



WYAS
**Archaeological
Services**

Leeds Flood Alleviation Scheme 2
Zone 13a, Kirkstall Meadows
West Yorkshire
Archaeological Evaluation

Report no. 3457
August 2020

Client: Network Archaeology and BAM Nuttall Ltd



Leeds Flood Alleviation Scheme 2

Zone 13a, Kirkstall Meadows

West Yorkshire

Archaeological Evaluation

Summary

A trial trench evaluation was undertaken by ASWYAS on land at Kirkstall Meadows, Leeds, West Yorkshire, between the 7th and 13th of July 2020, as part of the wider Leeds Flood Alleviation Scheme 2 project. A total of seven trenches were excavated to establish the presence and extent of any archaeological deposits or features within the development site. A single ditch feature was recorded and interpreted as a late 19th-century trackway drainage ditch. Made ground deposits were also encountered and were determined to have been associated with levelling of part of the site for rugby fields, in use by the early 21st century.

Report Information

Client: Network Archaeology
Address: 15 Beaumont Fee, Lincoln, LN1 1UH
Report Type: Archaeological Evaluation
Location: Kirkstall Meadows, Leeds
County: West Yorkshire
Grid Reference: SE 25845 35954
Period(s) of activity represented: Post-medieval
Report Number: 3457
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Planning Application No.: 18/07367/FU
Museum Accession No.: tbc
Date of fieldwork: 07/07/2020 to 13/07/2020
Date of report: August 2020
Project Management: Kevin Moon
Fieldwork supervisor: John Hirst
Fieldwork: Alana-Rae Davis-Hirst
Report: Kevin Moon and Liz Govier
Illustrations: Kevin Moon
Photography: ASWYAS Staff
Specialists: Zoe Horn
Diane Alldritt

Authorisation for
distribution: _____



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Document Issue Record

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1 Introduction

Archaeological Services WYAS (ASWYAS) was commissioned by Prospect Archaeology on behalf of Network Archaeology and BAM Nuttall Ltd to undertake the excavation of seven archaeological evaluation trenches at Kirkstall Meadows, Leeds, West Yorkshire as part of the wider Leeds Flood Alleviation Scheme 2 project. The trenches were investigated between the 7th and 13th of July 2020. The work was undertaken in accordance with the National Planning Policy Framework (NPPF) and a Written Scheme of Investigation (WSI) written by Mott MacDonald (Appendix 1) and a Method Statement written by ASWYAS (Appendix 2), both approved by David Hunter of the West Yorkshire Archaeological Advisory Service (WYAAS).

Site location and topography and land-use

The site comprises Zone 13a (Kirkstall Bridge to Kirkstall Forge: Kirkstall Meadows) of the Phase 2 works and is centred at NGR SE 25845 35954 (Fig. 1). It is a large area of open grassland (formerly rugby pitches) located to the north of Kirkstall Bridge, between the river Aire to the east and Leeds and Bradford railway line to the west. Agricultural land and the Leeds Liverpool Canal are located to the west of the railway line. On the upstream end of Kirkstall Abbey lies Kirkstall Forge development site (Fig. 2).

The ground within the site is generally level, situated at a height of around 35m above Ordnance Datum (aOD).

Soils and geology

The bedrock geology is part of the Pennine Lower Coal Measures Formation – Mudstone, Siltstone and Sandstone. These are overlain by superficial alluvium deposits which are fluvial in origin, reflecting the channels, floodplains and levees of a river. These are normally silty clay but can also contain layers of silt, sand, peat and basal gravel. Boreholes at the northern tip of Kirkstall Meadows recorded 0.50m of sand which overlaid 0.50m of mixed shale and clay sealing the natural gravels (Burn 2020).

2 Archaeological and Historical Background

In 1711 the land at Kirkstall meadows belonged to the Earl of Cardigan and was mostly covered in forest. It is unclear prior to the 18th century what the historic use of the site was; farmland, iron-working or a water meadow. These imply active ownership and management of the land by the monks of the nearby abbey. 20th-century literature indicates the outer precinct was associated with meadows and pastures which would account for the name “Kirkstall Meadow”. Nonetheless, in the 1870s this area was used to grow rhubarb which later became famous in 1877 as the largest rhubarb growing area in the north. Notably rhubarb requires a lot of moisture and well drained soils. Cartographic evidence indicates the area was unused and unsuitable for development and the low-lying topography suggests the area was prone to flooding favouring conditions for rhubarb growing.

18th-century paintings of the abbey generally show the area as open pasture with some depictions as open pasture grazed by cattle. The 1824 painting “Kirkstall Abbey, on the River Aire” by William Turner shows the landscape as pastoral with grazing cattle within a meadow, there are sufficient pools of water and other wet ground in the background indicating more of a wetland. Landscapes such as these were a phenomenon of medieval and post-medieval agriculture, which encouraged inundation of water into areas during the winter months. This allowed an early growth of grass in spring for livestock. Usually around May the livestock were removed and the meadows irrigated again so that a large crop could be undertaken in June. The two main forms of irrigation systems included both catchwork and bedwork systems.

3 Aims and Objectives

The aim of the archaeological investigation was to ascertain the presence or absence of archaeological remains and to characterise (nature, date, complexity and extent) any deposits that may be present within the trenches. The specific aims of fieldwork was to ascertain the presence or absence of archaeological remains on Kirkstall Meadows and to identify and confirm the historic use of the area.

The objective of the work was to monitor the removal of top and subsoil horizons and assess the resultant areas for their archaeological potential. Any remains were then subject to archaeological excavation. Recovered artefacts were subject to analysis and environmental data were sampled.

4 Methodology

The work involved the excavation of seven trenches, two measuring 50m by 2m and five measuring 30m by 2m. The trenches were positioned to mitigate against the proposed groundworks on with site (Fig. 2).

All work was undertaken in accordance with accepted professional standards and guidelines (Historic England 2008; CIfA 2020a and 2020b), in accordance with the ASWYAS site recording manual (ASWYAS 2020) and in compliance with the Specification (Appendix 1) and Method Statement (Appendix 2).

All trenches were set out and the limits resurveyed using a Trimble VRS differential GPS accurate to +/-0.01m. The trenches were opened in a controlled manner using a 360 excavator using a flat-bladed ditching bucket under direct archaeological supervision. All topsoil deposits were removed in level spits (not more than 0.20m) with the topsoil and subsoil being separated to allow for re-instating in reverse order. Machining stopped at the first archaeological horizon or natural deposits, whichever was encountered first. All excavations of archaeological deposits were undertaken manually with the stripped surface being cleaned and investigated for archaeological remains.

An appropriate sample was excavated through all archaeological features with at least a 20% sample through linear features (with a minimum sample of 1m) and a 50% sample through discrete features. These were undertaken to investigate the full depth, profile and fills, where possible, and to recover dating evidence from the fills. All excavated sections were, where possible, located adjacent to the trench edge in order to provide a full stratigraphic sequence.

Spoil heaps were scanned for both ferrous and non-ferrous metal artefacts using either a Minelab X-Terra 50 and Minelab X-Terra 705 metal detector fitted with a 9inch 7.5kHz Coil, capable of discriminating between ferrous and non-ferrous material and were operated by an experienced metal detector user. Modern artefacts were noted but not retained.

A soil sampling programme was undertaken consisting of bulk soil samples for the identification of plant macro-fossils, small animal bones and other small artefacts. All samples were taken from appropriate archaeological deposits, in accordance with the WSI and Historic England guidelines.

All archaeological features were accurately recorded in plan at a scale of 1:20 or 1:50. Feature sections were drawn at a scale of 1:10 or 1:20. All plans and sections include spot heights that relate to Ordnance Datum in metres.

A full written, drawn and photographic record was made of all archaeological work undertaken. An inventory of the primary archive is presented in Appendix 2 and ASWYAS currently hold the site archive in a stable and secure location.

5 Results

Below is a description of each trench, a concordance of contexts yielding artefacts or environmental remains is presented in Appendix 4 and tables displaying the depths and widths of each context along with a brief description are shown in Appendix 5.

All features were sealed by a soft, dark black-brown clayey-sand topsoil and a firm, mid-brown silty-sand subsoil. The underlying geology comprised light brown-yellow firm clay with small sub-angular limestone inclusions.

Trench 1 (Fig. 3)

Trench 1 contained two deposits of redeposited natural (104 and 105), one at each end of the trench, approximately 26m apart. Deposit 104 measured 7.25m wide and 0.85m deep and was overlain by an 8.00m wide deposit of made ground (103; Plate 1) below the topsoil. Deposit 105 measured 6.50m wide and 0.82m deep and was overlain by just the topsoil. The deposits are likely to be the results of ground levelling

Trench 2 (Fig. 3)

Trench 2 also contained two deposits of made ground at either end (203 and 204; Plate 2). Deposit 203 measured 7.60m wide and 1.05m deep. It contained ash and clinker inclusions

mixed with ceramic building material (CBM). Deposit 204 measured 7.60m wide and 0.95m deep and comprised a mid-brown silty sand.

Trenches 3, 4 and 5

Trenches 3 (Plate 3), 4 (Plate 4) and 5 were devoid of archaeological remains.

Trench 6 (Fig. 4)

Trench 6 (Plate 5) contained a single ditch (603) on a north-east to south-west alignment. It measured 1.30m wide and 0.38m deep (Fig. 4, S. 1 and S. 2; Plate 6) and contained a single mid-brown sandy clay fill with occasional charcoal inclusions throughout.

Trench 7

Trench 7 contained alluvial deposits (701 and 702) at the south-east and north-west ends of the trench. It comprised a dark blue-grey clay. No archaeological remains were present.

6 Artefact Record

Pottery by Zoe Horn

A small assemblage of twelve sherds was recovered from two contexts.

A rim sherd and three body sherds from a wheel-thrown redware bowl or pancheon were retrieved from the topsoil (200) of Trench 2. The vessel fragments has no visible glaze although the internal surfaces of the body sherds appear to be soot stained. Also from the topsoil (200) were two body sherds from a wheel thrown bowl which has light yellow glaze to its internal surfaces. A small fragment of a floor tile was also retrieved from the topsoil (200), it has a hard mid-orange fabric with sparse angular quartz inclusions, and a clear glaze.

Two rim sherds and two body sherds were recovered from the subsoil (501) of Trench 5. The sherds formed a wheel thrown brown, tan and cream marbled slipware plate or bowl, the rim sherds have a pie crust edge, and have a clear glaze to the internal surfaces. A single cream coloured sherd with a raised spotty design was also found within the subsoil (501). The sherds date between the 1730 and 1780 and may be from the Staffordshire Potteries or perhaps were more locally made. An excavation in 2010 uncovered a production site for these types of wares at Lazencroft Farm, five miles east of Leeds.

Clay tobacco pipe Zoe Horn

An unmarked fragment of clay pipe stem, was recovered from the topsoil (200) of Trench 2 and dates between 1720 and 1750.

Ceramic building material Zoe Horn

Two fragments of red brick were retrieved from the subsoil (501) of Trench 5. The fabric of the fragments is hard and has an irregular fracture and sandy feel, with inclusions of common lime up to 5mm in size, common rounded quartz and occasional coal.

Three fragments of salt glazed drainage pipe and a fragment of terracotta field drain were also recovered from the subsoil in Trench 5 (501).

7 Environmental Record

Environmental sample by Diane Alldritt

A single soil sample was examined for carbonised plant macrofossils and charcoal. The bulk environmental sample (from fill 604 of ditch 603) was processed by ASWYAS using a Siraf style water flotation system (French 1971). The flot was dried before examination under a low power binocular microscope typically at x10 magnification.

The flot contained modern rootlets and small fragments of cinder-like material but no recognisable plant remains or charcoal fragments were noted. No charred material was recovered from the retent portion either. The retent has already been discarded, and the flot is recommended for discard also.

Animal bone by Jane Richardson

A horse humerus was recovered from topsoil 701 of Trench 7. It represents a large, adult animal. This bone, in isolation, is not significant and can be discarded.

8 Discussion and Conclusions

Historic mapping indicates that by the time of the 1892 25-inch Ordnance Survey (OS) map two large buildings and three long glasshouse had been constructed towards the centre of the site. It seems likely, considering the site conditions were considered to be favourable for rhubarb growing, that the two buildings were forcing sheds, a common feature within fields during this period within the Rhubarb Triangle. A trackway is shown extending from the south-west boundary of site towards the weir to the north-east, it is on the south side of this trackway that ditch 603 appears to align, indicating that the ditch was likely established for drainage along the track, giving it a probable late 19th-century date. The site is annotated as “Market Gardens” on the 1934 25-inch OS map and the sheds and glasshouses have been demolished by this time, correlating to the decline of rhubarb production in the area. The ditch is still depicted extending halfway from the south-west boundary of site on the 1934 map. The ditch is not depicted on the 1954 OS map indicating that it was backfilled by this time, the fill of the feature demonstrated that it was filled in a single event rather than gradual seasonal silting. It is possible a single flooding event caused this, but this was not clear.

Late 20th-century mapping annotates the site as “Abbey Gardens”, and the site was used as rugby fields by the early 21st century. The made ground deposits encountered within Trenches 1 and 2 likely relate to the levelling of the site in preparation for the rugby fields.

Considering the limited presence of archaeological features and deposits, represented by a single post-medieval trackway drainage ditch and modern made ground deposits, potential

for other archaeological deposits and/or features to be encountered at the development site is considered to be negligible.

Appendix 1: Written Scheme of Investigation

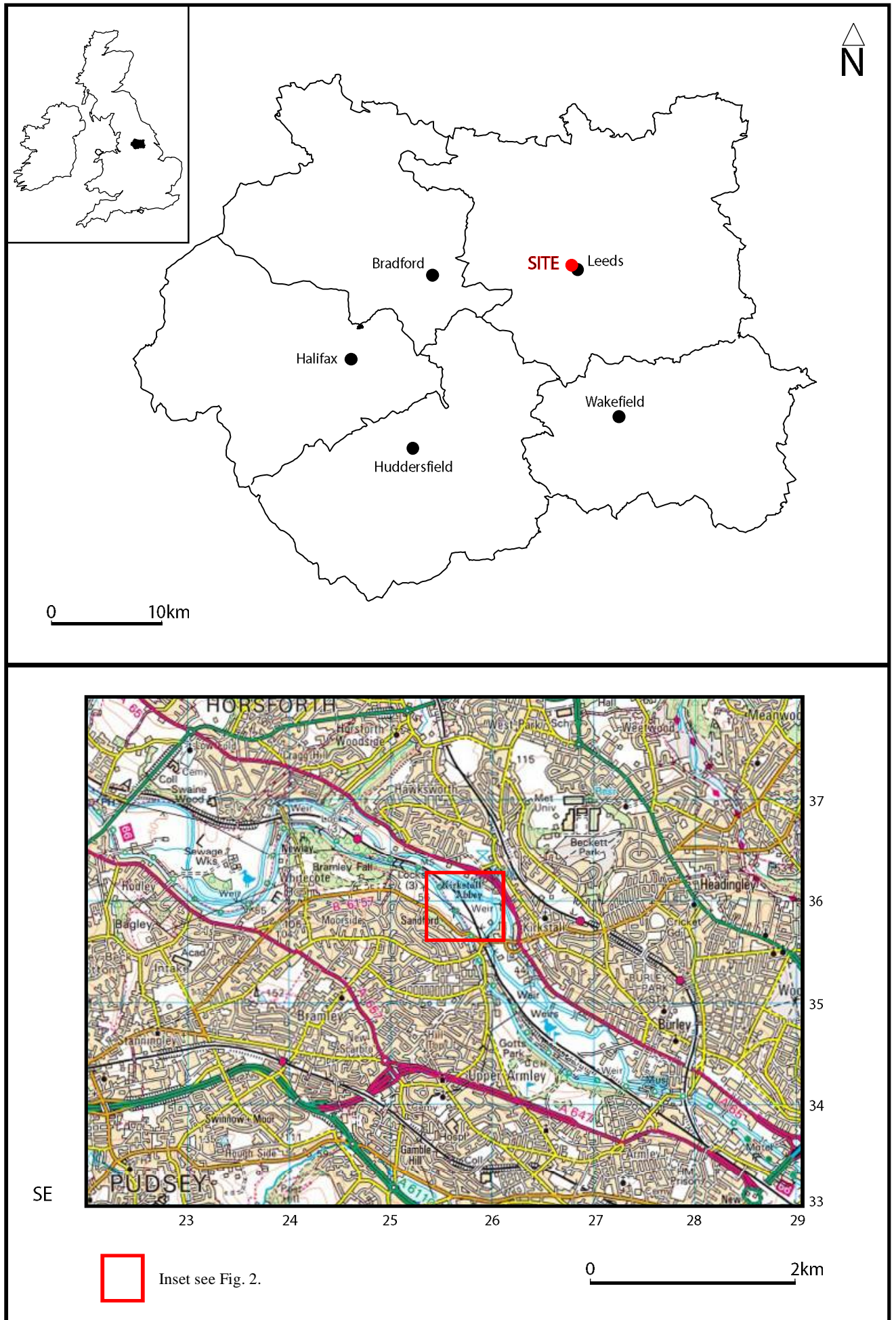
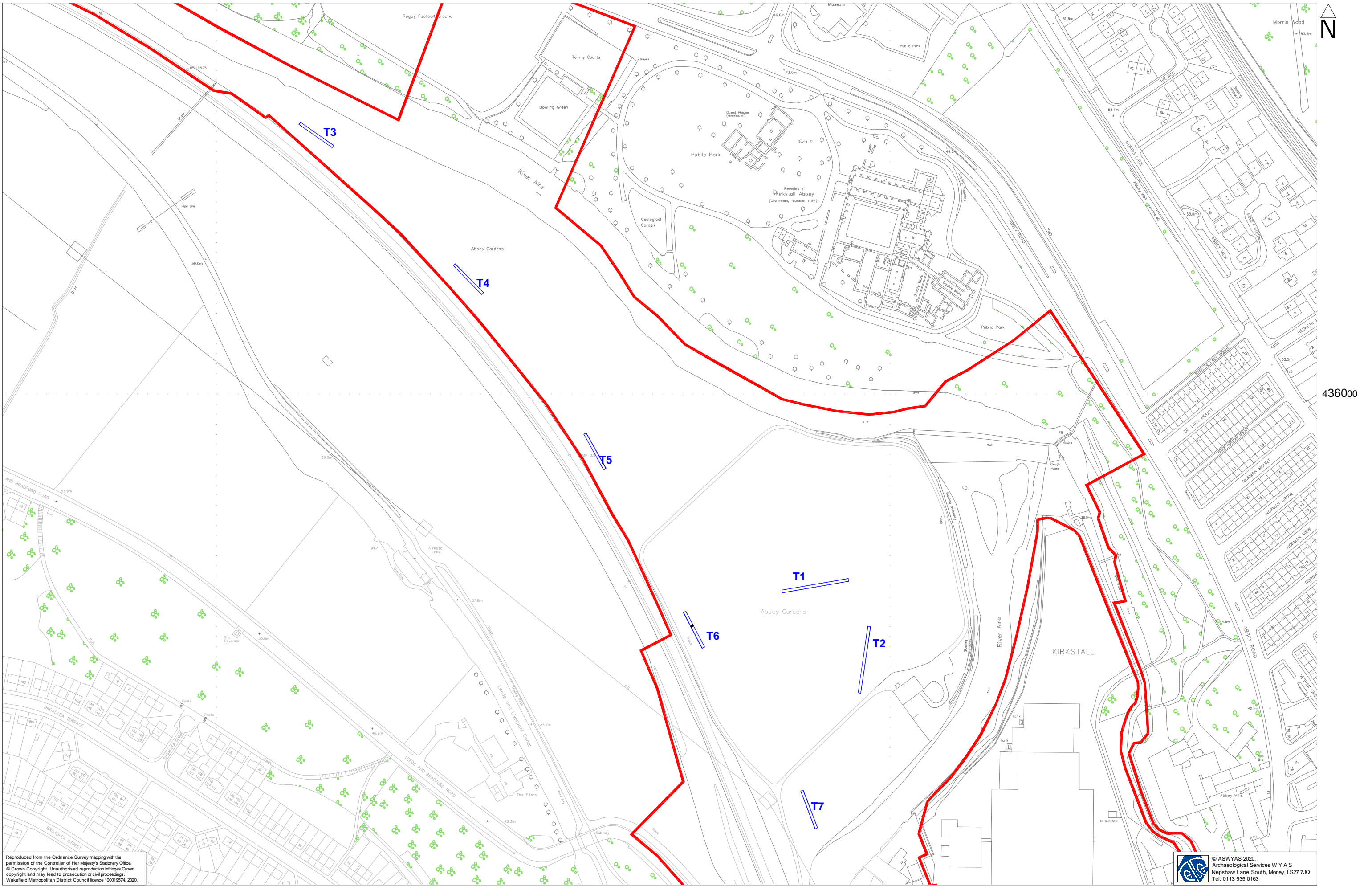


Fig. 1. Site location

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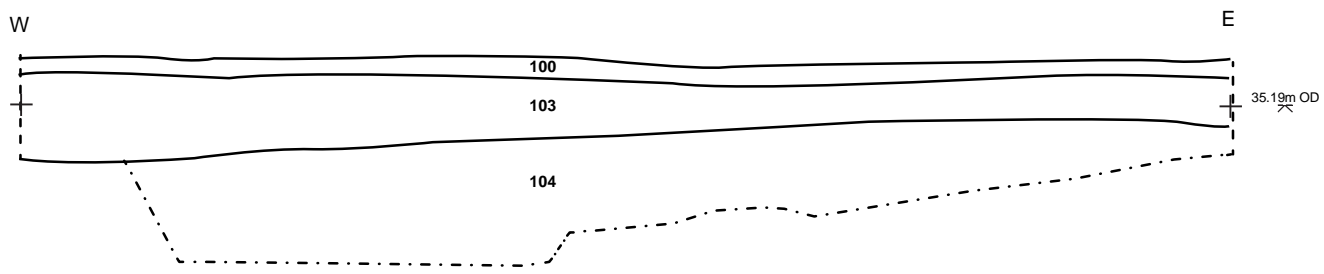
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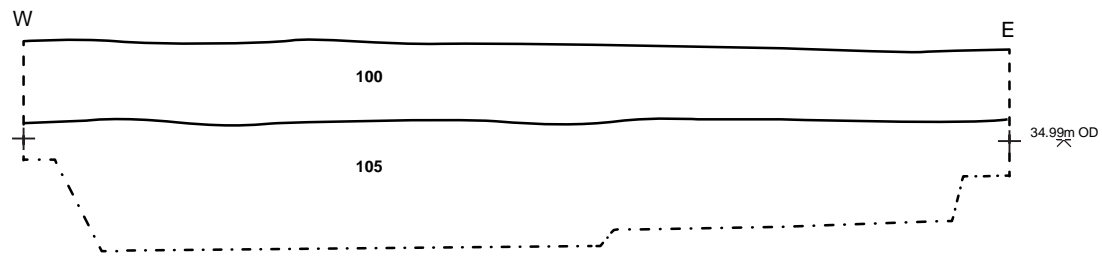
0 100m

Fig. 2. Site plan (1:2500 @ A3)

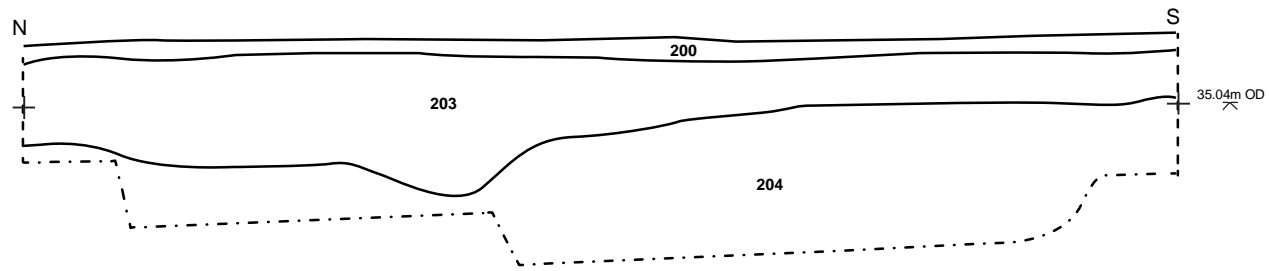
S. 3



S. 4



S. 5



S. 6

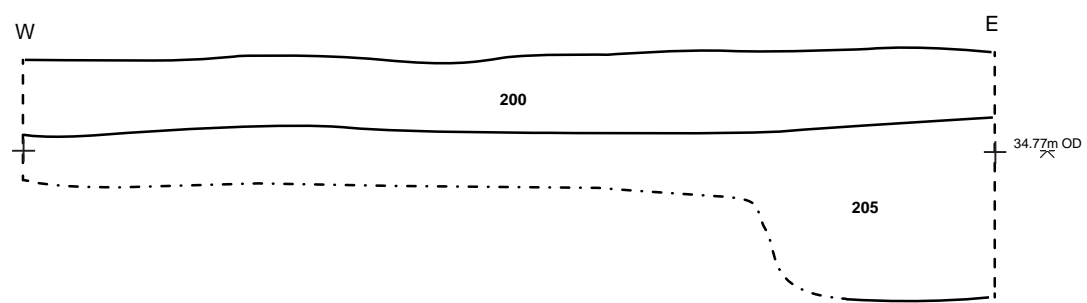


Fig. 3. Trench sections

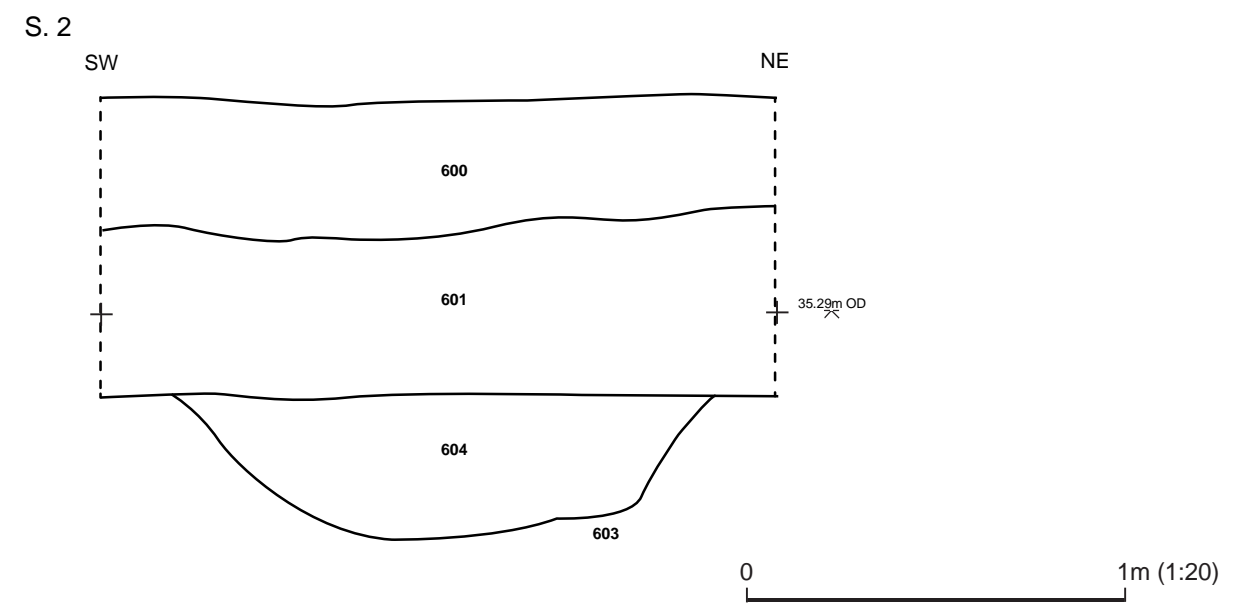
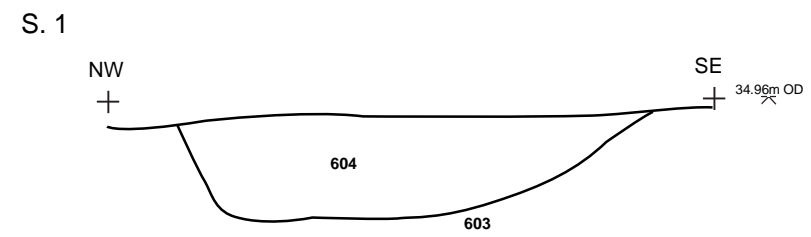
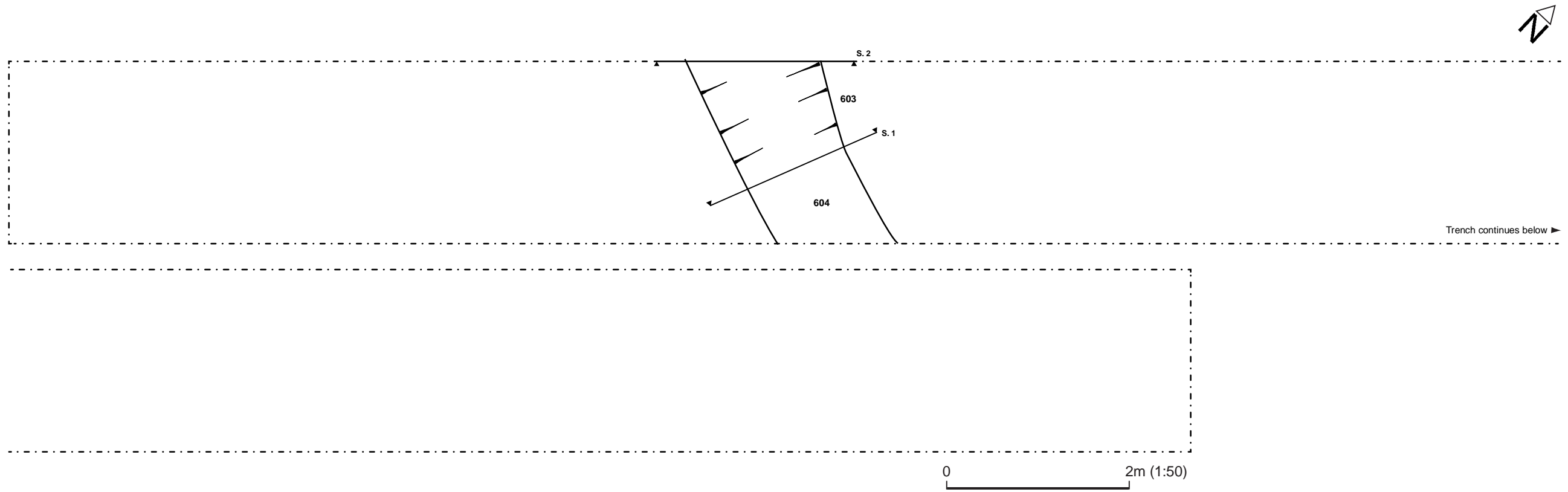


Fig. 4. Trench 6, plan and sections



Plate 1. Made ground deposit 103 in Trench 1, looking west



Plate 2. Made ground deposits 203 and 204 in Trench 2, looking east



Plate 3. Trench 3, looking north-west



Plate 4. Trench 4, looking south-east



Plate 5. Trench 6, looking south-east



Plate 6. Ditch 603, looking south-west

Appendix 2: Method Statement



Leeds Flood Alleviation Scheme 2

Zone 13a Kirkstall Meadows

Method Statement for an Archaeological Watching Brief

Prepared by: Archaeological Services WYAS
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On behalf of: Network Archaeology Ltd and BAM Nuttall Ltd

July 2020



Method Statement for an Archaeological Watching Brief at Leeds Flood Alleviation Scheme 2

Zone 13a Kirkstall Meadows

1. Introduction

- 1.1 This Method Statement has been prepared by Archaeological Services WYAS (ASWYAS) for Network Archaeology Ltd and BAM Nutall Ltd, for an archaeological watching brief as part of the Leeds Flood Alleviation Scheme 2 to support the review of the existing planning permission 18/07367/FU. It is designed to supplement the existing Written Scheme of Investigation (WSI) produced by Mott MacDonald (Burn 2020) covering the wider scheme.
- 1.2 The archaeological work will comply with the relevant standard of the Chartered Institute for Archaeologists (2014a-c), Historic England's best practice documents (1991, 2006, 2008) and the "Regional statement of good practice for archaeology in the development process, Yorkshire, the Humber & the North East" and with the heritage policies within the National Planning Policy Framework, Section 16 paragraphs 184-202.

2. Site location, topography and land-use

- 2.1 The site comprises Zone 13a (Kirkstall Bridge to Kirkstall Forge: Kirkstall Meadows) of the Phase 2 works. It is a large area of open grassland (formerly rugby pitches) located to the north of Kirkstall Bridge, between the river to the east and Leeds and Bradford railway line to the west. Agricultural land and the Leeds Liverpool Canal are located to the west of the railway line. On the upstream end of Kirkstall Abbey lies Kirkstall Forge development site.

3. Geology and soils

- 3.1 The bedrock geology is part of the Pennine Lower Coal Measures Formation – Mudstone, Siltstone and Sandstone. These are overlain by superficial alluvium deposits which are fluvial in origin, reflecting the channels, floodplains and levees of a river or estuary (if in a coastal setting). These are normally silty clay but can also contain layers of silt, sand, peat and basal gravel. Boreholes at the northern tip of Kirkstall Meadows recorded 0.50m of sand which overlaid 0.50m of mixed shale and clay sealing the natural gravels (Burn 2020).

4. Archaeological background

- 4.1 In 1711 the land at Kirkstall meadows belonged to the Earl of Cardigan and was mostly covered in forest. It is unclear prior to the 18th century what the historic use of the site was; farmland, iron-working or a water meadow. Two of these imply active ownership and management of the land by the monks of the nearby abbey. 20th century literature indicates the outer precinct was associated with meadows and pastures which would account for the name

"Kirkstall Meadows." Nonetheless, in the 1870s this area was used to grow rhubarb which later became famous in 1877 as the largest rhubarb grower in the north. Rhubarb requires a lot of moisture on well drained sites.

Cartographic evidence indicates the area was unused and unsuitable for development and the low-lying topography suggests the area was prone to flooding favouring conditions for rhubarb growing. 18th-century paintings of the abbey generally show the area as open pasture with some depictions as open pasture grazed by cattle. The 1824 painting "Kirkstall Abbey, on the River Aire" by William Turner shows the landscape as pastoral with grazing cattle within a meadow, there are sufficient pools of water and other wet ground in the background indicating more of a wetland. Landscapes such as these were a phenomenon of medieval and post-medieval agriculture, which encouraged inundation of water into areas during the winter months. This allowed an early growth of grass in spring for livestock. Usually around May the livestock were removed and the meadows irrigated again so that a large crop could be undertaken in June. The two main forms of floating include both catchwork and bedwork systems.

5. Aims and Objectives

- 5.1 The aim of the archaeological investigation across the entire scheme is to ascertain the presence or absence of archaeological remains and to characterise (nature, date, complexity and extent) any deposits that may be present within the Scheme boundary.
- 5.2 Specific aims of fieldwork is to ascertain the presence or absence of archaeological remains on Kirkstall Meadows to identify and confirm the historic use of the area.

6. Methodology –Evaluation Trenching (enabling works)

- 6.1 The intention of the archaeological evaluation is not to unduly delay the work of other contractors on site, however, a degree of flexibility is also expected of the developer in order that the archaeologist can fulfil the terms of the WSI.
- 6.2 The work will consist of the monitoring of excavation of seven trenches (located on drawing LFD-BMM-ERH-Z13a_XX-DR-YE-0011). Trenches 1 and 2 measure 50m by 2m. Trenches 3-7 measure 30m by 2m.
- 6.3 The trenches will be set out by BAM Nutall Ltd and will be opened using a mechanical excavator, provided by BAM Nuttall Ltd, under direct archaeological supervision.
- 6.2 All excavation will be undertaken in accordance with the relevant standards (ClfA 2014c; Historic England 2008).

- 6.3 The archaeologist should view the area as it is being dug and any trench sections after excavation has been completed. Where archaeology is judged to be present, the excavated area should be rapidly cleaned and the need for further work assessed. Where appropriate, any features and finds should then be quickly hand excavated, sampled if appropriate, and recorded.
- 6.4 Any archaeological features or deposits of archaeological interest should be accurately located on a site plan and recorded by photographs, scale drawings and written descriptions sufficient to permit the preparation of a report. Section drawings (at a minimum scale of 1:20) must include heights O.D. Plans (at a minimum scale of 1:50) must include O.D. spot heights for all principal strata and any features.
- 6.5 The actual areas of ground disturbance (even if no archaeological remains are present) should be recorded on a suitable base map/development plan and the stratigraphic sequence and the depth of the excavations will be briefly recorded. If archaeological remains are identified, their location is to be accurately tied into the National Grid and located on an up-to-date 1:1250 O.S. map base.
- 6.6 All archaeological features will be manually sample excavated in an archaeologically controlled and stratigraphic manner, in order to meet the aims and objectives.
- 6.7 Excavated soil should be searched as practicable for finds. All finds, except unstratified 20th and 21st-century material, should be collected and retained for processing.
- 6.8 Except where otherwise requested, black and white photography using orthodox monochrome chemical development should be used. Film should be no faster than ISO400. Slower films should be used where possible as their smaller grain size yields higher definition images. Technical Pan (ISO 25), Pan-F (ISO50), FP4 (ISO125) and HP5 (ISO400) are recommended. Black and white photography should be supplemented by Digital photography. Good quality digital photography may be supplied, using cameras with a minimum resolution of 10 megapixels. Digital photography will follow the guidance given by Historic England (2015b) in Digital Image Capture and File Storage.
- 6.9 ASWYAS use pro-forma sheets to maintain written records, giving details of location, composition, shape, dimensions, relationships, finds, samples, and cross-references to other elements of the record, in accordance with best practice. All contexts, small finds and samples will be given unique numbers. Bulk finds will be collected by context.
- 6.10 All retained artefacts will be removed from the site for assessment and analysis, and where it is appropriate, their find spots will be recorded three

dimensionally. Finds material will be stored in controlled environments, as appropriate. All artefacts to be retained will be, cleaned, labelled and stored as detailed in the guidelines laid out in the CfA (2014b). Any conservation work will be undertaken by approved conservators working to UKIC guidelines. The contingency will make allowance for conservation as necessary, this includes artefacts of displayable quality and x-rays of metalwork and coinage from stratified contexts.

- 6.11 All securely stratified contexts will be sampled for environmental analysis and scientific dating. Additional 'spot' samples will be taken if suitable material is encountered during the watching brief. A soil-sampling programme will be undertaken during the course of the investigation for the identification and recovery of carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material. Metallurgical debris is a possibility on this site and samples will be processed accordingly (including scanning both flots and retents with a magnet for hammerscale). Historic England's Science Advisor, Andy Hammon will be notified prior to work starting and will be consulted during the course of the excavation as required. In the event of waterlogged deposits being found, an Environmental Strategy will make provision for the potential study of waterlogged plant material, insects and parasites. Provision will be made for the removal of soil samples of a minimum 40 litres from deposits with clear potential or 100% whichever if the sample is smaller in line with English Heritage Guidelines (English Heritage 2011). Samples may also be taken from seemingly sterile deposits. Particular attention will be paid to the sampling of primary ditch fills and any surviving buried soils. Environmental material removed from site will be stored in appropriate controlled environments. The processing of environmental samples will only take place within facilities approved for such purposes by Historic England's Science Advisor.
- 6.12 If unexpectedly significant or complex remains are encountered, beyond that covered by this WSI, the archaeological contractor will inform Historic England and WYAAS as soon as possible. In the event of human remains being discovered they will, in the first instance, be left *in situ*, covered and protected. Excavation of human remains at this evaluation stage is to be avoided if possible. If removal is required, this will only take place in compliance with the Burial Act 1857 and after an exhumation licence has been obtained from the Ministry of Justice. Provision will be made for the specialist reporting of the remains by a recognised osteoarchaeologist.
- 6.12 Spoil heaps are to be scanned for non-ferrous metal artefacts using a metal detector capable of making this discrimination, operated by an experienced metal detector user (if necessary, operating under the supervision of the contracting archaeologist). Modern artefacts will be noted but not retained (19th-century material and earlier will be retained).

- 6.13 If two or more pieces of prehistoric metalwork, any gold or silver items over 300 years old, two or more gold and silver coins over 300 years old and/or ten or more copper alloy coins found in association with each other are recovered, they and all associated objects shall be reported to HM Coroner according to the procedures relating to the Treasure Act (1996) and the Treasure (Designation) Order (2002).
- 6.14 Provision will be made for specialist dating if required, in particular radiocarbon dating.
- 6.15 If a non-professional archaeologist is to be used to carry out the metal-detecting, a formal agreement of their position as a sub-contractor working under direction must be agreed in advance of their use on site. This formal agreement will apply whether they are paid or not. To avoid financial claims under the Treasure Act a suggested wording for this formal agreement with the metal detectorist is: "In the process of working on the archaeological investigation at [*location of site*] between the dates of [*insert dates*], [*name of person contributing to project*] is working under direction or permission of [*name of archaeological organisation*] and hereby waives all rights to rewards for objects discovered that could otherwise be payable under the Treasure Act 1996."

7 Archaeological Recording

- 7.1 The location of all trenches investigated will be surveyed in order that these (and all archaeological features and deposits within them) can both be relocated in relation to existing landscape features and located within the Ordnance Survey National Grid. Archaeological deposits will be related both to depths below existing surface levels and actual heights in relation to Ordnance Datum.
- 7.2 A metal detector survey will be undertaken of all cleaned trench surfaces and spoil heaps after stripping.
- 7.3 All archaeological features investigated will be photographed and recorded at an appropriate scale. Sections will be drawn at a scale of 1:10, identifying individual contexts and the underlying natural subsoil. Archaeological plans will be drawn at a scale of 1:20 although areas largely devoid of archaeological features will be recorded at a scale of 1:50.
- 7.4 A written description of features will be recorded on pro-forma sheets using an appropriate context recording system.
- 7.5 For archive purposes, a photographic record of both the site and the investigate contexts and deposits will be taken using monochrome prints and colour slide at a minimum format of 35mm. Feature specific photographs will include a

graduated metric scale together with a site code, context reference and north point as appropriate. A register of all photographs taken will be kept. Digital photography may be used to supplement the photographic record or for general photographic purposes.

- 7.6 All scientific investigations both on site and as part of the subsequent report preparation will be undertaken in a manner consistent with best-practice guidelines.
- 7.7 40 litre bulk palaeo-environmental samples will be taken from appropriate representative deposits (such as occupation and midden deposits or ditch and pit fills) and submitted for assessment. If particularly rich deposits of bone are encountered then a minimum of 100 litre coarse-sieved samples will be taken. Particular attention will be paid to the recovery of samples from any waterlogged deposits present. Recovery and sampling of environmental remains will be undertaken in light of the results of the previous phases of fieldwork and in accordance with guidelines prepared by English Heritage (2011) and the sampling strategy provided by the contractor and relevant specialists (see paragraph 12.2 below). The sampling strategy will be agreed with the Historic England Science Advisor in advance of each principal phase of fieldwork. Samples will also be taken for pollen analysis from appropriate deposits in order to establish preservation and identify the past use of the area. Any waterlogged wood will be recorded and recovered in accordance with Historic England (2018a) guidance as appropriate.
- 7.8 Any human remains (inhumations and cremations) that were encountered during the archaeological investigations will be exposed, recorded and lifted, and subsequently processed in accordance with published guidance (Historic England 2018b). A Licence for the Removal of Human Remains will be obtained from the Ministry of Justice.
- 7.9 Secure contexts will be sampled for dating purposes as appropriate (whether on site or as sub-samples of processed bulk samples). This may include C-14, archaeomagnetic and dendrochronological dating. Any concentrations of either charcoal or other carbonised material recovered on site will usually be retained. Samples for archaeomagnetic dates will be taken on site by the relevant specialist. Samples for dendrochronological dates will be taken either on site or from recovered timbers by the relevant specialist in accordance with published guidelines (English Heritage 1998).
- 7.10 Any buried soils or sediment sequences will be inspected and recorded on site, and samples for laboratory assessment collected where appropriate in collaboration with a geoarchaeologist. The guidance of Historic England (2015) will be followed.

- 7.11 All artefacts and environmental material will be analysed by a qualified and experienced specialist. Artefact analysis is to include the production of a descriptive catalogue. Finds critical for dating and interpretation should be illustrated. Reporting on ceramic artefacts and pottery should follow the guidance given in 'A Standard for Pottery Studies in Archaeology' (2016) and endorsed by the Prehistoric Ceramics Research Group; the Study Group for Roman Pottery & the Medieval Pottery Research Group.
- 7.12 Any artefacts of gold or silver recovered during the archaeological investigations which are considered to be treasure would be dealt with in accordance with the Treasure Act 1996 Code of Practice (Revised).

8. Post-excavation

- 8.1 An interim statement and plans of the archaeological trial trenching undertaken at Kirkstall Meadow will be produced within two weeks of completion of the work as required.
- 8.2 The interim statement will include as a minimum;
- A methodology;
 - A summary of results;
 - A trench location plan and,
 - Photographic images of any significant archaeological features identified.
- 8.3 Full reporting will be undertaken with the remaining works as detailed in the WSI.

9. Site Archive

- 9.1 Before commencing any fieldwork, the archaeological contractor must contact the relevant District museum archaeological curator to determine the museum's requirements for the deposition of an excavation archive. In this case the contact is Katherine Baxter, Leeds Museum Discovery Centre Carlisle Road, Hunslet, Leeds, LS10 1LB (Tel.: 0113 2305492; email: katherine.baxter@leeds.gov.uk). Deposition should be confirmed in writing by the archaeological contractor; this correspondence is to be copied to the WYAAS.
- 9.2 The site archive will be held by ASWYAS until the remaining fieldwork is completed in line with the WSI. This will be the form part of the larger site archive and be deposited with Leeds Museum Discovery Centre as specified in the WSI.

10. Copyright, Confidentiality and Publicity

- 10.1 Copyright in the documentation prepared by ASWYAS and specialist sub-contractors will be the subject of additional licences in favour of the repository accepting the archive to use such documentation for their statutory educational and museum service functions, and to provide copies to third parties as an incidental to such functions.
- 10.2 Under the Environmental Information Regulations 2005 (EIR), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'.
- 10.3 Requests for sensitive information are subject to a public interest test, and if this is met, then the information has to be disclosed. ASWYAS will inform the client of EIR requirements, and ensure that any information disclosure issues are resolved before completion of the work. Intellectual property rights are not affected by the EIR.
- 10.4 Unless the client commissioning the project wishes to state otherwise, the copyright of any written, graphic or photographic record and reports will rest with the originating body (Archaeological Services WYAS).

11. Health and Safety

- 11.1 ASWYAS has its own Health and Safety policy which has been compiled using national guidelines. These guidelines conform to all relevant Health and Safety legislation.
- 11.2 In addition each project undergoes a 'Risk Assessment' which sets project specific Health and Safety requirements to which all members of staff are made aware of prior to on-site work commencing. Health and Safety will take priority over archaeological matters. Necessary precautions will be taken over underground services and overhead lines at the outset of the project.

12. Insurance

- 11.1 ASWYAS is covered by the insurance and indemnities of the West Yorkshire Joint Services Committee. Insurance has been effected with: Zurich Municipal, Zurich House, 2 Gladiator Way, Farnborough, Hampshire, GU14 6GB (policy number QLA-03R896-0013). Any further enquiries should be directed to: Head of Finance, Wakefield Council, Wakefield One, PO Box 700, Wakefield, WF1 2EB.

12. Monitoring

- 12.1 Access will be made available at all reasonable times to the representatives of the West Yorkshire Archaeological Advisory Service and Prospect Archaeology Ltd for the purposes of monitoring the archaeological mitigation, and a site

meeting(s) held to review the results of the investigations if requested. Should any significant or unexpected discoveries be made during the programme of archaeological mitigation then the above organisations will be notified.

12.2 Access to the site will be arranged through either the agent or archaeological consultant to BAM Nuttall Ltd on the basis of prior notification and subject to any necessary health and safety requirements.

12. Resources and programming

12.1 Post-excavation specialists:

Prehistoric pottery specialist:	Dr Blaise Vyner
Roman pottery specialist:	Ruth Leary
Medieval pottery specialist:	Dr Chris Cumberpatch
CBM:	Phil Mills
Plaster	Ian Betts
Flint specialist:	Anne Clarke
Environmental specialist:	Dr Diane Alldritt
Macrofossils, insects, snails:	John Carrott
Faunal analyst:	Dr Jane Richardson
Human bone specialist:	Malin Holst MA
Metalwork specialist:	Gail Drinkall
Artefact conservationist:	Ian Panter
Slag	Rod Mackenzie

12.2 Personnel may be subject to change based on their availability.

Appendix 1

Written Scheme of Investigation

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UKIC, 1990, *Guidelines for the Preparation of Excavation Archives for Long-term Storage*, United Kingdom Institute for Conservation

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Nepshaw Lane South, Morley, Leeds LS27 7JQ



Appendix 3: Inventory of primary archive

Phase	File/Box No	Description	Quantity
Evaluation	File no.1	Sample register sheets	1
		Drawing sheet registers	1
		Drawing registers	1
		Digital photograph registers	1
		Photograph registers	1
		Daily site recording forms	5
		Trench record sheets	7
		Permatrace sheets	2
		Context registers	7
		Context sheets	29

Appendix 4: Concordance of contexts yielding artefacts or environmental remains

Context	Trench	Description	Artefacts and environmental samples
200	2	Topsoil	Pottery and clay tobacco pipe
501	5	Subsoil	Pottery and CBM
604	6	Fill of Ditch 603	GBA 1
701	7	Topsoil	Animal bone

Appendix 5: Trench tables

Trench 1						
General Description				Orientation	E-W	
Two made ground deposits, one at either end of the trench. No archaeological remains present.				Average Depth (m)	0.58	
				Width (m)	2.00	
				Length (m)	50.10	
Contexts						
Context No	Type	Length (m)	Width (m)	Depth (m)	Description	
100	Layer	-	-	0.44	Topsoil	
101	Layer	-	-	0.14	Subsoil	
102	Layer	-	-	-	Natural	
103	Layer	8.00	2.00	0.60	Made ground	
104	Layer	7.25	2.00	0.85	Made ground	
105	Layer	6.50	2.00	0.82	Re-deposited natural	

Trench 2						
General Description				Orientation	NE-SW	
Two made ground deposits, one at either end of the trench. No archaeological remains present.				Average Depth (m)	0.82	
				Width (m)	2.00	
				Length (m)	50.30	
Contexts						
Context No	Type	Length (m)	Width (m)	Depth (m)	Description	
200	Layer	-	-	0.48	Topsoil	
201	Layer	-	-	0.34	Subsoil	
202	Layer	-	-	-	Natural	
203	Layer	7.60	2.00	1.05	Made ground	
204	Layer	7.60	2.00	0.95	Made ground	

205	Layer	6.00	2.00	1.35	Re-deposited natural
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Trench 3					
General Description				Orientation	NW-SE
No archaeological remains present.				Average Depth (m)	0.74
				Width (m)	2.00
				Length (m)	30.00
Contexts					
Context No	Type	Length (m)	Width (m)	Depth (m)	Description
300	Layer	-	-	0.44	Topsoil
301	Layer	-	-	0.30	Subsoil
302	Layer	-	-	-	Natural

Trench 4					
General Description				Orientation	NW-SE
No archaeological remains present.				Average Depth (m)	0.54
				Width (m)	2.00
				Length (m)	30.00
Contexts					
Context No	Type	Length (m)	Width (m)	Depth (m)	Description
400	Layer	-	-	0.31	Topsoil
401	Layer	-	-	0.23	Subsoil
402	Layer	-	-	-	Natural

Trench 5					
General Description				Orientation	NW-SE
No archaeological remains present.				Average Depth (m)	0.33
				Width (m)	2.00
				Length (m)	30.00
Contexts					
Context No	Type	Length (m)	Width (m)	Depth (m)	Description
500	Layer	-	-	0.22	Topsoil
501	Layer	-	-	0.11	Subsoil
502	Layer	-	-	-	Natural

Trench 6					
General Description				Orientation	NW-SE
Trench contained a single ditch on a north-east to south-west alignment.				Average Depth (m)	0.50
				Width (m)	2.00
				Length (m)	30.00
Contexts					
Context No	Type	Length (m)	Width (m)	Depth (m)	Description
600	Layer	-	-	0.27	Topsoil
601	Layer	-	-	0.23	Subsoil
602	Layer	-	-	-	Natural
603	Cut	2.00	1.00	0.45	Ditch. Shallow U-shaped profile, rounded base.
604	Fill of 603	2.00	1.00	0.45	Mid-brown sandy clay with occasional small charcoal inclusions.

Trench 7					
General Description			Orientation		NW-SE
Alluvial deposits at both ends of the trench. No archaeological remains present.			Average Depth (m)		0.93
			Width (m)		2.00
			Length (m)		30.00
Contexts					
Context No	Type	Length (m)	Width (m)	Depth (m)	Description
700	Layer	-	-	0.38	Topsoil
701	Layer	20.00	2.00	0.45	Alluvial deposit
702	Layer	20.00	2.00	1.00	Alluvial deposit
703	Layer	-	-	0.55	Subsoil
704	Layer	-	-	-	Natural

Appendix 5: OASIS data collection form

OASIS ID: archaeo11-402718

Project details

Project name	Leeds Flood Alleviation Scheme 2 Zone 13a, Kirkstall Meadows
Short description of the project	A trial trench evaluation was undertaken by ASWYAS on land at Kirkstall Meadows, Leeds, West Yorkshire, between the 7th and 13th of July 2020, as part of the wider Leeds Flood Alleviation Scheme 2 project. A total of seven trenches were excavated to establish the presence and extent of any archaeological deposits or features within the development site. A single ditch feature was recorded and interpreted as a late 19th-century trackway drainage ditch. Made ground deposit were also encountered and were determined to have been associated with levelling of part of the site for rugby fields, in use by the early 21st century.
Project dates	Start: 07-07-2020 End: 13-07-2020
Previous/future work	Not known / Not known
Any associated project reference codes	LFW20 - Sitecode
Any associated project reference codes	18/07367/FU - Planning Application No.
Type of project	Recording project
Site status	None
Monument type	NONE None
Monument type	NONE None
Significant Finds	POTTERY Post Medieval
Significant Finds	CLAY PIPES Post Medieval
Significant Finds	CBM Post Medieval
Investigation type	"Part Excavation"
Prompt	National Planning Policy Framework - NPPF

Project location

Country	England
Site location	WEST YORKSHIRE LEEDS LEEDS Leeds Flood Alleviation Scheme 2

Study area 0 Square metres

Site coordinates SE 25845 35954 53.819007997971 -1.607380212044 53 49 08 N 001 36
26 W Point

Project creators

Name of Archaeological Services WYAS
Organisation

Project brief Mott MacDonald
originator

Project design ASWYAS
originator

Project Moon, K
director/manager

Project supervisor Hirst, J

Type of Archaeological Consultancy
sponsor/funding
body

Project archives

Physical Archive Leeds Museum Service
recipient

Physical Contents "Animal Bones","Ceramics","Environmental","Industrial"

Digital Archive No
Exists?

Paper Archive Leeds Museum Service
recipient

Paper Contents "Animal Bones","Ceramics","Environmental","Industrial"

Paper Media "Context sheet","Drawing","Miscellaneous Material","Notebook -
available Excavation',' Research',' General Notes","Photograph","Report"

Entered by Louise Snow (Louise.snow@aswyas.com)

Entered on 2 September 2020

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