolithic periods. However, there is activity in this part of the country, with Starr Carr representing a site of national importance located 45 miles north of the study. Similarly, some of the most significant henge sites in Britain are located around 40 miles to the north of the site at Thornborough.

There is no evidence for Bronze Age occupation within the study area; however, there are indications of Bronze Age activity in the wider area. A group of at least four barrows dating from the Bronze Age are located between 10 and 12km to the north of Area 5 at Skipwith Common Nature Reserve. A square barrow probably related to the Arras / La Tène culture lies a further 2km north of Skipwith. Perhaps significantly, contemporary Skipwith Common is potentially very similar to what the site area would have resembled before the introduction of agriculture, comprising fen, low-lying heath, and forest with a multitude of ponds (Selby District Council 2018).

The Iron Age is the best represented period of prehistory in the vicinity of the study area, and in Yorkshire in general. Oxford Archaeology North carried out a series of evaluation trenches and excavation areas for the Asselby to Aberford Pipeline in 2010, which included a transect lying some 500m to the south of the present study area (Oxford Archaeology 2010). Excavation yielded Iron Age / Romano-British pottery and a quern stone within a series of enclosure ditches, pits, and postholes. The extensive remains would suggest that there was a considerable occupation/settlement site in the late Iron Age and early Romano-British periods. Furthermore, geophysical surveys during an early stage of the present project identified a series of square enclosures and probable roundhouses along potential routes for the new gas pipeline (Sumo 2017).

2.1.3 Romano-British

Yorkshire was subject to population growth during the Romano-British period, when new settlements, forts, and roads were constructed. Much of the activity during this period in this part of northern England was associated with the military. From *c* 250AD rural farmsteads and buildings that have traditionally been referred to as 'villas' began to be constructed around northern England. Some walled civilian settlements have also been excavated, in addition to several small industrial sites found across Yorkshire (Hunter, Darling, and Cool 2000).

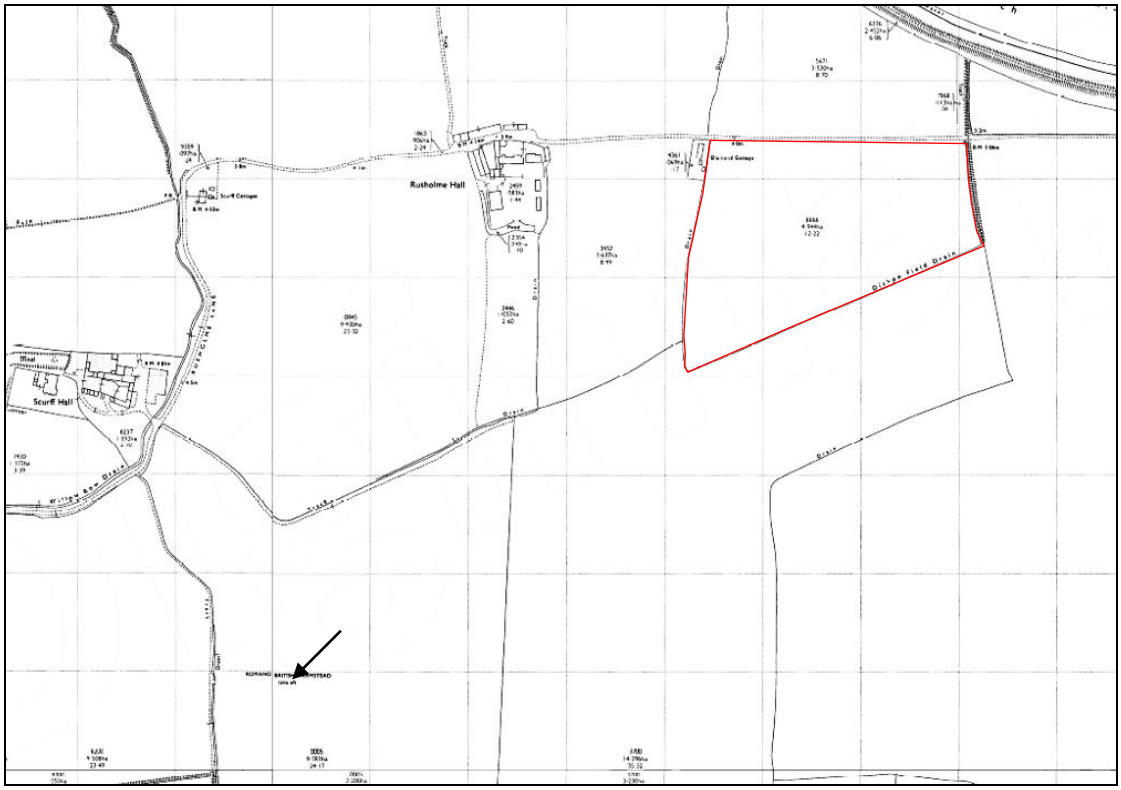

Plate 2: The 1972 OS map, showing the study area boundary and arrow marking the location of the excavated 'villa' to the south-west

In the 1960s, a 'villa' was excavated close to Scurff Hall, around 400m to the south-west of the study area (Plate 2). The site comprised of a multi-phase building occupied between 250 and 400AD. Over 1000 sherds of pottery were recovered, consisting primarily of local coarse wares but with some samian, including a stamped Gallic sherd dating from 160AD (Wilson 1966, 679). The original settlement consisted of a five-roomed villa and timber veranda with a barn, all of which were delineated by foundation trenches. Two large postholes adjacent to a timber-lined pit seemed to indicate the presence of a *shadoof* and well. This was overlaid by a later cobbled yard and a corridor along the main villa building. Mortaria was recovered from the site, which combined with the relative lack of animal bones seemed to suggest a primarily cereal-based farming community.

An archaeological evaluation consisting of 20 trenches was carried out in 2015 by Headland Archaeology in the fields immediately to the north and east of the Drax Power Station. This evaluation was located 3km to the west of the study area, the the resultant report suggested that Romano-British field boundaries were present with 12 sherds of pottery being recovered (Headland Archaeology 2015). Flotation at this site showed that multiple cereals were cultivated including barley and oat. Additionally, Trench 27 of this evaluation exposed the cut of what could be the moat around the west side of Drax Abbey, highlighting the close proximity of multi-period remains.

Northern Archaeological Associates (NAA) carried out an archaeological evaluation 3km to the northwest of Area 5 in 1998, at Drax Abbey Farm. This archaeological investigation produced both Romano-British and medieval remains, including mortaria and samian wares. While the medieval priory itself was not found, and the features that were encountered were not well understood, this evaluation strongly suggests a Romano-British presence from the 2nd century AD (NAA 1998).

Excavations at Scurff Hall, Drax Power Station, and Drax Abbey Farm produced very few animals and in the case of the power station tangible cereal remains, as well. Quern stones and mortaria have also been recovered from the pipeline excavation (2010) and from the villa site (1966). These findings suggest that the economy of this area of Yorkshire was focused primarily on cereal cultivation as opposed to pastoral in the late Iron Age.

2.1.4 Medieval

Early medieval activity in the vicinity of the site is poorly understood. Scattered archaeological evidence would suggest that Selby was the most significant nearby early medieval settlement. Placename evidence indicate the nearby Rusholme Grange, Rusholme Reach, and Rusholme Hall, suggest a personal name – Holmr or Hrut – and either an island or water meadow – indicating that the area was probably marshy and / or prone to flooding with an island settlement (Smith 1961).

A chapel is recorded historically from 959AD at the confluence of the rivers Ouse and Aire (the Aire has since changed its course). The remains of the 12th-century chapel, which was built on the site of the 10th-century chapel, may have been uncovered in the 1960s during the same project that excavated the villa (Wilson 1966). Some early medieval pottery was recovered from the site.

Drax is mentioned in the Domesday Survey of 1086, with the surrounding area dedicated to agriculture with other small settlements such as Howden and Selby. A small moated site was constructed in Drax in 1139, but was destroyed shortly afterwards due to adulteration (WSP 2018; Historic England 2018). This moated manorial property is known locally as Castle Hill, and lies 1.8km to the west of the study area.

An Augustine Priory was constructed in Drax in the 1130s, but was dissolved during the Dissolution. From the mid-16th century the area of the abbey has been occupied by a farmhouse, but most of the standing remains date from the early 20th century (Historic England 2018). The investigation carried out by NAA in 1998 could not identify the remains of the abbey, although the associated geophysical survey did indicate significant buried archaeological remains.

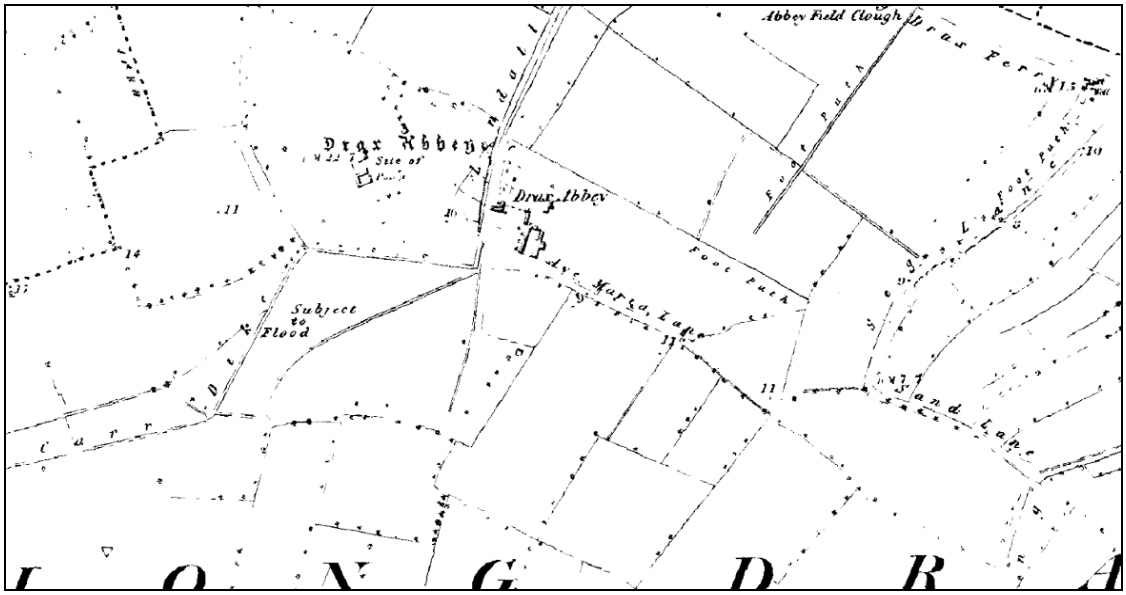

Plate 3: Location of Drax Abbey on 1853 County Series map

Scurff Hall dates from the 18th century, but a moated hall was present from the 14th century, occupied by the Del Scurth family (Wilson 1966, 685), and it is likely that settlement existed in some form from 1286 (Historic England 2018). This moated site is located around 500m to the west of the study area. Wilson's excavation in the 1960s recorded the depth of the moat as 5ft 9in, and the width as 30ft, with pottery dating from the 14th to 17th centuries. The inner bank is recorded as 1.3m high. Additionally, it was reported in the 1980s that medieval ridge and furrow could still be seen in the fields adjacent to Scurff Hall.

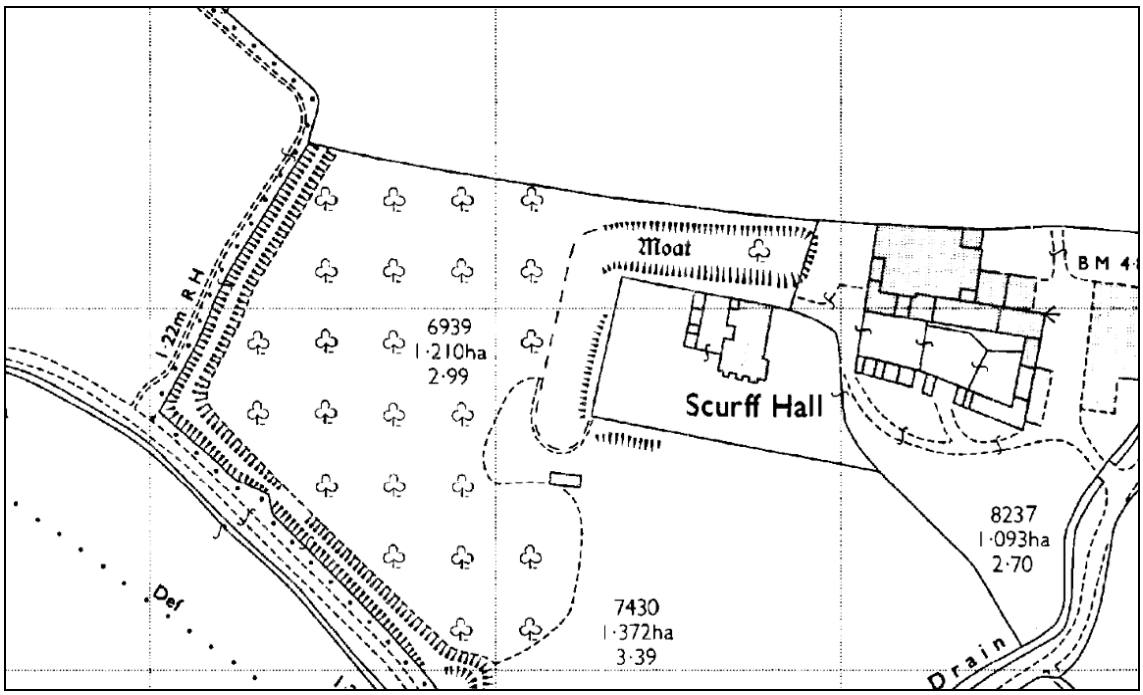

Plate 4: Location of Scurff Hall on 1972 1:2500 OS map

Rusholme Hall is around 160m to the west of the study area, and y consists of 19th- and 20th-century farm buildings. However, the remains of a moat still exist today curving around the south and west of the modern property. The outline of moat can be clearly seen on the OS map of 1890. Like Scurff Hall, this moated hall likely dates from the 14th century, the heyday of moated properties in Britain (Historic England 2018). Satellite imagery also suggests the presence of ridge and furrow immediately south of Rusholme Hall.

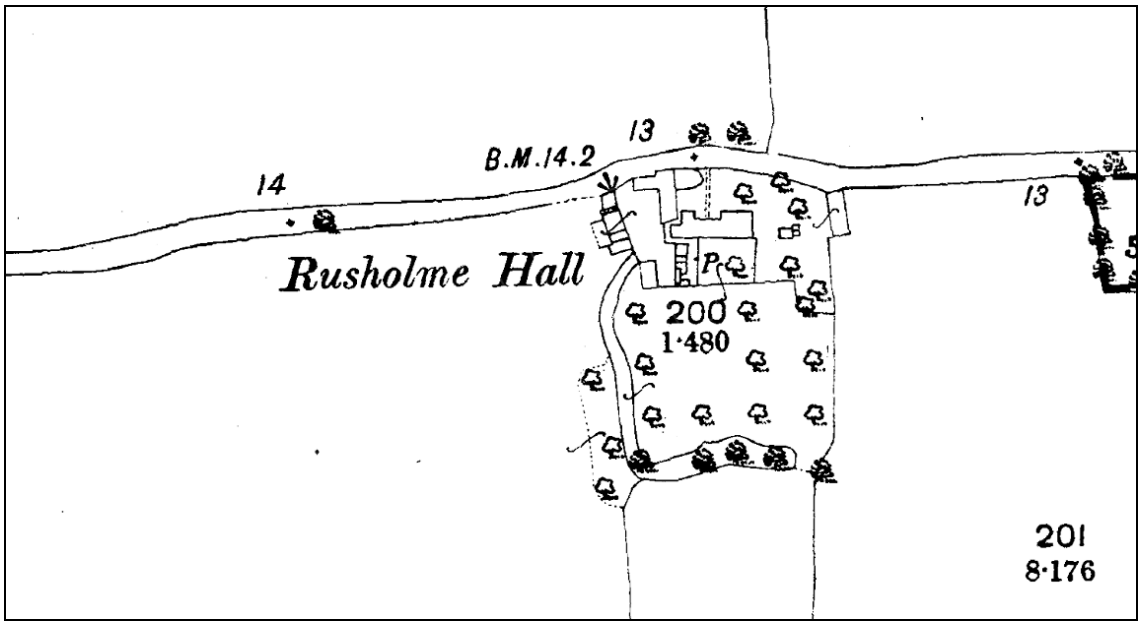

Plate 5: Location of Rusholme Hall on 1890 County Series map. Remains of the moat can be seen to the south and east

2.1.5 Post-medieval to Present

During the post-medieval period the character of the study area continued as agricultural land, and Drax remained a relatively small village. The Hearth Tax assessment carried out in 1672 showed that there were a total of 103 households in Drax and Newland. By 1796, Drax still only had a population of 213 (WSP 2018). Historical research indicates that cattle were by far the most important domestic animal, while sheep, swine, and poultry made up only a minor part of the rural economy in the area (Byford 2005). Flax can be identified as major crop around Drax in the post-medieval period, probably due to it requiring little fertiliser and coping well with alluvial soils and somewhat wet conditions. The marshier areas close to the River Ouse began to be increasingly drained, with drains and dykes constructed in the vicinity of the study area. Carr Dyke close to Drax Abbey Farm was in use by at least 1697 (Headland Archaeology 2015).

The industrial period brought rapid changes to much of Yorkshire, with urbanisation and growth in places such as Sheffield. For this part of rural Yorkshire the changes that took place were more minor, with continuing drainage of marshland and intensification of agriculture.

From 1903, a military base was located 2km south-east of Selby for the housing of airships, and a second army camp was located in Barlow from the 1940s to 1965. The most important local development within the vicinity of the study area, however, is undoubtedly the construction of Drax Power Station. Construction began the late 1960s, and Phase Two was finally completed in 1986.

2.2 Development of the Site

2.2.1 Cartographic Evidence

Cartographic evidence is only of limited value for the study area, but does provide a wider context and shows the general development of the area. The 'map of the Isle of Axholme in 1626 before the drainage by Vermuyden' is very useful for showing the environment around the site south of the River Ouse in the post-medieval period (Plate 6). From 1626, as its title suggests, this map shows the vicinity of the site before the onset of large-scale draining in the mid-17th century. The area shown is almost exclusively marshland and is described as 'fenny' and 'marshe'.

Jeffrey's map of 1771 shows the small settlements around the study area, including the village of Drax and the hamlet of Newland (Plate 7). The ferry crossing points of the River Ouse can be seen to the east and west of the study area. whilst the farm buildings of Rusholme Hall lie to the west.

Budgen's map of 1822 shows the tidal Humber Estuary and the confluence of the rivers Trent and Humber in north Lincolnshire, providing an overview of the settlement and hydrology (Plate 8). The map shows the outline of some field boundaries and drains, most of which had presumably been constructed after the large scale drainage of the 17th century. Scurff Hall and Rusholme Hall can be seen to the west of the study area.

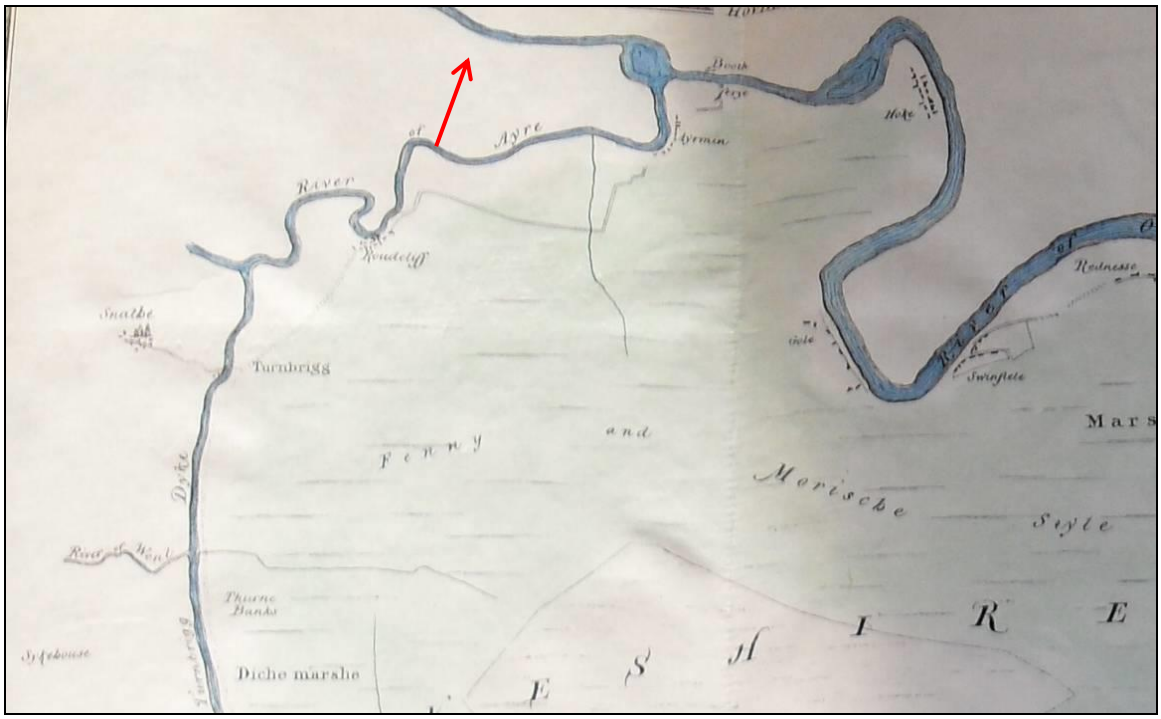

Plate 6: Extract from a 'Map of the Isle of Axholme in 1626 before the drainage by Vermuyden' showing the marsh and fenland to the south of the River Aire

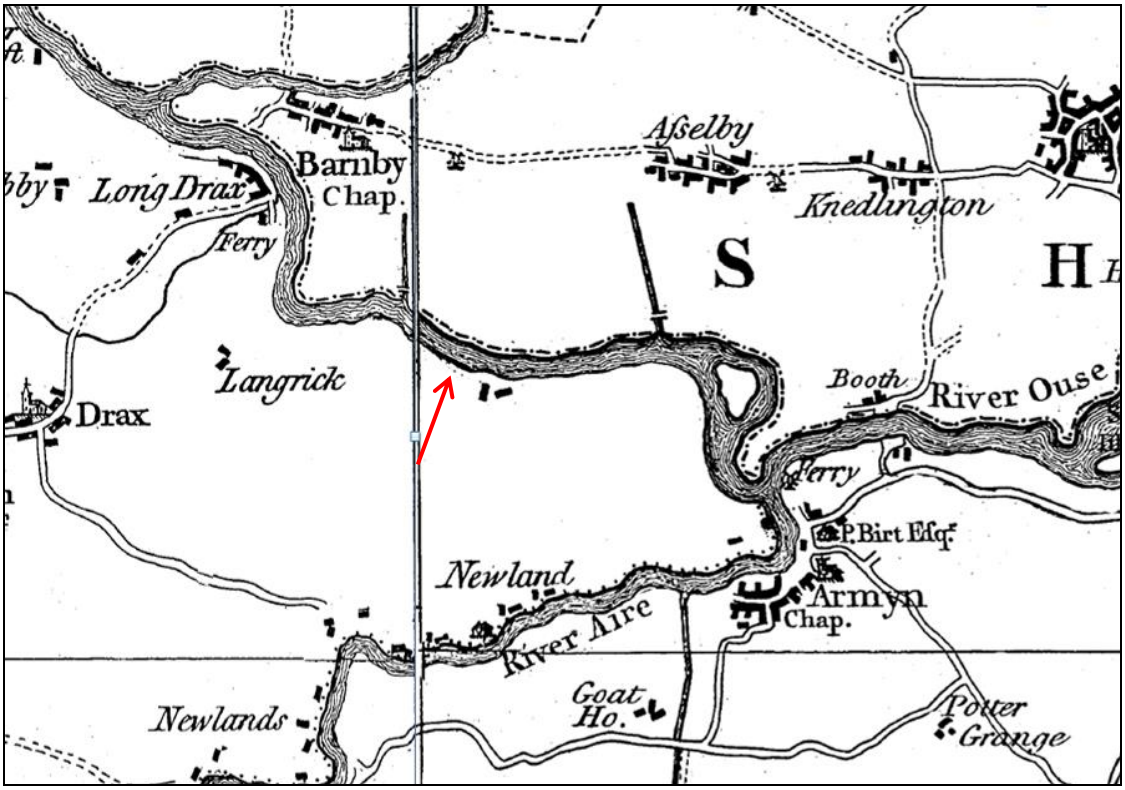

Plate 7: Extract from Jeffrey's Map of Yorkshire of 1771, with arrow marking the study area

Plate 8: Extract from Charles Budgen plan of 1822, with arrow marking the study area

By the 1853 Ordnance Survey County Series map, most of the major field boundaries and drainage ditches that survive into the 21st century are visible (Plate 9). Between 1822 and 1853 several new boundaries / drains have been constructed to the south of the study area, which is identified as 'Dickon Field'.

Some small farmhouses, such as Fox Farm, Rusholme Grange, and East End Farm, had been constructed before the Ordnance Survey published their first edition 25": 1 mile map in 1891 (Plate 10). Similarly, the 'Dickon Field Drain' was moved to create the southern field boundary that exists today, and makes up the southern edge of the study area. Some field boundaries and drains were altered from 1853 onwards, but all those adjacent to the study area continued unchanged. To the OS map of 1907 essentially no changes take place.

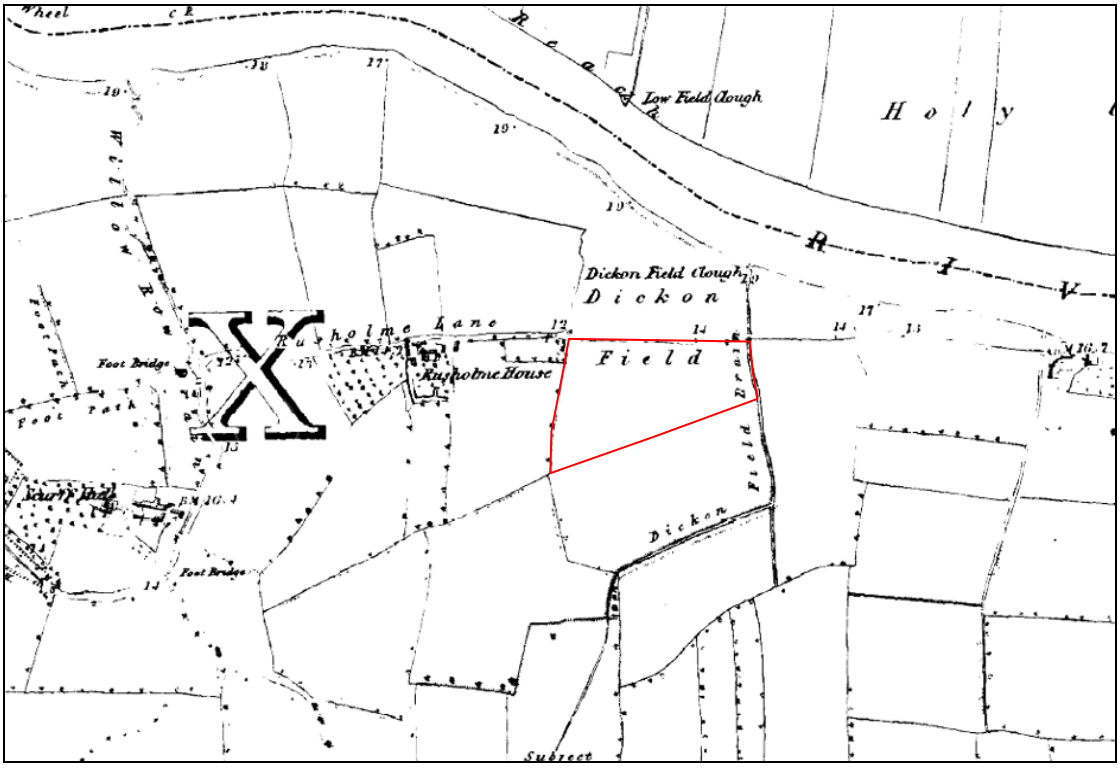

Plate 9: Extract from the 1853 Ordnance Survey County Series map

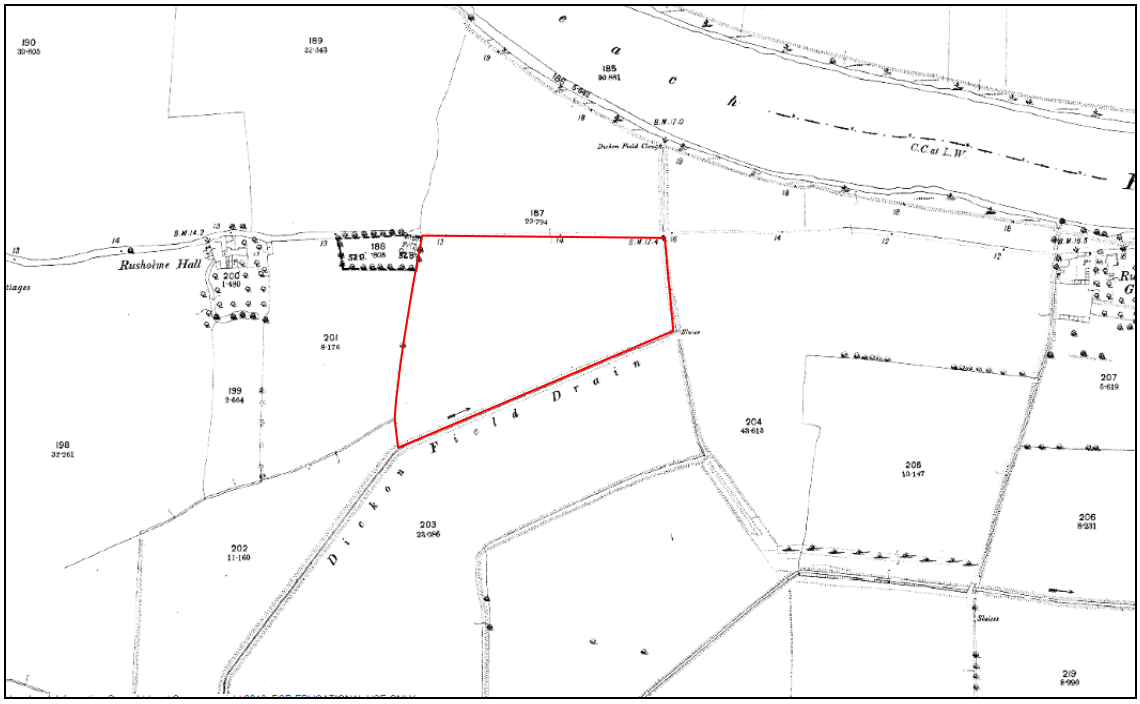

Plate 10: Extract from the Ordnance Survey 25": 1 mile map of 1890

3. Methodology

3.1 Excavation Methodology

Prior to the commencement of the evaluation trenching, the Client provided Salford Archaeology with service plans for the area, and the areas of trenching were scanned with a Cable Avoidance Tool. In total, 17 evaluation trenches were excavated using a *c* 20-ton mechanical excavator fitted with a toothless ditching bucket. Spoil was placed next to the excavated trenches, and was then backfilled on completion of the evaluation.

3.2 Recording Methodology

Separate contexts were recorded individually on Salford Archaeology *pro-forma* trench sheets. The trench was located and planned by total station theodolite using EDM tacheometry.

Photography of all relevant phases and features were undertaken in digital format using a digital SLR camera.

All fieldwork and recording of archaeological features, deposits and artefacts were carried out to acceptable archaeological standards. All archaeological works carried out by Salford Archaeology was carried out in accordance with the standards set out in the Code of Conduct of the Chartered Institute for Archaeologists (CIfA).

4. Evaluation Results

4.1 Introduction

In total, 17 trenches were excavated across the study area, providing a combined total sample of 1020m^2, equating to 2% of the site. Archaeological remains of interest were encountered in Trenches 3, 4, 6, 8, 10, 11, 12, 15, 16 and 17. Conversely, Trenches 1, 2, 5, 7, 9, 13 and 14 were devoid of any significant archaeological remains.

The features identified in the excavated trenches have been ascribed provisionally to one of three periods. This phasing is both broad and provisional and would be refined from further analytical work.

- Period 1: Prehistoric / Romano-British
- Period 2: Medieval/Post-medieval
- Period 3: Modern

4.2 Trench 1

Trench 1 was aligned north-east/south-west, and positioned in the south-west corner of the study area. It was excavated to a maximum depth of 0.85m.

A thick deposit of mid-orange-brown silty clay (***103***), clearly representing the natural geology, was observed at depths of 0.70–0.85 below ground level. This was overlain by firm, mid-orangey brown silty clay subsoil ***102***, which was 0.30m thick. The topsoil (***101***) lay to a depth of 0.40m, and comprised friable, dark greyish-brown silty clay.

No features of archaeological interest were encountered in the trench.

4.3 Trench 2

The simple stratigraphic sequence revealed in Trench 1 was replicated in Trench 2, which was aligned east/west, to the east of Trench 1 and parallel to the southern boundary of the site. It was excavated to a maximum depth of 1m.

A natural deposit of firm orangey silty clay (***203***), interspersed with grey patches, was identified at the base of the excavated trench, and excavated for a further 0.2m. It was overlain by firm light orange brown silty clay subsoil (***202***), which was 0.30m thick. This was sealed by a 0.42m thick layer of soft to friable dark brown silty clay topsoil (***201***).

No features of archaeological interest were encountered. The trench was crossed by a single ceramic land drain, which itself was intersected by a modern trench. This modern feature was clearly defined by its fill of aggregate. To avoid damage to any pipes, the trench was not excavated below this depth.

4.4 Trench 3

Trench 3 was aligned north-east/south-west and was located to the north of Trenches 1 and 2. It was excavated to a maximum depth of 0.7m, and a single ditch was identified and subject to sample excavation.

The natural geology (***303***) exposed at the base of the excavated trench, comprising firm, orange/bluish-grey silty clay, was similar in composition to that exposed in Trenches 1 and 2. This layer was reduced 0.10–0.15m, revealing similar homogenous deposits below.

The natural geology was cut be a single linear feature (***304***), which was aligned south-east/north-west, measuring 1.33m wide as it crossed the middle to the trench. Excavation revealed that it had a depth of 0.45m, with straight sloping sides and a flat base. The feature was filled with a firm to friable orangey brown silty clay with occasional charcoal and burnt clay inclusions. The fill was homogenous and hard to distinguish from the surrounding natural.

Feature ***304*** almost certainly represented a relict field boundary, to which it is difficult to ascribe a date with any degree of confidence in the absence of any datable evidence. However, its alignment deviated from that of existing field boundary features, hinting that it may be of some antiquity. Similarly, it appeared to be sealed by the firm, mid to light orangey brown silty clay subsoil (***302***). This agricultural soil was overlain by soft-friable dark brown silty clay topsoil (***301***), which had a maximum thickness of 0.25m.

4.5 Trench 4

Trench 4 was aligned north-north-west/south-south-east, and was placed to the north of Trench 1. The trench was excavated to a maximum depth of 0.95m (Plate 11). A single feature of archaeological interest, a potential trackway or palaeo-channel, was exposed in the middle of the trench.

A layer of firm, orangey brown, silty clay (***403***) was exposed at the base of the trench, clearly representing the natural geology. This was cut by a wide, flat-bottomed linear feature (***404***), which was identified and investigated in the middle of the trench. This feature was aligned north-west/south-east, and survived to a depth of 0.25m with a width that exceeded 1.4m (Plate 12). It had concave sides and with a gradual break of slope leading to a flat base. It was filled by firm mid-greyish-brown silty clay (***405***) with charcoal inclusions. There was a very clear horizon between the natural and the fill on the south-western edge of the feature. A single sherd of unglazed pottery was recovered from this fill. The form of the feature and homogeneity of the fill are suggestive this represented a palaeo-channel or trackway rather than a ditch.

Feature ***404*** was sealed by a thin layer of firm, mid to light orangey brown silty clay subsoil (***402***), which was overlain by soft-friable dark brown silty clay topsoil (***301***). This had a maximum thickness of 0.85m.

Plate 11: Trench 4, looking north

*Plate 12: Section excavated through feature **404**, looking south-east*

4.6 Trench 5

Trench 5 was aligned east/west in the middle part of the field, and was excavated to maximum depth of 0.72m (Plate 13). No features of archaeological features were encountered.

The natural geology (***503***) was exposed at a depth of 0.70m below current ground level, and consisted of a firm mid-greyish-brown silty clay. This was overlain by subsoil ***502***, comprising firm, orangey brown silty clay that was up to 0.30m thick. The topsoil (***501***) comprised soft, mid to dark brown silty clay, which was up to 0.32m thick.

Plate 13: Trench 5, looking south-east

4.7 Trench 6

Trench 6 was aligned east/west in the middle part of the site, and was excavated to a depth of 0.75m. A single feature, interpreted as a furrow, was investigated, but no other archaeological features were observed.

A sterile natural deposit of light orangey brown silty clay (***603***) was revealed at the base of the excavated trench. A probable furrow (***604***) was cut into the natural, aligned north/south across the trench, extending beyond the limits of excavation. The furrow was 1m wide and 0.09m deep, and was filled with an homogenous firm bluish-grey silty clay. Although this furrow could not be dated, it is likely to be of at least medieval date, of not earlier. The furrow was sealed beneath subsoil ***602***, comprising firm mid orangey brown silty clay, which was 0.35m thick. This was overlain by topsoil ***601***, consisting of soft mid to dark brown silty clay that was 0.35m deep.

4.8 Trench 7

Trench 7 was positioned in the south-east quarter of the field, 15m to the east of the high-pressure gas pipeline, and was excavated to a maximum depth of 0.73m. No features of archaeological features were present.

Natural firm light orangey brown silty clay (***703***) was exposed at the base of the trench; and was overcut by 0.16m. A sondage was excavated through the natural deposits of silty clay to ascertain its deposition. It was made up of lamenated layers of silty clay and was generally void of inclusions. This was suggestive of alluvial deposition. The sondage was excavated to a maximum depth 1.38m. This natural formation extended to a minimum depth of 0.73m.

The natural geology was overlain by firm mid-brown silty clay subsoil ***702***, and soft mid- to dark brown silty clay topsoil ***0701***.

4.9 Trench 8

Trench 8 was placed across the south-east corner of the study area, and was aligned north-east/south-west, parallel to the southern boundary of the field. This trench was excavated to a maximum depth of 0.70m, into the natural light to mid-orangey brown silty clay (Plate 14). Bluish-grey fissures were noted in the clay, hinting at gleying.

Two ephemeral features, potentially representing ancient furrows (***804*** and ***806***), were exposed in the north-eastern half of the trench, cut into the natural geology. Furrow ***804*** was broadly linear, with a rounded terminus; it had a shallow profile, and was greater than 0.10m deep with a relatively flat base. It appeared to be aligned broadly south-east/north-west, continuing beyond the edge of the excavated trench. Linear furrow ***0806*** was aligned north/south and was more easily defined. It was 1m wide and 0.1m deep, with near vertical sides and a flat base. Both furrows were filled with firm mid grayish-brown silty clay with occasional charcoal flecking. No artefacts of ecofacts were recovered from these features, although are likely to have derived from ancient agricultural practice.

A further feature was investigated at the south-western end of the trench. This had an oval shape in plan, measuring 0.39 x 0.16m. It was half-sectioned to reveal undercutting in the sides of the feature, extending into the natural geology. It was filled with friable silty clay with occasional angular stones. Its stratigraphic relationship with mid-orangey brown silty clay subsoil ***801*** was not entirely clear, but it appeared to cut the subsoil. The feature was interpreted as resulting from either faunal or floral turbation (animal burrowing or root action), and of probable post-medieval or more recent date.

Plate 14: Trench 8, looking south-west

4.10 Trench 9

Trench 9 was aligned north-east/south-west in the north-west quarter of the study area, and was excavated to a depth of 0.90m (Plate 15). A sondage through the natural at the north-eastern end extended to a depth of 1.35m (from the top to base of the trench). No features of archaeological interest were observed.

A natural deposit (***903***) of firm light orange silty clay with grey veining was exposed at the base of the trench. A sondage excavated to a depth of 1.35m at the eastern end of the trench confirmed the sterility of the natural deposits.

This was overlain by firm orangey brown silty clay subsoil ***0902***, which was 0.30m thick. The topsoil ***0901*** consisted of a soft to friable dark brown silty clay, which was deposited to a maximum thickness of 0.50m.

Plate 15: Trench 9, looking west

4.11 Trench 10

Trench 10 was placed to the east of Trench 9 and south of Trench 12, and was aligned east/west. It was excavated to a maximum depth of 1.24m. The natural geology (***1003***) consisted of a firm mid- to light orangey brown clay. More friable lamenated silt and silty clay deposits were exposed at depth beneath the upper layers of the natural (these were designated layer ***1004***).

The natural geology was cut by a single ditch feature (***1005***), which was linear in plan, aligned north/south across the trench for 3.20m. It had a maximum width of 2m and was 0.55m deep. It had an elongated concave profile. The ditch cut through naturally laminated silts and silty clays (***1003***/***1004***) and was filled with plastic reddish-grey silty clay ***1006***. The deposit was uniform and generally devoid of inclusions. Interestingly, the feature was cut by a horseshoe-shaped ceramic field drain ***1007*** housed in a narrow trench (Plate 16).

The feature was overcut during the machining by 0.18m; this was visible in the trench baulk. It was also clear that the uppermost part of the feature was filled with and blanketed by subsoil ***1002***. The position, alignment and character of this feature appear to correspond to a ditch terminus (***1204***) in Trench 12, and is likely to be of post-medieval or later origin.

Subsoil ***1002*** was up to 0.45m thick, consisting of a firm mid-orange brown silty clay, and was overlain by 0.60m of soft to friable mid brown silty clay topsoil ***1001***.

*Plate 16: Half-section through feature **1007**, showing section of in-situ field drain, looking south-west*

4.12 Trench 11

Trench 11 was aligned north/south in the north-western corner of the site area, and was excavated to a depth of 1.10m. A natural layer of firm light bluish-grey silty clay with reddish-brown veining (***1103***) was exposed at the base of the trench.

A shallow depression (***1104***) in the natural in the northern half of the trench appeared to represent an isolated incident of burning. A thin lens of charcoal and burnt clay was deposited in the depression. This deposit was spread across an area of approximately 1.75m and survived to a depth of 0.07m. No artefacts or ecofacts were recovered from this deposit.

Depression ***1104*** was filled with subsoil ***1102***, a 0.55m deep deposit of firm, mid-brown silty clay. This was overlain by dark brown silty clay topsoil ***1101*** that was 0.45m thick.

4.13 Trench 12

Trench 12 was placed to the east of Trench 11, aligned north-west/south-east, and was excavated to a depth of 1.15m (Plate 17). Two linear features of archaeological interest were identified cutting into the natural orange silty clay exposed at the base of the trench.

Linear feature ***1204***, which terminated in sub-circular depression, was cut into the natural geology in the north-eastern half of the trench. It had steep edges with a sharp break of slope, leading to a flat base (Plate 18). It had a maximum width of 2m and depth of 0.71m. The feature had a 0.40m deep primary fill (***1205***) of firm light mid-yellowish-grey silty clay, with occasional lenses of orange sand. This fill was sterile, devoid of archaeological material; infrequent, small angular sandstone inclusions were noted with occasional flecks of charcoal. The uppermost fill (***1206***) consisted of a plastic, mid to dark reddish-grey silty clay with orange mottling. Occasional flecks of charcoal and burnt clay fragments were observed within the fill; this fill was 0.30m thick. The uppermost western side of the feature was cut by a less substantial gully feature (***1207***), which had near vertical sides and a tapered base. It was 0.40m wide and 0.28m and filled by ***1208***, a sterile friable mid-grey silty clay. No artefacts or ecofacts were recovered from this feature. The stratigraphic position of this feature and corresponding ditch ***1005*** in Trench 10.

Another ditch feature (***1209***), measuring 3.50m wide and 0.72m deep, was revealed close to the western end of the trench. It had shallow sloping sides and a flat base. The feature was filled by a single fill of brownish-grey clay, with occasional inclusions of charcoal and small mollusc shells. This feature yielded a small sample of animal bone and four sherds of pottery to which a late 13th or 14th-century date may be ascribed. The western side of the feature was cut by a later field drain.

The subsoil (***1202***) consisted of a firm mid-orangey brown silty clay and was 0.26–0.30m deep. This was sealed by 0.46–0.60m thickness of friable dark brown silty clay topsoil ***1201***.

Plate 17: Trench 12, looking north-east

*Plate 18: Section excavated across feature **1209**, looking north*

4.14 Trench 13

Trench 13 was aligned east/west in the northern part of the site, to the east of the high-pressure gas pipeline, and was excavated to a maximum depth of 0.90m. No archaeological features were encountered.

The trench was excavated to the depth of a natural layer of firm, mid-bluish grey silty clay. This was overlain by firm mid-orange brown silty clay subsoil ***1302***, which was 0.41m thick but thinned out to 0.20m at the eastern end of the trench. Topsoil ***1301*** was 0.35m deep and comprised soft to friable mid-brown silty clay.

4.15 Trench 14

Trench 14 was aligned north-east/south-west, and lay to the east of Trench 13. It was excavated to a depth of 0.80m. The trench was devoid of archaeological features.

The natural (***1403***) consisted of firm mid brown silty clay with bluish-grey veining. This was overlain by firm mid-orange-brown silty clay subsoil ***1402*** that was 0.25m thick, and sealed by 0.45m of mid-brown silty clay topsoil ***1401***.

4.16 Trench 15

Trench 15 was aligned north/south in the north-east corner of the study area, and was excavated to a maximum depth of 0.70m. Evidence for historic agricultural practices was revealed in the trench.

Natural geology ***1503*** comprised firm light bluish-grey/orangey brown silty clay and was exposed across the trench. This was cut by several linear features, including furrows, ditches and gullies. A shallow ditch (***1504***) was recorded in the northern half of the trench. This lay amidst a series of east/west-aligned furrows. The ditch was 0.90m wide and 0.18m deep with shallow sloping sides and a flat base, and extended beyond the limits of excavation to the east and the west (Plate 19). The fill (***1506***) was a firm mid-brown silty clay with occasional charcoal flecking. No artefacts or ecofacts were recovered.

A shallow gully (***1507***) ran diagonally across the trench. This was 0.30m wide and had a maximum depth of 0.06m. It was filled by ***1508***, a firm mid-reddish-brown clayey silt. This feature could not be ascribed a firm date with any degree of confidence, although it is likely to be medieval or post-medieval in date. Gully ***1507*** was cut by a modern ceramic field drain running east/west. The narrow trench housing the field drain had near vertical sides.

The subsoil (***1502***) was comprised firm mid-brown silty clay, and was 0.25m thick. This was sealed by 0.45m of soft dark brown silty clay topsoil (***1501***).

*Plate 19: Section excavated across feature **1504**, and unexcavated furrows looking north*

4.17 Trench 16

Trench 16 was placed south-east of Trench 17 in the eastern half of the site area. The trench was aligned north-east/south-west, and was excavated to a maximum depth of 0.70m (Plate 20).

The natural geology (***1603***) exposed at the base of the trench consisted of firm light orangey brown silty clay interspersed with grey patches. Two ephemeral linear features were cut into the natural geology. The wider of these features (***1604/1606***) probably represented a furrow derived from past agricultural activity. It had shallow concave sides leading to a flat base, and was filled with a friable deposit of sandy silt, with occasional flecks of charcoal and burnt clay.

This furrow truncated a narrower gully feature (***1608***), which was aligned north-west/south-east, was 0.32m wide and had a maximum depth of 0.06m. It had a concave profile and was filled with friable mid-orange brown silty sand. The feature extended beyond the limit of excavation and was truncated at its western end by ***1604/1606***. It is not possible to date this feature closely, although it was stratigraphically earlier than ***1604/1606***.

No artefacts or ecofacts were recovered from these features, which were sealed by mid-orangey brown silty clay subsoil ***1602***. This was overlain by soft to friable dark silty clay topsoil ***1601***, which was 0.45m thick.

Plate 20: Trench 16, looking south-west

4.18 Trench 17

Trench 17 was aligned east/west to the south of Trench 13, and was excavated to a maximum depth of 0.92m. No features of archaeological interest were observed.

The natural geology (***1703***) consisted of a series of alluvial deposits. The uppermost 0.15m was firm light bluish-grey silty clay. A sondage through the natural revealed up to 2m of firm mid- to light reddish-brown silty clay. Below this were further soft laminated silt deposits, bluish-grey in colour with moderate organic inclusions and pockets of peaty soil. The sondage was excavated to a depth of 3.2m below ground level.

The natural clay was overlain by subsoil ***1702***, a firm mid-orange brown silty clay that was 0.15m deep. This was overlain by friable dark brown silty clay topsoil ***1701***.

5. Finds

5.1 Introduction

The entirety of the small finds assemblage from the evaluation was recovered from Trenches 4 and 10, and comprised four fragments of glazed medieval ceramic vessels, a single sherd of unglazed and pottery (Plate 16), two small and unidentified fragments of animal bone and a small fragment of coal. Other common material classes, such as clay tobacco pipes, metalwork and glass, were absent.

In general terms, the artefacts were in good condition, comprising reasonably-sized sherds with little indication of abrasion, suggesting that they had not been subject to a significant level post-depositional disturbance.

5.2 The Pottery

Eight fragments of stratified pottery were recovered from evaluation, including a single sherd that was excavated from the putative trackway or palaeo-channel in Trench 4. This comprised an unglazed vessel body sherd, with a coarse sandy black fabric of likely Iron Age or Romano-British date.

*Plate 21: Pottery fragment retrieved from the fill (**405**) of feature **404**, Trench 4*

The other seven sherds of pottery from the evaluation were recovered from ditch ***1209*** (Trench 12). Four of the fragments from ditch ***1209*** comprised part of a wheel-turned vessel, probably a small drinking vessel, with a fine, light orange fabric and a green-brown lead glaze (Plate 22). It bares similarities to Brandsby-type ware and Beverley ware, produced in villages north of Yorkshire and resembles a finer York Green-Glazed ware (Jennings 1992). These fragments are likely to have a date range spanning the later 13th and early 14th centuries. Two smaller fragments of unglazed pottery are similarly of a probable medieval date. Two small fragments of bone and a small fragment of coal were also recovered from this context.

*Plate 26: Pottery recovered from the fill (**1210**) of feature **1209**, Trench 12*

6. Discussion

6.1 Discussion

Many of the features encountered during the course of the evaluation were absent of finds or datable evidence. Their stratigraphic position below the subsoil, however, implies that they pre-date the on-set of modern farming. The recovery of a pottery dated provisionally to the Iron Age / Romano-British periods, albeit limited to a single sherd, testifies to early human activity on the site.

A small group of these undated features were interpreted as furrows (Trenches 6, 8 and 15). Based on the prevalence of ridge and furrow farming in the medieval/post-medieval period, these features can be tentatively ascribed to this period.

Two ephemeral gullies were also encountered in the eastern part of the site. The absence of modern material within the fills of the features and their stratigraphic position imply these predate modern agricultural activity. In Trench 16, gully ***1608*** was cut by furrow ***1604/1606***. Given the close alignment of the two features, it is possible that the two features are broadly contemporary and of medieval date.

Three undated ditches were investigated in Trenches 3, 10 and 12. These were absent of finds and filled with firm silty clay deposits, generally devoid of inclusions. It has been suggested these relate to former field boundaries or drainage ditches and, as such, clearly deviate from the extant field pattern. The absence of finds / dating evidence, however, makes it difficult to ascribe these features to a specific phase of activity.

6.2 Medieval / Post-medieval Activity

Trenches 3, 4, 6, 8, 12, 15, and 16 yielded evidence of linear features, which do not conform to the alignment or typology of the existing boundaries (dykes and ditches) visible on the ground or on mid-19th-century to modern mapping. This was inherently clear when the survey was overlaid to modern and historic mapping, suggesting that this group of features is of some antiquity.

These features were also notable in their difference in size and shape when compared to the extant post-medieval and modern dykes visible around the study area. The threat of flooding in the 18th and 19th centuries resulted in the construction of a suite of water management features; these stand out from the excavated linear features, which are less substantial. Earlier ditches and dykes are expected to have been smaller yet more frequent.

Given that the sequence of historic mapping from 1853 to the present day reflects continuity in the division of the landscape, it should be understood that archaeological features are suggestive of the survival of pre-19th century field divisions. The recovery of medieval ceramics from one of these features supports this interpretation. This is further backed up by the depositional activity on-site.

The features were filled with firm silty clay deposits, which were devoid of inclusions and finds; these are likely to derive from silting as a result of intentional or incidental flooding. They could represent field divisions masked by flood events and later agriculture. It is likely then that most if not all of these features were medieval or post-medieval in date. The recovery of and 13th- / 14th-century green-glazed pottery in ***1209*** strongly supports this interpretation. Many of the shallow linear features can likely be ascribed to ridge and furrow.

6.3 Later Activity

A modern drainage trench was exposed in Trench 2. This ran broadly north/south across the trench and was backfilled with gravel. The ground around this feature was not reduced to avoid impacting any intact drains.

Ceramic land drains were exposed within the subsoil and natural in all the trenches. These were silted up and evidently redundant ranging in date from the 19th to 20th century. These nevertheless post-date many of the other investigated features, as established in Trenches 10, 12 and 15.

7. Impact

7.1 Impact

The archaeological evaluation has demonstrated that a range of buried remains survive *in-situ* at a relatively shallow depth beneath the modern ground surface. Development is likely to impact on these remains, resulting in their damage or complete loss. In the light of the high local, and potential regional significance of the archaeological resource, it is appropriate to implement a strategy to offset the harm of development by compiling a detailed archaeological record of the buried remains that survive across the site.

7.2 Research Potential

The surviving buried remains have the potential to address a range of the initiatives for archaeological research of the medieval and post-medieval periods stated in the current *Research Agenda* (Roskams and Wynham 2007), and summarised in the aims and objectives of this report.

7.2.1 Medieval/Post-medieval

Two features have provisionally been ascribed to the medieval period on the basis of their typology, stratigraphy and inclusion of ceramics within their fills. These features are all negative, *ie* they are cut into the ground, and likely relate to past occupational or agricultural/pastoral activity.

Further excavation and study of these remains offers potential to address broad issues that were raised in the aims and objectives. This generally relates to rural landscape exploitation and the transitional period from the late medieval to post-medieval which was characterised by large-scale drainage works.

Sources

Cartographic Sources

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Archive and Acknowledgements

Archive

The archive is currently held by Salford Archaeology. The digital archive consists of survey drawings, digital photographs, and electronic data. As part of the archiving process, the on-line OASIS (On-line Access to Index of Archaeological Investigations) form has been completed.

A copy of this report will be forwarded to the client and deposited with the North Yorkshire Historic Environment Record (HER).

Acknowledgements

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The on-site works were carried out by Oliver Cook, who was assisted by Andrew Radford and Katie Harvey. The report was compiled by Oliver Cook; the illustrations were produced by Richard Ker and Andrew Radford. This report was edited by Ian Miller, who was also responsible for project management.

Appendix 1: Figures

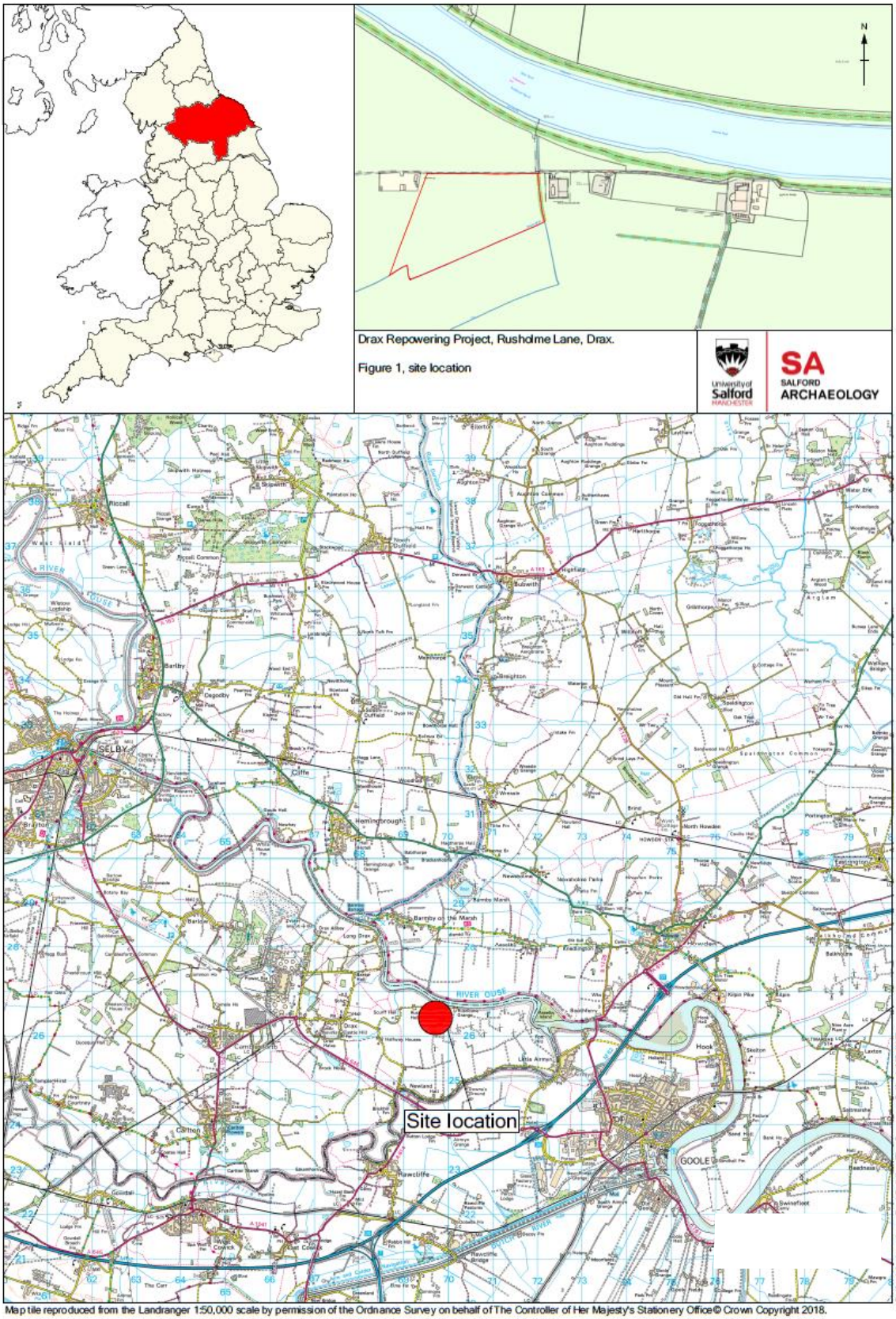

Figure 1: Site location

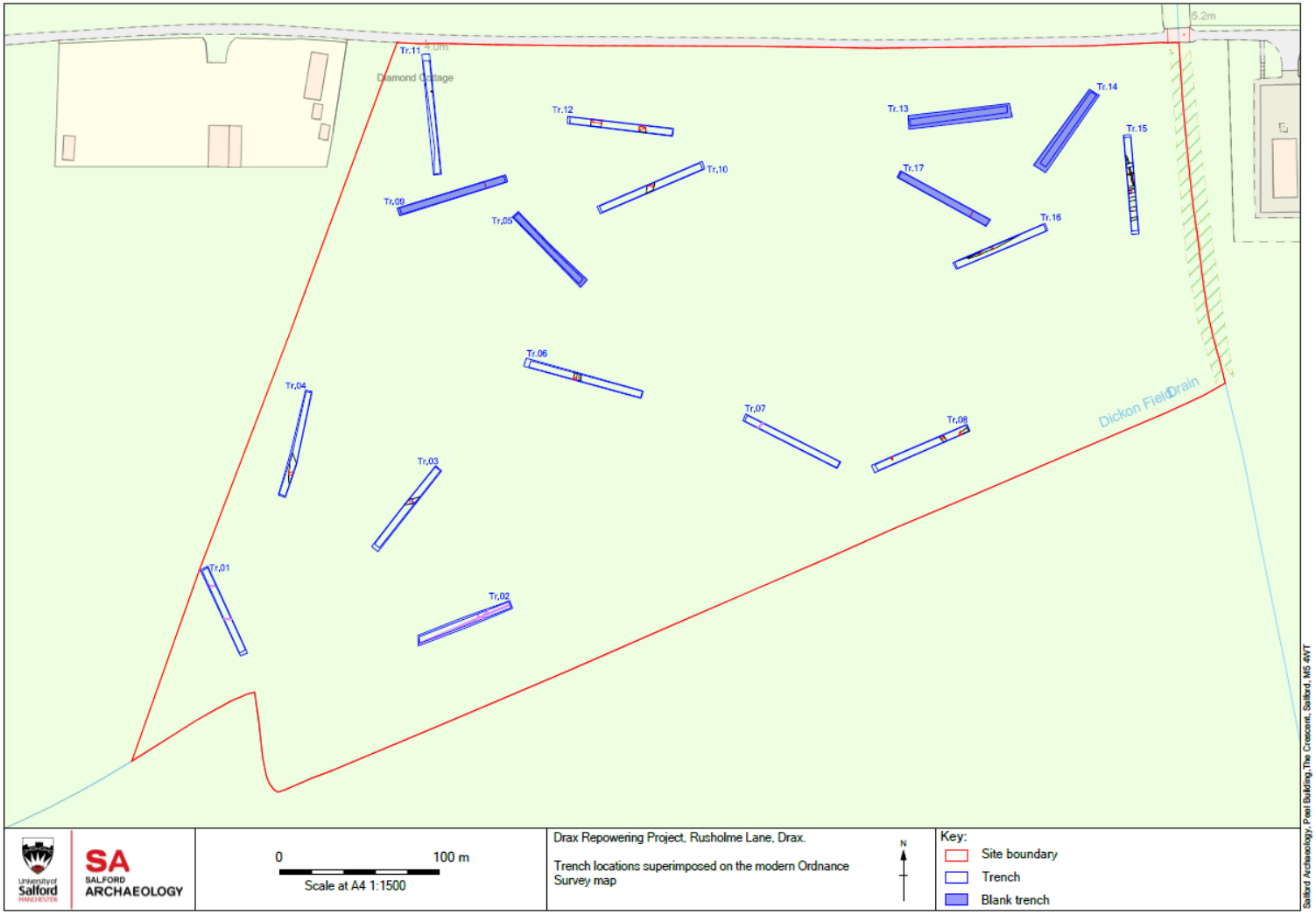

Figure 2: Location of the excavated trenches

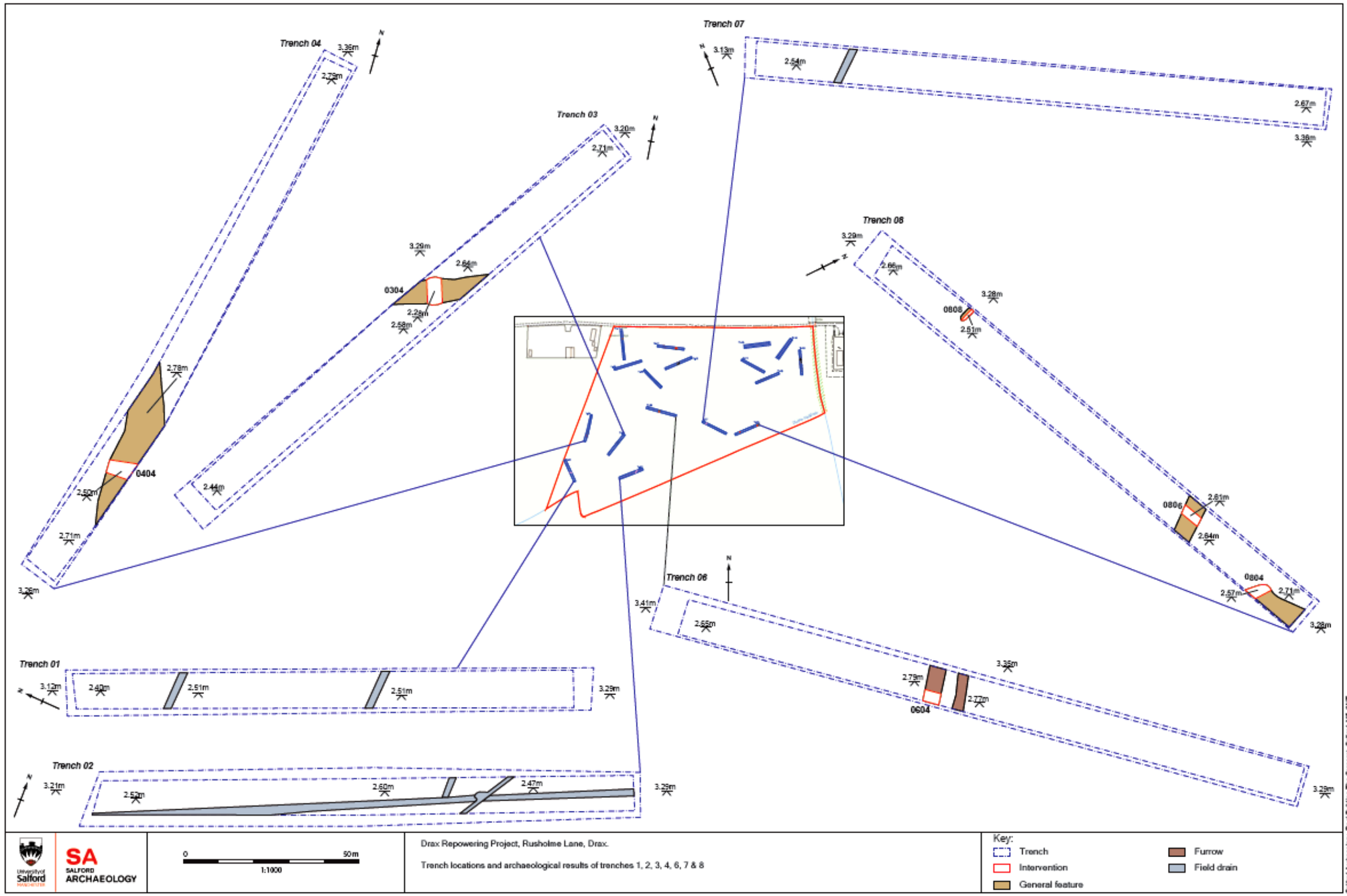

Figure 3: Plans of Trenches 1, 2, 3, 4, 6, 7 and 8

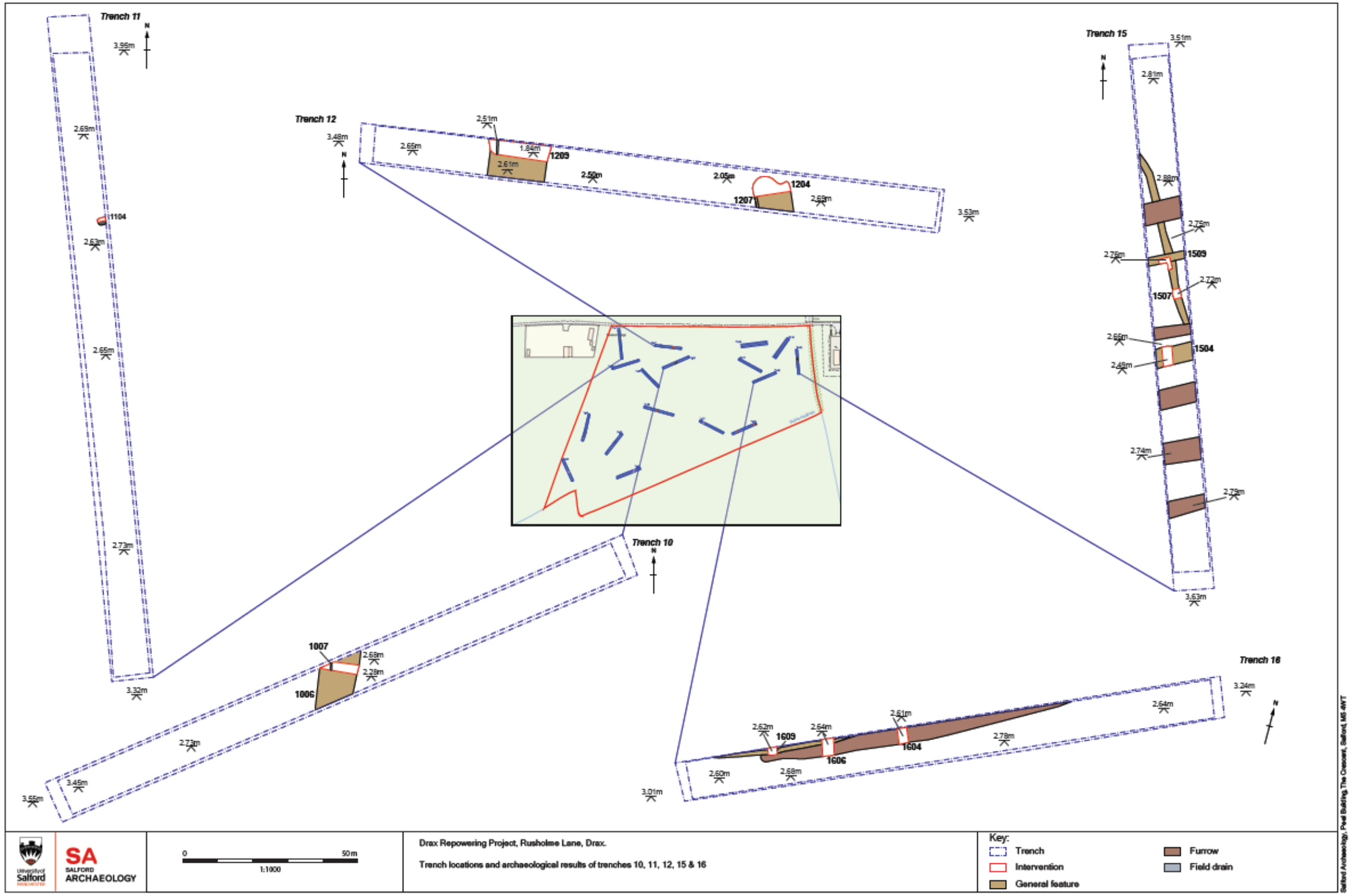

Figure 4: Plans of Trenches 10, 11, 12, 15 and 16

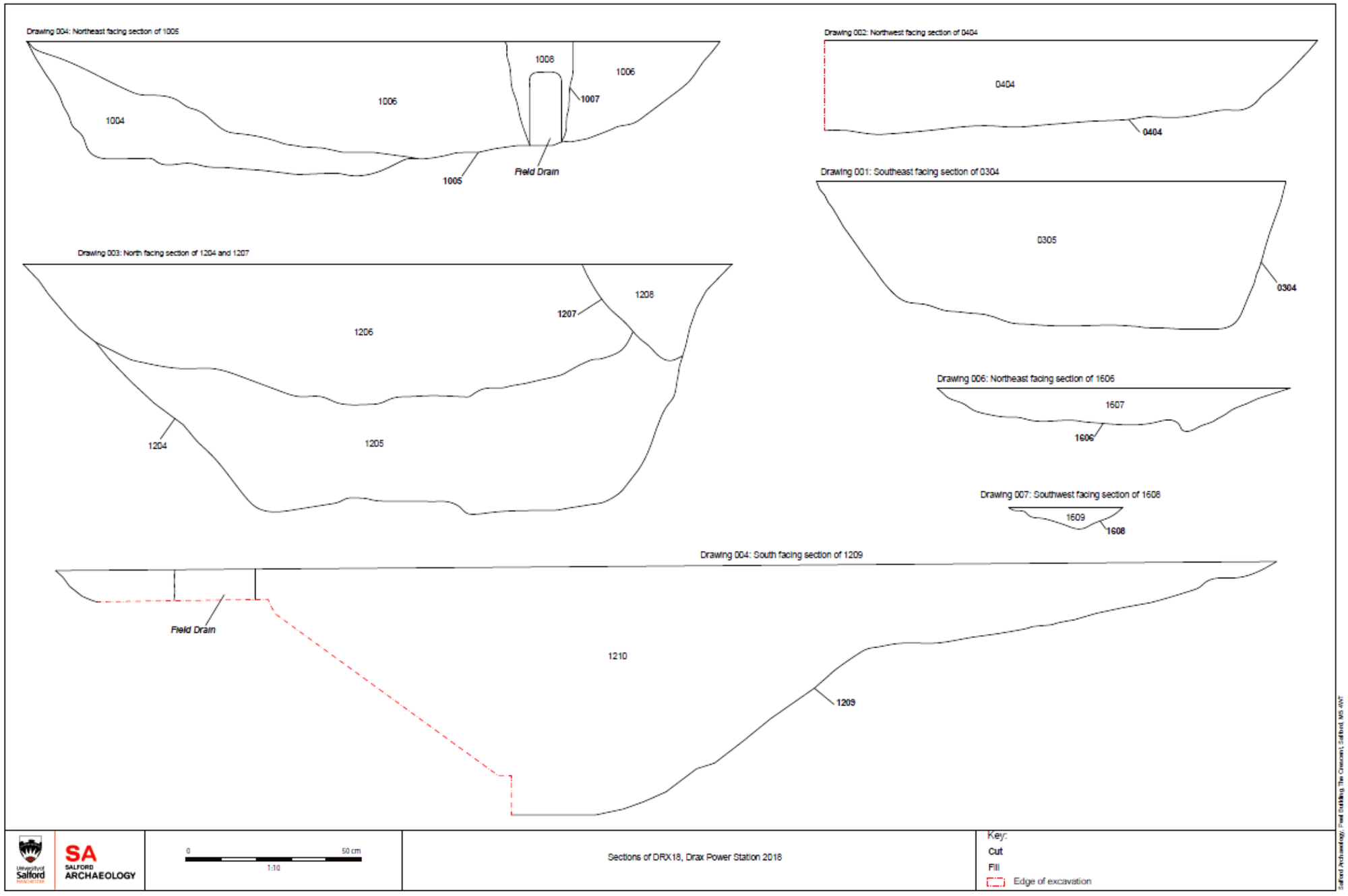

Figure 5: Selection of excavated sections

Appendix 2: Written Scheme of Investigation

Land at Drax Power Station,
Selby,
North Yorkshire

Written Scheme of Investigation for an Archaeological Evaluation

Introduction

1.1 Circumstances of the Project

1.1.1 Drax Power Ltd is devising proposals for the conversion of up to two coal-fired units of the existing Drax Power station to combined cycle gas turbine units. This scheme would require a new gas pipeline of approximately 3km, together with a range of associated development, which will necessitate earth-moving works across a tract of agricultural land adjacent to the power station. In order to inform a Development Consent Order for this national infrastructure project, Drax Power Ltd has commissioned a programme of archaeological works to establish the potential of the proposed development to impact on any below-ground remains of archaeological interest that may survive across the site.

1.1.2 Desk-based studies undertaken by WSP UK Ltd on behalf of Drax Power Ltd as part of an Environmental Impact Assessment for the proposed scheme concluded that there was potential for important buried remains of both the Iron Age / Romano-British and Medieval Periods to be present within the site and the wider area. In order to investigate this potential further, WSP UK Ltd commissioned a programme of geophysical survey. This investigated a combined area in excess of 100ha, divided into 21 survey areas, and identified the presence of two small archaeological complexes made up of enclosures, one of which included ring ditches and associated settlement features (Sumo 2018). Based on the layout of the enclosures, the features are thought to represent part of an Iron Age / Romano-British settlement, an interpretation that aligns with the physical remains excavated along the route of the Asselby to Aberford pipeline in 2007-08.

1.1.3 In the light of the results obtained from the geophysical survey, and following consultation with the Principal Archaeologist for North Yorkshire Council, it was recommended that a programme of intrusive archaeological investigation via evaluation trenching is merited. This is intended to confirm the presence of archaeological remains, and establish their extent, date and significance to enable an appropriate strategy to offset the harm of development on the archaeological resource. It was further recommended that the scope of the archaeological evaluation allowed for a 2% sample of the specified area, in accordance with standard professional practice. The specified area comprises a single field to the south of the River Ouse, with a total area of approximately 48,450m^2, excluding the footprint of a drain across the centre of the field.

1.1.4 This Written Scheme of Investigation (WSI) for the recommended programme of evaluation trenching has been prepared by Ian Miller, Assistant Director of Salford Archaeology at the Centre for Applied Archaeology (CfAA) within the University of Salford on behalf of WSP UK Ltd. In the event of significant archaeological remains being revealed in the trenches, it may be anticipated that a further stage of detailed excavation will be required, which will be carried out in accordance with an updated WSI.

1.1.5 All proposed works will be compliant with existing heritage management documents, specifically the Chartered Institute for Archaeologist's (CIfA's) *Standards and Guidance for Archaeological Evaluation* (CIfA 2014), Historic England's *Management of Research Projects in the Historic Environment* (*MoRPHE*) (EH 2006) and *Management of Archaeological Projects* (*MAP 2,* EH 1991). Archiving will follow the guidelines prepared by the Museums and Galleries Commission (1992), the United Kingdom Institute for Conservation (Walker 1990) and the Archaeological Archives Forum (2007).

1.2 Archaeological Background

1.2.1 Several archaeological investigations have been undertaken in the immediate vicinity of the proposed development area. Of particular relevance is a transect immediately to the east of the present study area that was subject to archaeological investigation in 2007-08 as part of the Asselby to Aberford Pipeline project. This yielded clear evidence for human occupation that spanned the Late Iron Age to early Romano-British periods, represented by a possible enclosure, ditches, pits and postholes, and fragments of a beehive quern. In addition, the former course of the River Aire, located to the south of the present study site, extended around Hawday Lane and into the River Ouse, and it was suggested that this may have been utilised by Romano-British communities as a navigable channel, raising the possibility for a former landing stage along Hawday Lane (OA North 2010).

1.3 Salford Archaeology

1.3.1 Salford Archaeology is the commercial wing of the Centre for Applied Archaeology within the University of Salford, and is acknowledged as one of the leading archaeological and heritage practice in the north of England. As a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), Salford Archaeology is dedicated to maintaining and promoting the highest professional, academic, commercial and ethical standards and to the provision of access to archaeology for all. It has both an established reputation and a philosophical imperative in the pursuit of efficient and cost-effective fieldwork, post-excavation excellence, and high-quality publication and outreach. Whilst we pride ourselves on the professional nature and high standards of the service we provide, and our ability to meet and maintain budgets and schedules, we view ourselves as vocational archaeologists interested in the pursuit of knowledge for its own sake.

1.4 Purpose of the Document

1.4.1 An Archaeological Written Scheme of Investigation (WSI) is a comprehensive document detailing the requirements and methodological approaches of a programme of archaeological works. It is defined by Historic England as:

1.4.2 'Where development will lead to the loss of a material part of the significance of a heritage asset, policy HE12.3 [of PPS5, now paragraph 141 of the NPPF] requires local planning authorities to ensure that developers take advantage of the opportunity to advance our understanding of the past before the asset or the relevant part is irretrievably lost. As this is the only opportunity to do this it is important that:

1: Any investigation is carried out to professional standards and to an appropriate level of detail proportionate to the assets likely significance, by an organisation or individual with appropriate expertise;

2. The resultant records, artefacts and samples are analysed and, where necessary, conserved;

3: The understanding gained is made publically available;

4: An archive is created, and deposited for future research.'

2. Aims and Objectives

2.1 Academic Aims

2.2 The main aim of the evaluation trenching in the first instance will be to establish the presence or absence of any buried remains of archaeological interest within the proposed development area and, if present, characterise the level of preservation and significance, and provide a good understanding of their potential. This will be achieved via the excavation of 17 evaluation trenches, placed in the locations shown in Figure 1.

2.3 It is anticipated that the results obtained from the evaluation will enable a decision to be reached as to whether any further archaeological investigation is merited in advance of development. This approach to devising proposals to offset the impact of development on the archaeological resource of the development area is in accordance with national guidelines set out in the National Planning Policy Framework: Section 12 – *Conserving and enhancing the historic environment.*

2.2 Objectives

2.2.1 The principal objectives of the archaeological investigation are:

- to record, as far as is reasonably possible, the location, extent, condition, significance and quality of any surviving archaeological remains observed;
- to advance understanding of Roman-British occupation and land-use in the area;
- to advance understanding of Medieval occupation and land-use in the area;
- to carry out a programme of post-excavation assessment;
- to provide sufficient information to enable an informed decision to be made about the need for any additional archaeological mitigation; and
- to prepare a project archive for long-term deposition and make available the results of the work.

2.2.2 In addition, relevant research priorities stated in the current Yorkshire Archaeological Research Framework should be borne in mind throughout the course of the archaeological works, particularly those for the Iron Age and Roman-British periods:

- 'There are all too few attempts to examine [Iron Age] habitation sites in relation to the evidence of landscape enclosure and to the more general development of the agricultural and pastoral economies' (Roskams and Whyman 2007, 28);
- '…need to fill important gaps in the database for this period, notably in the not-so-obviously 'Romanised' parts of its settlement systems, and to increase the quality of that data' (*op cit*, 31).

3. Method Statement

3.1 Evaluation Trenches

3.1.1 The specified site will be investigated initially via the excavation of 17 evaluation trenches, each measuring 30 x 1.9m, to provide a total sample of 969m^2, equivalent to 2% of the specified area. Prior to the commencement of any excavation works, the precise location of the trenches will be laid out with respect to the Ordnance Survey national grid. The position of the trenches will then be scanned for any live services using a cable avoidance tool, and will be scanned regularly as work progresses.

3.1.2 In the event of significant archaeological remains being discovered in the trenches, it is likely that further investigation will be required. Any such additional works will be carried out in accordance with an Updated Written Scheme of Investigation, which will be devised in consultation with the Principal Archaeologist for North Yorkshire Council.

3.2 General Methodology

3.2.1 All archaeological work shall be conducted following the CIfA Standards and Guidance for archaeological field evaluation. Prior to the commencement of any excavation works, the location of the trenches targeted for archaeological investigation will be laid out accurately with respect to the Ordnance Survey national grid. The position of the areas will then be scanned for any live services using a cable avoidance tool. The excavations will be scanned regularly as work progresses.

3.2.2 Excavation of the modern ground surface will be undertaken by a tracked machine of appropriate power using a toothless ditching bucket, operated by an appropriately qualified driver. Mechanical excavation will continue under close and constant archaeological supervision to the top of the first significant archaeological level. Thereafter, archaeological remains will be cleaned manually to define their extent, nature, form and, where possible, date. If the excavation is to proceed below a depth of 1.2m, then the trenches will be widened to allow the sides to be stepped in.

3.2.3 Pits and postholes will be subject to a 50% by volume controlled stratigraphic excavation. Linear cut features, such as ditches and gullies, will be subject to up to a maximum of 25% by volume controlled stratigraphic excavation, with the excavation concentrating on any terminals and intersections with other features which would provide important stratigraphic information. Linear features with a uniform fill will be subject to 10% excavation.

3.2.4 Extensive linear deposits or homogeneous spreads of material will be sample excavated by hand to a maximum of 10-20% by volume (the size of the sample to be agreed following consultation with the Principal Archaeologist for North Yorkshire Council). If features/deposits are revealed which need to be removed and which are suitable for machine excavation, such as large-scale dump deposits or substantial linear cut features, then they would be sample excavated to confirm their homogeneity before being removed by machine.

3.2.5 *Context Recording:* all information identified in the course of the site works will be recorded stratigraphically, and details will be incorporated into a Harris matrix. Results of the evaluation will be recorded on *pro-forma* context sheets, and will be accompanied with sufficient pictorial record (plans, sections and high-resolution digital photographs) to identify and illustrate individual features.

3.2.6 *Photography:* a full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using high-resolution digital cameras, and all frames will include a visible, graduated metric scale.

3.2.7 *Planning:* the precise location of the evaluation trenches will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process will generate scaled plans within AutoCAD, which will then be subject to manual survey enhancement. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required. Sections will be manually drafted as appropriate at a scale of 1:10. All information will be tied in to Ordnance Datum.

3.2.8 *Human remains:* human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ* covered and protected. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately.

3.2.9 *Finds policy:* finds recovery and sampling programmes will be in accordance with best practice (current CIfA guidelines) and subject to expert advice. The University of Salford employs artefact and palaeo-ecology specialists with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation.

3.2.10 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of the overburden unless significant deposits, for example pottery waster dumps, are encountered. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site. It is not anticipated that ecofacts will be collected during this procedure.

3.2.11 Otherwise artefacts and ecofacts will be collected and handled as per specification. All material will be collected and identified by stratigraphic unit. Hand collection by stratigraphic unit will be the principal method of collection. The location of findspots for objects deemed to be of potential significance to the understanding, interpretation and dating of individual features, or of the site as a whole, will be recorded in 3-D. This may include, for instance, material recovered from datable Romano-British pit groups.

3.2.12 Finds will be processed and administered at regular intervals. All finds will be washed, dried, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such case guidance will be sought from Salford Archaeology's consultant conservator, Karen Barker.

3.2.13 Human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ* covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the *Burials Act 1857*.

3.2.14 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

3.2.15 *Environmental Sampling:* environmental samples will be collected from any suitable deposits encountered during the excavation of the evaluation trenches with the aim of identifying any residual palynological evidence or potential dating evidence. The samples should be collected in line with the Historic England guidelines, appropriating 30 – 40 litres per sample, and sampled in as close to sterile conditions as feasible in external areas.

3.3 Health and Safety

3.3.1 Full regard will be given to all constraints during the course of the project, and all relevant Health and Safety legislation, CDM, COSHH regulations and codes of practice will be respected. The University of Salford provides a Health and Safety Statement for all projects and maintains a Safety Policy. Salford Archaeology is advised on its Health and Safety matters by the University of Salford, who provide ongoing advice on health and safety matters to all departments in the organisation. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Federation of Archaeological Employers and Managers (FAME), and in accordance with current legislation, including:

- The Health and Safety at Work Act (1974);
- Management of Health and Safety at Work Regulations (1999);
- The Construction (Design and Management) Regulations (2015);
- The Control of Asbestos Regulations (2006);
- Construction (Health, Safety and Welfare) Regulations (1996);
- The Health and Safety (Miscellaneous Amendments) Regulations (2002);
- The Control of Substances Hazardous to Health Regulations (2002);
- The Health and Safety (First-Aid) Regulations (1981);
- The Regulatory Reform (Fire Safety) Order (2005).

3.3.2 A risk assessment and method statement will be produced and submitted to the Client prior to the commencement of any on-site archaeological works. All Salford Archaeology staff associated with the excavation will be given a copy of the method statement and the risk assessment prior to the beginning of the works and will be required to read both documents.

3.3.3 Salford Archaeology undertakes to safeguard, so far as is reasonably practicable, the health, safety and welfare of its staff and of others who may be affected by our work.

3.3.4 ***Personal Protective Equipment (PPE):*** all staff will wear PPE at appropriate times dictated as by the Senior Archaeologist on site. All Salford Archaeology staff are supplied with the following PPE:

- Safety Helmets (EN397);
- Ear Defenders (EN 352-3);
- Safety spectacles (EN166);
- Goggles (Chemical BSEN 166 Type 3);
- Dust masks plain and valved (EN149 2001);
- Disposable overalls (Type 5/6 disposable EN340);
- Hi-visibility vests (EN471);
- Gloves Nitrile and latex disposable, PVC, EN374;
- Heavy-duty nitron rubber gloves (EN420, 388);
- Safety footwear - steel toecap and mid-sole boots and Wellingtons EN345-47.

3.3.5 Any other PPE required by the Client must be provided or funded by them.

3.4 Other Matters

3.4.1 *Project Monitoring:* the aims of monitoring are to ensure that the archaeological works are undertaken within the limits set by the agreed Written Scheme of Investigation, and to the satisfaction of the local planning authority. The works will be monitored on behalf of the Client by the WSP representative, who will liaise with the Principal Archaeologist for North Yorkshire County Council.

3.4.2 It is anticipated that there will be weekly progress meetings to view the trenches prior to backfilling.

3.4.3 *Access:* reasonable access to the site will be granted to representatives of the relevant archaeological curatorial body, who may wish to be satisfied, through site inspection, that the scope and practice of the archaeological works are being conducted according to professional standards and in accordance with any agreements made.

3.4.4 *Working Hours:* normal working hours are variable between 7.30 am and 6.00 pm, Monday to Friday. It is not normal practice for the Salford Archaeology staff to be asked to work weekends or bank holidays, and should the Client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.

3.4.5 *Insurance:* the University of Salford has professional indemnity to a value of £50,000,000, employer's liability cover to a value of £50,000,000 and public liability to a value of £50,000,000. Written details of insurance cover can be provided if required.

3.4.6 *Contingencies:* if there are more complex or generally deeper deposits than can be anticipated from the evidence available, there may need to be a corresponding increase in costs, which will be subject to agreement with the WSP UK Ltd and the Principal Archaeologist for North Yorkshire. In particular, the discovery of significant waterlogged remains may require a contingency sum to cover conservation costs.

4. Report and Archive

4.1 Report

4.1.1 A draft copy of a final report will be submitted for comment to WSP within four working weeks of the completion of the fieldwork. This will present the results obtained from the archaeological evaluation, and will include:

- a summary statement of the findings;
- the background to the investigation, including location details;
- an outline of the methodology of the evaluation trenching;
- a description of the site's setting;
- an overview of the documented historical and archaeological background to the site;
- a summary, assessment, and interpretation of the results of the evaluation trenching;
- detailed plans of the excavated trenches, showing the archaeological features exposed;
- interpretation of the archaeological features exposed and their context within the surrounding landscape;
- appropriate photographs of specific archaeological features;
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms;
- recommendations for further archaeological investigation;
- a catalogue of archive items, including a list of photographs, and details of the final deposition of the project archive.

4.2 Archive

4.2.1 The results of the archaeological investigation will form the basis of a full archive to professional standards and current CIfA guidelines updated 2014. The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the CIfA in that organisation's code of conduct. As part of the archiving process, the on-line OASIS (On-line Access to Index of Archaeological Investigations) form will be completed.

4.2.2 The site archive will be so organised as to be compatible with the other archaeological archives produced in the Selby area. All drawn records will be transferred to and stored in digital format, in systems which are easily accessible. The integrity of the site archive will be maintained upon completion of the archaeological works).

4.2.3 The archaeological archive will consist of the following:

- All original records created throughout the course of the project;
- All original drawings, whether created during fieldwork or post-investigation;
- Indexes to the drawings;
- Indexes to the photographic archive;
- All born digital material;
- Digital material created from written, drawn or photographed original records;
- The final project report;
- A list of contents of the archive.

4.2.4 It is likely that a large element of the project archive will be in digital format. It would thus be appropriate to deposit a copy of the archive generated from the archaeological investigation with the Archaeological Data Service (ADS), through ADS-Easy. Any records that are created in hard copy during the course of the project will be scanned and added to this digital archive.

4.2.5 *Dissemination:* as a minimum, the information will be disseminated through the deposition of the archive at an appropriate museum, and a final report at the North Yorkshire Historic Environment Record. In the event of significant remains being encountered, however, a higher level of dissemination may be required.

5. Timetable

5.1 It is anticipated that the 17 trenches placed across the targeted area can be opened, recorded and backfilled within a two-week timeframe.

5.2 A full draft report will be submitted to WSP for comment within four weeks of completion of the fieldwork.

6. Staffing Proposals

6.1 The project will be under the overall charge of **Ian Miller BA FSA** (Assistant Director, Salford Archaeology) to whom all correspondence should be addressed. Ian has over 29 years' experience of commercial archaeology, and has been responsible for the successful delivery of countless archaeological evaluations across the north of England, and has considerable experience of Roman archaeology. In 1999, he was responsible for excavating a long section across the frontier fortifications at Appletree in Cumbria for presentation at the decennial Wall Pilgrimage. He has also directed excavations in Roman forts at Birdoswald, Kirkham, Binchester and Burgh-by-Sands, and civilian settlement sites in Chester, Carlisle, Lancaster, Walton-le-Dale, Wigan, Middlewich and Manchester.

6.2 His role will be to ensure that the agreed Written Scheme of Investigation is implemented within the framework of the Project Objectives. He will be responsible for all aspects of staff and resource logistics, ensuring the smooth running of the project programme. He will liaise with WSP with regard to progress, attend weekly site meetings and maintain relationships with other contractors.

6.3 **Oliver Cook BA** (Project Supervisor, Salford Archaeology) will fulfil the role of Site Director, taking responsibility for the day-to-day running of the evaluation. Oliver has considerable experience of archaeological evaluations, including a recent programme of evaluation of an Iron Age / Romano-British site occupying a green-field area at Horspath, near Oxford.

6.4 It is not possible at this stage to provide details of all the archaeologists who will be involved with the fieldwork, although all will be suitably qualified and have the relevant experience to ensure the rapid completion of the trenching works. It is anticipated that up to four archaeologists will be engaged to assist Oliver in the fieldwork element of the project.

7. References

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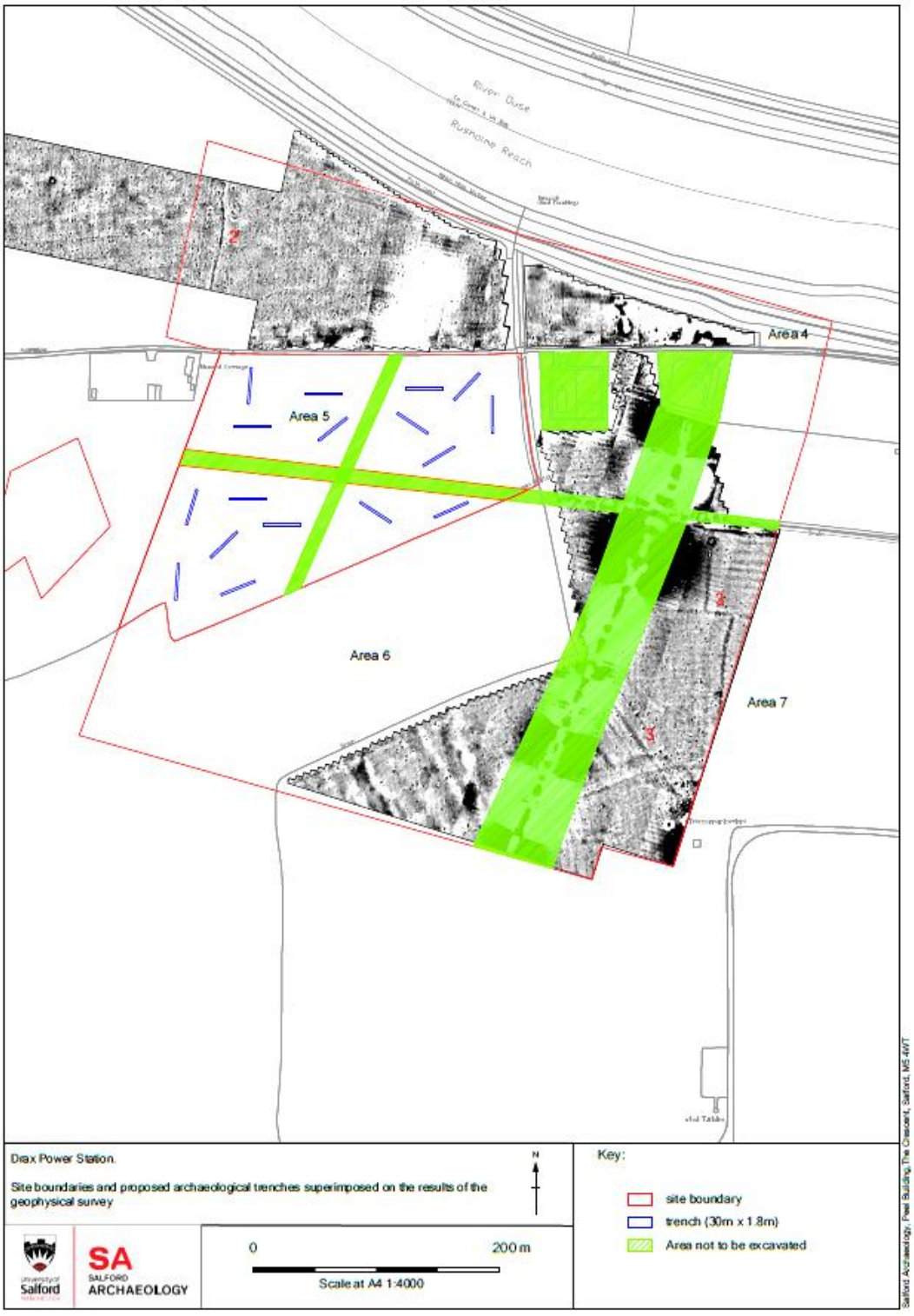

Figure 1: Trench location plan superimposed on the geophysical survey plot

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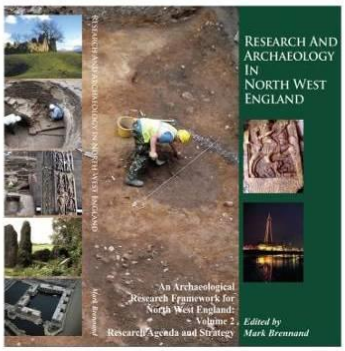
University of Salford MANCHESTER

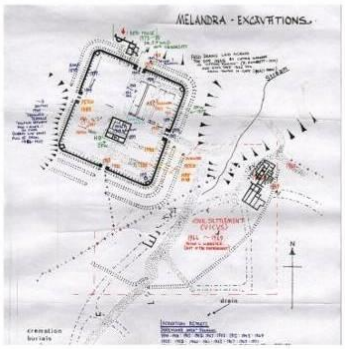
The Centre for Applied Archaeology

REGISTERED ORGANISATION CIfA

CONSULTANCY



DESK BASED ASSESMENTS

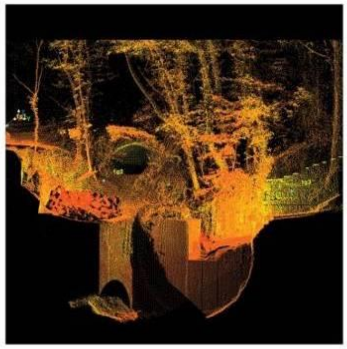


WATCHING BRIEF & EVALUATION

EXCAVATION

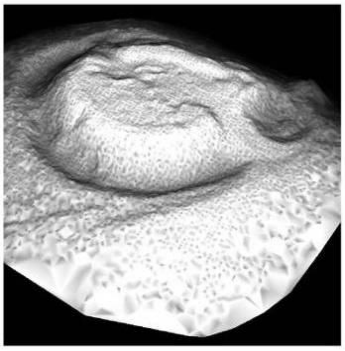
BUILDING SURVEY

3D LASER SCANNING



COMMUNITY INVOLVEMENT

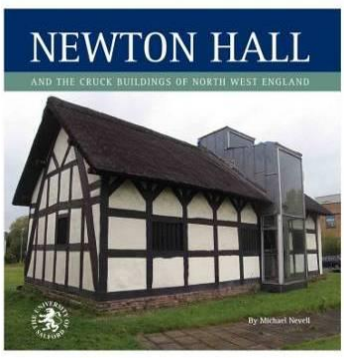
LANDSCAPE SURVEYS



GEOPHYSICAL SURVEYS

WORKSHOPS & VOCATIONAL TRAINING

RESEARCH PUBLICATIONS



SEMINARS, DAYSCHOOLS CPD EVENTS

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