



**Ditherington Flax
Mill,
Ditherington,
Shrewsbury
Shropshire**

**Public-led
Archaeological
Excavation**



Oxford Archaeology North

July 2013

Feilden Clegg Bradley Studios

Issue No: 1419

OA North Job No: L10534

NGR: 349895 313920

Document Title: Ditherington Flax Mill, Ditherington, Shrewsbury

Document Type: Public-led Archaeological Excavation

Client Name: Feilden Clegg Bradley Studios

Issue Number: Issue No: 1419

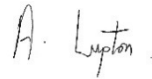
OA Job Number: L10534

National Grid Reference: 349895 313920

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SUMMARY

In September 2012, Oxford Archaeology North (OA North) was commissioned by Fielden Clegg Bradley Studios, acting on behalf of English Heritage, to carry out a programme of archaeological investigation in advance of proposed regeneration and development works at the Ditherington Flax Mill site near Shrewsbury. The project was supported by a grant obtained from the Heritage Lottery Fund, and the scope of the archaeological works required the delivery of a public-led excavation on the site.

The public-led excavation investigated the site of a group of former outbuildings (centred on NGR 349895 313920), including a stable and a wash house linked to a gas holder, which occupied the northern part of the flax mill site. These structures were targeted during an archaeological evaluation that was carried out in 2010, which revealed well-preserved structural remains at a depth of *c* 300mm below the modern ground surface. The public-led excavation targeted the entire footprint of these outbuildings, and was carried out in April and May 2013.

The excavated trench measured *c* 25 x 12m, incorporating the evaluation trench excavated in 2010, and examined the footprint of the outbuildings shown on a plan dating to 1855. These buildings are annotated on the historical plan as the Wash House, Stable, Cow Shed and Piggeries. In addition, a space linking the Wash House to the Apprentice House, the boundary walls and the surface of the courtyard around which these buildings stood, a former open drain emptying into the canal, and the location of a greenhouse adjacent to the Wash House, were also investigated.

The results confirmed the locations of all the above features and added details about their construction, use and development. Three main phases of development were identified, relating to the periods 1812 to 1855, 1855 to 1902, and 1902 to the late twentieth century. In addition, the footings of a wall pre-dating the construction of the Apprentice House and ancillary buildings in *c* 1812 were revealed.

The Wash House was shown to be a laundry with a bath that held rain water and was connected to the gas holder. The stable, cow house and piggeries were a development of an earlier stable and unidentified structure, probably an earlier piggery. Of particular note was a drainage system associated with the construction of the Apprentice House that connected to an open drain emptying into the canal. The former greenhouse was probably a hot house, while the space between the Apprentice House and Wash House showed development as a covered passageway. The west wall had been modified on several occasions, and the form of the yard surface may have been a slate flagged surface or compacted ash and cinder in a matrix of tar.

The excavation was public-led and was supported by a large number of participants and visitors. Participants were involved in a range of excavation and recording tasks, post-excavation analysis and contributed to the production of the report. Pupils from Sundorne and Grange Secondary schools also participated, and made a very positive contribution to the project.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Tim Greensmith, of Feilden Clegg Bradley Studios, for commissioning and supporting the project on behalf of English Heritage. Thanks are also due to Mike Watson, the Historic Environment Officer for Shropshire Council, and John Yates of English Heritage, for their advice and support. OA North is also grateful to Andrew Patterson.

Thanks are also due to Lisa Cowley and Fay Bailey, Friends of the Flaxmill Maltings Manager and Development Officer for their advice and support. Thanks are due to all the volunteers who participated in the excavation and particularly to Allan Smith, Simon Jeffery, Darren Ralph, Steve Wood, Martin Jones, Richard Davies and Sally Johnson for their contribution to the project.

The excavation was led by David Maron, who also prepared the report with contributions from several of the volunteers who participated in the excavation. The report was edited by Ian Miller, who was also responsible for project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 Feilden Clegg Bradley Studios, acting on behalf of English Heritage, is developing proposals for a scheme of regeneration and development of a former industrial site in the Ditherington area of Shrewsbury, which was occupied from 1797 by the Ditherington Flax Mill. The flax mill complex is of immense archaeological and historical significance, which is reflected in the designation of several components as Grade I, Grade II* and Grade II listed buildings. However, the site has been in vacant possession since 1987, and has fallen into a state of dangerous neglect and decay; it is considered by English Heritage to be one of the most important former industrial buildings at risk of neglect and decay in the country (English Heritage 2009, 39).
- 1.1.2 In March 2005, the site was purchased by English Heritage, using a grant provided by Advantage West Midland, with the intention of arresting the gradual decline of the buildings and securing the long-term future of this immensely important site. English Heritage has since appointed architects Feilden Clegg Bradley Studios to design a scheme for appropriate development and regeneration of the site, which is likely to include a mix of residential, business, community and heritage uses. As part of this process, Oxford Archaeology North (OA North) was commissioned to carry out a desk-based assessment of the sub-surface archaeological resource of the site, and assess the potential impact of development on this resource.
- 1.1.3 The desk-based assessment was completed in October 2009, and concluded that the proposed development might have a negative impact on the sub-surface archaeological resource. In order to establish a clearer understanding of the impact of development, it was recommended that a programme of targeted evaluation trenching was carried out in advance of submitting the planning application.
- 1.1.4 A programme of targeted evaluation trenching was carried out in February 2010. One of the trenches targeted the footprint of several outbuildings in the northern part of the site, annotated on historical mapping as a wash house, cow shed and piggeries. The well-preserved remains of these buildings were discovered at a shallow depth beneath the surface, providing an excellent opportunity for a public-based excavation.

1.2 LOCATION AND GEOLOGY

- 1.2.1 The study area (centred on NGR SJ 49888 13849) is situated in Ditherington, in the northern part of Shrewsbury (Fig 1). The site occupies a level plot of land, lying at a height of approximately 60m above Ordnance Datum (aOD). It is bounded to the west by the railway line from Shrewsbury to Crewe, to the east by the A5191 (here named Spring Gardens), to the north by housing and a bus depot, and to the south by a twentieth-century housing estate.
- 1.2.2 The excavation area occupies the northern part of the mill complex, situated between the Apprentice House and the site boundary wall (Plate 1). This part of the site is currently open ground with modern hard-surfacing covered by scrub vegetation.



Plate 1: Recent satellite view of the Ditherington Flax Mill, showing the location of the excavation area

- 1.2.3 The solid geology of the area consists of Permian Rocks (undifferentiated), sandstone and conglomerates. Overlying the solid geology, the drift geology is essentially glacial till, and comprises clay in the immediate vicinity of the former mill (BGS 2007). An area to the south-east of the former mill was a brickfield (SMR 6732) until the late nineteenth century, when it became a recreation ground. It is therefore likely that the mill buildings and the houses in the area were constructed with bricks from this local clay source (MacLeod *et al* 1988, 19).

2. METHODOLOGY

2.1 INTRODUCTION

2.1.1 The excavation was undertaken in April and May 2013, and comprised an open-area excavation of a single targeted area which was placed across the northern part of the site. The trench measured *c* 25 x 12m, incorporated an evaluation trench excavated in 2010, and examined the footprint of the outbuildings shown on a plan dating to 1855, as set out in the Written Scheme of Investigation (*Appendix I*).

2.1.2 The principal aim of the project was to engage members of the local community in an archaeological excavation, and to raise the historical profile of the site locally. A second aim of the excavation was to provide a detailed record of the buried archaeological remains that exist in the northern part of the site.

2.1.3 The objectives of the excavation were:

- to offer an enjoyable learning opportunity for members of the local community who wish to become involved in an archaeological excavation;
- to compile a detailed record of those buried archaeological remains that are known to exist in the northern part of the site;
- to involve volunteers in the post-excavation works required, and create an appropriate archive;
- to produce a full excavation report that can be passed on in digital format to all stakeholders at the end of the project;
- to carry out an appropriate level of dissemination of the results;

2.2 OPEN-AREA TRENCH

2.2.1 The uppermost levels of the trench were excavated by a machine fitted with a toothless ditching bucket. The same machine was then used to define carefully the extent of any surviving walls, foundations and other remains, after which all excavations were undertaken manually. All deposits were levelled and related to the Ordnance Datum and Ordnance Survey.

2.2.2 All information was recorded stratigraphically with accompanying documentation (plans, sections and photographs, both of individual contexts and overall site shots from standard view points). Photography was undertaken with 35mm cameras on archivable black-and-white print film, as well as high-resolution digital format, all frames including a visible, graduated metric scale. Photographic records were maintained on special photographic *pro-forma* sheets.

2.3 FINDS

- 2.3.1 Finds' recovery and sampling programmes were carried out in accordance with best practice (following current Institute for Archaeologists' guidelines), and subject to expert advice in order to minimise deterioration. All artefacts recovered from the excavation were retained.

2.4 ARCHIVE

- 2.4.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Research Projects in the Historic Environment*, 2006). The original record archive of project will be deposited with Shropshire Archives, at Castle Gates in Shrewsbury.
- 2.4.2 The Arts and Humanities Data Service (AHDS) online database *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

3. HISTORICAL BACKGROUND

3.1 DITHERINGTON FLAX MILL

- 3.1.1 Production of linen in Britain took place on a small, subsistence-level, scale from the second half of the seventeenth century through to the last decade of the eighteenth century. Industrial-scale linen production then began, following the lead of the cotton-spinning industry, which had proved that large-scale production could be highly lucrative. One of the key figures in the linen industry was John Marshall, who in 1787 decided to explore the possibility of mechanised flax spinning. Marshall went into partnership with Samuel Fenton, his father's former partner and Ralph Dearlove, a linen manufacturer from Knaresborough. The partners had two businesses in and near Leeds, but parted company in 1793, and Marshall then went into business with Thomas and Benjamin Benyon who lived in Shrewsbury and worked in the wholesale woollen trade (MacLeod *et al* 1988, 1-4). Shrewsbury had traditionally been a finishing and commercial centre for the woollen cloth trade of mid-Wales until the late eighteenth century, when this trade was coming to a close. At this point textile manufacturing was becoming established in Shrewsbury, but it was not until the partnership of Marshall and the Benyons that the area became known for flax manufacture (*op cit*, 4).
- 3.1.2 Initially, Marshall and the Benyons had a mill in Leeds, but it burnt down in 1796. Although the mill was rebuilt, the partners decided to build another mill in Shrewsbury and brought in Charles Bage to design it. Ditherington Mill was the first wholly iron-framed building, and consequently of 'fireproof' construction. William Strutt of Belper (1756-1830), a friend of Bage's, had previously used iron columns in textile mill buildings. However, Bage advanced this by using iron cross beams, so that brick arches could be sprung from them, and hence removed the need for any structural timber (*op cit*, 5).
- 3.1.3 When it was first constructed, the mill was powered by a 20hp beam engine, supplied by Boulton and Watt (*op cit*, 10). Although all the processes involved in the production of flax were carried out initially in the main mill building, within 15 years other buildings had been added to the complex.
- 3.1.4 The 1988 desk-based assessment looked at the use of 'great bricks', probably produced at the brickfield to the south-east of the site (SMR 6732), in the construction of the mill buildings as a guide to their date. Great bricks are larger than normal (measuring approximately 100mm x 110 x 240mm), so that only three rather than the usual four courses of brick were needed per foot (300mm). This was possibly done to cut down on the amount of brick tax required to be paid, as this was charged per brick (*op cit*, 21). The flax warehouse which was completed in 1805, is built of standard bricks. The buildings known from documentary sources to be earlier than this are built of great bricks, whilst those known to be later are of standard bricks. Undated buildings can therefore be assigned a date of either before or after 1805 according to this theory.

- 3.1.5 By 1800, a second beam engine had been installed at the north end of the main mill building. This engine was a 40hp model and, in 1811, a 60hp was installed as a replacement for the original engine. The Cross Building, for hackling or flax dressing, was completed by 1803, and the flax warehouse by 1805. The first dye house was in operation by 1804, with the stove added to it by 1811. The warehouse, later known as the packing shop had been constructed by 1801 and the blacksmith's shop and stables appear to have been built by 1805.
- 3.1.6 In addition to the mill buildings, various housing for the workers was also constructed. A group of cluster houses was built between the Shrewsbury Canal and the turnpike road in the winter of 1796-7, and another group was constructed subsequently (*op cit*, 11). By 1811, the Apprentice House had been constructed, with the objective of housing children recruited by various parishes to work in the mill and learn the trade. This Apprentice House appears to have replaced an earlier building, constructed near the mill by the architect John Simpson by 1800. A house for the factory clerk was also designed by Simpson and constructed at this time. The 1988 desk-based assessment of Ditherington Mill suggested that nos 56-59 St Michael's Street, to the south of the former mill, was the original Apprentice House, and no 55 the clerk's house (MacLeod *et al* 1988, 11).
- 3.1.7 On October 24th 1811, a devastating fire in the Cross Building caused the roof to collapse, although a fireproof staircase prevented the fire from spreading into the main mill (*op cit*, 11-3). A recently installed gas lighting system by Boulton and Watt was wrongly blamed for the fire. Unlike the main mill, the Cross Building was not of fireproof construction. A suspension bridge, which linked this building to the flax warehouse allowed some people to escape the burning building, although others died.
- 3.1.8 Within the first few years of Ditherington Flax Mill being operational, Marshall became unhappy with Bage's involvement in the partnership, and in 1804 he bought out both Bage and the Benyons (*op cit*, 5). Marshall went into partnership subsequently with two of his employees: John Hives, who managed the Leeds business; and William Hutton, who was in charge of Ditherington Mill. In 1815 the management of Ditherington Mill passed to another employee, Joseph Robert Atkinson, although his partnership with Marshall was dissolved in 1825. Marshall maintained control of the mill by retaining ownership of the buildings and the engines, whilst various partners held the machinery and stock and ran operations (*op cit*, 12).
- 3.1.9 In 1819-20 a 56hp engine replaced the 40hp engine at the north end of the main mill, possibly in anticipation of the wet-spinning process, which was introduced to the mill during the 1820s. In 1837, a pumping machine for a well had been provided by Hick of Bolton, and new boilers and a chimney were added to the east of the main mill in 1840 and 1852-53. A new gas lighting system, with a retort house on the northern boundary of the site and a round gas holder was established in 1842. In the 1850s, the dye house was enlarged and, in 1875, both engines were replaced by a pair of Corliss engines by Hick of Bolton (*op cit*, 12-14).

- 3.1.10 The mill produced various types of thread and yarn during the first half of the nineteenth century, and employed some weavers to manufacture canvas, although this activity appears to have ceased in the 1820s. Ancillary to flax spinning, the mill complex housed an engineering shop for manufacturing fluted rollers and other machine parts by 1824, and a printing department, for producing the labels for the thread, was set up in the 1860s (*op cit*, 1 and 13). After his death in 1845, the descendants of John Marshall continued to run the mill successfully until the last quarter of the century, when the business began to decline.
- 3.1.11 A plan of the site dated 1849 shows only the portion of the mill site including and south of the flax warehouse. The plan is quite detailed, showing internal divisions within the buildings, and the positions of boilers, engines and other features. The gas holder and thread room are shown to the west of the flax warehouse, and to the west of these 'Rack Poles' are marked. Rack poles were structures to enable drying the thread and yarn outside, this took place in this area for a number of years, until the railway sidings were constructed in 1858 (MacLeod et al 1988, 42). To the south of the dye house and stove, a woodshed is marked, with a saw pit to its south. A well is marked in the yard to its east. Stables, privies, and the office, warehouse and packing shop, are shown along the southern boundary of the site. A lodge and gateway are depicted in the south-east corner of the site, and a weighing machine is marked just inside of this site entrance.
- 3.1.12 A complete plan of the mill was produced in 1855, and contains the same level of detail, including internal features, as the 1849 plan. Structures shown in the north-western portion of the site include the round gas holder, the gas retort house, with a coal house in its eastern side, the timber shed, the drying shed, the fire engine house, the gas meter and the waste room. A shed is marked on the east side of the thread room, and the former gas holder, is labelled as a carpenter's shop. A saw pit is marked between the carpenter's shop and the thread room. The area previously marked as being used by rack poles is here labelled as 'movable drying stands', and therefore evidently was serving the same purpose. Towards the north-east portion of the site, the Apprentice House is labelled 'Superintendent's House', and a formal garden is shown on its north and east sides. On the northern border of the site are a cow house and stables and a wash house.
- 3.1.13 The 1870s saw the reduction of the range of processes carried out at Ditherington, and the size of the workforce declined as a result. Increasingly, flax was spun at the Leeds mill, and was then transported by rail to Ditherington to be processed into thread and finished by polishing and other processes. At its peak in the 1840s the mill employed around 800 people, but by the 1880s this figure had dropped to around 300. In 1885 the intended closure of the mill, still considered to be the largest firm of flax spinners in the country, was announced, and operations finally wound up in October 1886. It is thought that the mill then stood empty for a decade (*op cit*, 16).

- 3.1.14 After being vacant for ten years, the mill was purchased in 1896 by William Jones, who re-named it The Shropshire Maltings. Jones had established a malting business in Shrewsbury in 1869, and acquired several malting premises in the following years, earning himself a reputation for reorganising malting for industrial-scale production. In 1897-8 the Ditherington Mill complex was adapted for malting, which included the addition of the malt kiln at the northern end of the main mill. The boilers at the eastern end of the site were removed at this time, and replaced with a single-storey lean-to, thus extending the surface area available for floor malting (*op cit*, 18).
- 3.1.15 The main mill building is labelled 'Malthouses' on the Ordnance Survey second edition 25": 1 mile map of 1902. The area at the north end of the main mill building is shown to have been developed, so that the main mill, Cross Mill and former flax warehouse, now with an extension on its west side, are all connected. As a result, the eastern branch of the railway sidings has been shortened to terminate at the west side of this new extension. The south branch of the sidings has been extended however, terminating at the south-west corner of the former dye house and stove. In the northern area of the site, the round gas holder is no longer shown, the Apprentice House now has an extension on its west side, and the gardens that surrounded it are not depicted.
- 3.1.16 Jones was declared bankrupt in 1933-4, at which point the site was taken over by the Allied Insurance Company. During the Second World War the buildings were used as barracks. Following this, new barley sweating, cleaning and storage machinery was installed at the maltings. New silos and stores were also constructed. In 1948 the maltings was taken over by the Birmingham Brewer Ansells, and in 1963 it became part of Allied Breweries Ltd. Minor alterations to the premises continued to be made into the 1970s, which included the demolition of the stables at the north end of the site and the packing shop at the south end. Finally in 1979 the maltings at Ditherington were part of Albrew Malsters Ltd, which ran until 1987, when the Shrewsbury plant was closed (*ibid*).

4. EXCAVATION RESULTS

4.1 INTRODUCTION

- 4.1.1 An open-area excavation of a single trench was placed across the open ground in the northern part of the site (Plate 2). The trench measured *c* 25 x 12m (Plate 3), incorporating the evaluation trench excavated in 2010, and examined the footprint of the outbuildings shown on a plan dating to 1855 (Fig 2).



Plate 2: View across the site immediately prior to the excavation



Plate 3: View looking north-west during initial mechanical stripping of the site

4.2 THE APPRENTICE HOUSE CORRIDOR

- 4.2.1 The 1855 map shows a door in the centre of the north side of the Apprentice House facing a door in the south side of the wash house (Fig 2). Initial excavation provided evidence for a corridor connecting the two buildings, and the trench was extended by hand to reveal this area in more detail (Fig 4).
- 4.2.2 A slot was excavated at the northern end of the corridor where it adjoined the wash house entrance. The fill (2078) was a dark reddish-brown sandy-silt. Set within this were two lead pipes (2058) and an iron pipe (2060). A thin bedding layer of mortar (2075) was laid on fill 2078. A brick tile surface (2059) was laid on bedding layer 2075. A brick tile surface (2059) set on bedding layer 2075 abutted the eastern wall (2036) in which a doorway (2076) was set. A small rectangular brick structure (2038) and a wall (2039) were built on surface 2059. A brick wall (2022) formed the western side of the corridor, and this was also built on surface 2059. In line with walls 2022 and 2036, the ridged outline of roof line (2077) was clearly visible surrounding the doorway in the Apprentice House north wall (Plate 4). A concrete surface (2025) was laid on tile surface 2059, and the concrete abutted all walls.



Plate 4: Wall scar 2077 visible on the north wall of the Apprentice House

- 4.2.3 Doorway 2076 gave access to a concrete surface (2061), in which a drain (2026) was set. Concrete surface 2061 ran alongside the corridor's east wall (2036), and it was edged with flagstones (2074) along its eastern side. The concrete and flagstone pathway ended at a badly damaged concrete platform (2064), which abutted the eastern wall of the wash house (2037).

4.3 THE WASH HOUSE

- 4.3.1 The 1855 map shows a rectangular, almost square floor plan with a single feature labelled 'Bath' (Fig 2). Excavation revealed that the Wash House was comprised several rooms and different phases of development.
- 4.3.2 The doorway (2020) from the Apprentice House corridor gave access to an L-shaped room (Room 1). A slot in the south-west corner of the room revealed backfilled deposit 2057 that was the same as 2078. Deposit 2057 was excavated to a depth of 14 courses of bricks of walls 2019 and 2037. A lead pipe 2033 was revealed in this slot, it was aligned north/south and continued beneath the threshold of door 2020 before turning to the east.
- 4.3.3 The floor surfaces in Room 1 varied. In the south-west and north-east corners there were brick tile surfaces (2018 and 2042), which were set on mortar bedding layers. A layer of concrete (2043) was set on backfill deposit 2057, but broken tiles (2056) were visible beneath concrete 2043 at the southern side of the room. Concrete surface 2043 had a visible crack aligned north/south across the length of the room. The edges of all flooring surfaces sloped upwards to abut the southern wall 2019 and the eastern wall 2037. Brick tile surface 2042 abutted the foundation of a brick chimney structure (2045) at the north side of the room (Plate 5). In floor surface 2042 were set two rectangular ash pits (2040 and 2041; Plate 5), which were excavated by a local school group (Plates 6 and 7).



Plate 5: View across Room 1 in the Wash House, showing rectangular pits 2040 and 2042 set into surface 2043, adjacent to the foundation of brick-built chimney 2045



Plate 6: View looking south-east across the excavation area, with red arrow marking volunteers with a local school group excavating pits 2040 and 2041



Plate 7: View looking north-west across the excavation area, with red arrow marking volunteers with a local school group excavating pits 2040 and 2041

- 4.3.4 Rectangular ash pits **2040** and **2041** were constructed with brick sides and bases with the southern side at an angle sloping to the base of the pits to permit shovelling of ash. Excavation of pit **2040** revealed walls constructed of fire bricks (**2079**), which was separated from outer wall **2037** by a layer of clay (**2080**) acting as a thermal break. The brick base of pit **2040** was on a layer of floor tiles (**2081**) that were, in turn, on backfill deposit **2057**.
- 4.3.5 Brick wall **2015** formed the western side of the room. In its south-western corner was a door threshold (**2027**) of Grinsall sandstone that gave access to the Apprentice House yard. A brick tile surface (**2014**) was set in front of the doorway **2027** and continued as brick tile surface (**2021**) south towards the Apprentice House, and east towards the Apprentice House corridor. Two drains (**2069** and **2024**) were set in tile surface **2021**. Excavation of drain **2069** showed it to flow south towards the Apprentice House, and an iron pipe aligned east/west was revealed. Two pieces of iron guttering formed a drainage channel from a down pipe at the junction of walls **2022** and **2019** to drain **2024** that also drained south towards the Apprentice House.
- 4.3.6 **Rooms 2 and 3:** Room 2 was a rectangular room formed by the construction of an internal wall (**2082**). This abutted walls **2015** and **2003**. The floor in Room 2 comprised brick tiles (**2016**), which were the same as **2018**. Wall **2082** was set on tiled surfaces **2018** and **2016**. However, in the northern third of the room the flooring changed to a smaller-sized tile (**2028**). A slot excavated in the north-east corner of the room to a depth of 14 courses at the base of wall **2003** revealed a backfill (**2084**) that was the same as **2057** and **2078**. In the fill were two lead pipes (**2083**) that exited the bath and ran towards the Apprentice House, and were the same as lead pipes **2058**.
- 4.3.7 Room 3 occupied the north-eastern corner of the Wash House (Fig 4). An opening, rather than a doorway, between brick feature **2045** and the east end of wall **2003** gave access from Room 1 to Room 3. Set in concrete floor **2043** at this point was a drain with an iron grate (**2044**) that drained to the north. Room 3 had a floor surface of ceramic brick setts (**2046**), and two drainage channels (**2048**) were built into the floor. Drainage channels **2048** directed surface water to a drain (**2047**) set in floor **2046**. Drain **2047** had a metal silt trap and drain **2044** was connected to it, with the outflow directed to the north. In the north-east corner a small brick feature (**2063**) appeared to fill a gap, that may have been a drainage hole, at the junction of the east wall (**2037**) and the northern wall (**1002**).
- 4.3.8 Between Rooms 1 and 3 was brick feature **2045**, which was interpreted as the foundation for a chimney with associated structures. A distinct rectangular column (**2085**) was set at the west side, probably as a structural support. A flue was evident in the north side, with a hearth of bricks (**2068**) set on floor surface **2046**. A similar hearth or platform (**2086**) also set on floor surface **2046** was on the southern side of **2045**. Two flues (**2066** and **2065**) set in line with ash pits **2040** and **2041** were identifiable due to their alignment of bricks. Chimney **2045** was built against the eastern wall of the Wash House (**2037**), which was distinct in its thickness compared to other walls in the Wash House. Building platform **2064** would have been set against the exterior side of wall **2037** at this point, and a flue brick was found in the platform debris.

- 4.3.9 **Room 4:** this lay to the west of Room 3. There was no evidence of internal walls or a doorway, and the two rooms probably formed a single space. Room 3 had a floor surface of Grinsall flagstones (**2004**) that formed an edge around a rectangular concrete surface (**2005**). Concrete surface **2005** corresponded with the feature marked 'Bath' on the 1855 map. Excavation revealed a large, brick-lined tank with five steps (**2008**) providing access (Plates 8 and 9). Around the edge of the top of the bath sides were slots for joists (**2087**), and in the flagstones adjacent to the top step were cut grooves and sockets with a lead plug and the corroded remains of iron bars (**2088**). In the north-east corner was a lead outflow pipe that flowed north into a former open water channel (**1403**). In the south-west corner was a ceramic tile pipe (**2052**) that was aligned north/south. The bath had been in-filled with dark greyish-black rubble (**2007**) which was topped with a bedding layer of ash and cinder (**2006**) on which concrete floor surface **2005** was laid. The west wall (**2002**) of Room 4 had a doorway with a threshold of Grinsall sandstone (**2001**) that gave access to a narrow passage, marked on the 1855 map, between the Stable and the Wash House.
- 4.3.10 On the passage side of doorway **2001** was a concrete slab (**2000**) that had been constructed in two pieces. There was no evidence of an entrance into the Stable, which was to the immediate west of concrete slab **2000** (Fig 5). To the north of concrete slab **2000** the space between the building foundations was filled with a dark greyish-black deposit of mainly ash and cinder (**2030**). Excavation of this fill revealed a segmented ceramic glazed pipe (**2029**), aligned north/south, that emptied into water channel **1403**. An iron water pipe, aligned north to south, with a stop tap (**2032**) housed in a small unbonded brick chamber (**2031**) was also exposed.
- 4.3.11 To the south of concrete slab **2000** the space between the stable and the wash house foundations was also in-filled with deposit **2030**. Excavation of the fill in this space exposed a salt-glazed ceramic drain (**2034**) into the collar of which was the remains of an iron downpipe, formerly from the wash house. Ceramic drain **2034** flowed north-west into a brick drain (**2089**).
- 4.3.12 Brick drain **2089** was built against the east wall of the stable (**1306**), and served a former downpipe. Brick drain **2089** was constructed of brick with the base, sides and top forming a rectangular drainage channel that flowed north to empty into former water channel **1403**. An iron water pipe (**2090**) of 80mm diameter and marked on the 1855 plan was also exposed. The pipe ran east/west beneath the stable to the wash house, and an end protruded through flagstones **2005** in Room 4 containing the bath. Excavation also revealed a truncated drain (**2054**) beneath a section of the east wall of the wash house (**2012**).



Plate 8: Volunteers excavating the 'bath' annotated on historical mapping



Plate 9: The excavated remains of the steps in the 'bath'

- 4.3.13 **Room 5:** wall **2012** was an ‘L’ shaped brick wall that joined the west wall (**2002**) of Room 4 to the west wall (**2015**) of Room 2, utilising a corner of the Wash House and stable passageway to create a small square room (Room 5). Wall **2012** was not bonded to walls **2002** and **2015**, and there was no evidence of access into the Wash House from Room 5. Excavation of this area (Plate 10) exposed a layer of dark reddish-brown redeposited clay (**2051**).



Plate 10: View looking north-west across the excavated area, with arrow marking the position of Room 5

- 4.3.14 Embedded in redeposited clay **2051** was a large iron hoop (**2050**) with a large piece of degraded slate (**2055**) within it (Plate 11). Above this and aligned north-west/south-east was drain **2054**, set on a bedding layer of light greyish-white mortar (**2093**). Drain **2055** was brick lined, and ran towards the east wall (**2015**) of Room 2. A brick platform (**2049**) was built up to the edge of drain **2054** on its north-east side.
- 4.3.15 Brick platform **2049** was set on a foundation of loosely packed brick backfill (**2091**) covered with a layer of mortar (**2073**) up to 0.11m thick. A brick wall (**2035**) abutted the south-east edge of drain **2054**. Wall **2035** was two bricks wide by two high with no foundations. Drain **2054** was truncated at its south-eastern end by a ceramic circular tile pipe drain (**2052**) that also truncated brick platform **2049**. Ceramic drain **2052** was aligned north/south, and served as a downpipe on wall **2015**, with the water being carried to the bath in Room 5.



Plate 11: Brick platform 2049, iron ring 2050, and brick-lined drain 2054

4.3.16 The features unearthed were covered by the mainly ash and cinder deposit **2030**. Above this in Room 5, the area bounded by wall **2012**, was a deposit of medium brownish-yellow sand that served as a bedding layer for bricks used as setts (**2013**). These were covered by a layer of mid greyish-black concrete (**2092**). South of wall **2012** to the brick tiles (**2014**) at the front entrance (**2021**) of the wash house, there was a bedding layer of dark greyish-black ash and cinder (**2053**) on which bricks were used as setts (**2013**), these were the same as brick setts **2091**.

4.4 THE OPEN DRAIN

4.4.1 An open drain is marked on the 1855 plan of the mill complex, running parallel with the northern wall of the outbuildings and the Wash House to empty into the canal to the east. Excavation of a section of the open drain (**1403**) revealed a dark greyish-black backfill with inclusions of brick, stone, pottery, and animal bone (**1401**). A square ceramic drain (**1402**) was set in deposit **1401**, and served drains **2047** and **2044** in the Wash House.

4.4.2 At the west end of drain **1403** was a concrete surface (**1405**) that was 3.7m long. Adjacent to this was a possible concrete inspection hatch (**1404**) with a large block of Grinsall sandstone set in the centre. At the east end of **1404** was a sluice-type water channel that emptied into a ceramic drain (**1406**).

4.4.3 A levelling demolition deposit (**1001**) of bricks and cement topped with hardcore lay over backfill deposit **1401**. This deposit included a large rectangular slab of reinforced concrete (**1007**). Over this was topsoil **1000**. Deposits **1000** and **1001** covered the whole site.

4.5 THE STABLE

- 4.5.1 The outbuilding shown on the 1855 map had three distinct sections marked ‘Piggeries, Cow House and Stable’. Excavation revealed five areas that corresponded with the features marked on the mapping (Fig 5). Two slots were excavated to investigate a redundant wall and a drainage system. They revealed a sequence of development, which corresponded to the outline of the stables as illustrated on an earlier map of 1849 and that of 1855.
- 4.5.2 The lowest deposit was compacted ash, cinder and fragments of hand-made bricks (**1310**). A square drain lined with bricks (**1311**) that possibly served a former downpipe and aligned north-east/south-west was set on deposit **1310**. A drain (**1312**) of the same construction, but aligned north/south, lay to the west of drain **1311**. Drain **1312** flowed into a junction box (**1313**) which may formerly have served a downpipe, similar to drain **2089**. A section of segmented ceramic drain pipe (**1322**) entered the junction box **1313** in its north-east corner and rodding showed this to be connected to square drain **1311**. The foundations of a brick wall (**1314**) encased drain **1311** within its construction.
- 4.5.3 Brick wall **1314** was aligned broadly north/south, and was built against northern wall **1002**. Excavation showed the space between brick walls **1002** and **1314** had been back filled with a deposit of dark blackish-grey rubble with fragments of slate (**1315**) above this was a layer composed primarily of brick waste (**1316**) that was topped with a levelling layer of dark greyish-black ash and cinder (**1317**). A floor surface of mid-brownish-red floor tiles (**1304**) were set on bedding deposit **1317**.
- 4.5.4 A short section of brick wall (**1309**) aligned approximately north/south connected brick wall **1314** with the southern brick wall (**1307**) of the stable. The eastern wall (**1306**) of the stable connected **1307** and **1002** (Fig 5). Brick wall **1306** was built on top of north/south brick-lined drain **2089**. The western wall of the stable (**1203**) connected walls **1307** and **1002**. The space between **1203** and **1309** was filled with an ash and cinder deposit with brick inclusions (**1318**) that was covered with ash and cinder bedding layer **1317** and mid-brownish floor tiles **1304**.
- 4.5.5 The south wall (**1307**) of the stable was built over drain **1312**. Similarly, the east wall (**1306**) was built over and incorporated drain **2089** into its foundations. Wall **1307** abutted and was bonded to wall **1203**. The space between walls **1304/1309** and **1306** was filled with a dark greyish-black deposit of mainly ash and cinder (**1319**) that was the same as **2030**. This was topped with a bedding layer of mortar (**1320**) on which were dark blueish-grey brick setts (**1300**; Plate 12).
- 4.5.6 In brick sett surface **1300** was a square drain with a metal silt trap (**1308**). This drained north-east/south-west, and a segmented ceramic drainage pipe (**1321**) was uncovered set in deposit **1319**. Segmented ceramic drain pipe **1321** was connected to a square brick-lined drain (**1311**) aligned north-east/south-west. In brick sett floor surface **1300** a drainage channel (**1302**) comprised concave dark blueish-grey brick setts.

- 4.5.7 A large block of reinforced concrete (**1007**) lay to the north of the stable northern wall (**1002**). Set within the bricks of **1002** were reinforced iron bars and examination of reinforced concrete wall **1007** showed it to be a collapsed section of the stable north wall **1002**.



Plate 12: Remains of sett surface 1300 in the stables

4.6 THE COW HOUSE

- 4.6.1 Excavation demonstrated that the rectangular building housing animals had a clearly identifiable central section which corresponded with the 'Cow House' shown on the 1855 plan. Excavation of a slot in the north-east corner of the adjoining 'Piggery' provided clear information on the construction of the Cow House.
- 4.6.2 A brick wall (**1207**) 0.45m below the level of the Cow House floor (**1200**) was exposed to a depth of 0.40m. Wall **1207** was aligned approximately north/south and was marked on the 1849 mapping as the former west wall of a stable on this site. At the southern end of the Cow House was a large Grinsall sandstone block (**1206**) that was in line with wall **1207** and was a visible remnant of this wall (Fig 5). A similar Grinsall sandstone block (**1205**) lay at the end of brick wall **1203**, and was probably a visible remnant of a buried wall similar to **1207** (Plate 13).



Plate 13: The excavated remains of the Cow House, with red arrows marking sandstone blocks 1205 and 1206

4.6.3 The stepped foundations of a brick wall (1204) rested on buried wall 1207 and formed the west wall of the Cow House marked on the 1855 mapping. In south wall 1202, and adjacent to Grinsall block 1205, was a line of dark reddish-purple engineering bricks (1209). Similarly, adjacent to Grinsall block 1206 was a line of dark reddish-purple engineering bricks (1208). Between engineering bricks 1208 and 1209 were standard building bricks, which may have marked an entrance to the Cow House. The floor of the Cow House (1200) was concrete, and this was set on a bedding deposit on brick and mortar (1201).

4.7 THE PIGGERIES

4.7.1 The 1855 plan marks the western end of the outbuildings as 'Piggeries', and part of the excavation corresponded with this location. During excavation, two walls were uncovered that may have been associated with a structure in this location marked on the historical plans.

4.7.2 Excavation in the north-east corner of the Piggery exposed a wall (1207) of an earlier structure, which formed the western wall of the adjacent Cow House (Fig 5). Part of a second brick wall (1117) was uncovered to the west, in the north-western corner of the building. The space between the two walls had been backfilled with re-deposited clay with small fragments of brick and charcoal inclusions (1106), and a dark brown loam with inclusions of stone (1115) above this.

- 4.7.3 Within deposit **1115** was a lens of dark greenish-brown loam (**1118**). A thin bedding layer of yellowish-white mortar (**1114**) for a former floor surface lay on backfill deposit **1115**. Bedding deposit **1114** was level with the top of wall **1117**. Excavation to the west of wall **1117** revealed a backfill of medium brownish-yellow clayey silt (**1108**). Above deposit **1108** was a deposit of dark greyish-black ash and cinder (**1116**).
- 4.7.4 A second slot uncovered a section of another brick wall (**1112**), which was aligned broadly east/west. Excavation to a depth of 0.8m showed backfill **1108** alongside this wall with ash and cinder **1116** above this. On backfill deposit **1116** a brick-lined drain with a Grinsall flagstone as a cover (**1110**) aligned north/south was revealed (Fig 5).
- 4.7.5 A levelling layer of building rubble (**1113**) overlay backfill deposit **1116** and mortar bedding layer **1114**. On levelling layer **1113** was a bedding deposit of dark clayey-silt (**1107**) on which a floor surface of brick setts (**1100**) was laid. Floor surface **1100** covered approximately the eastern half of the area designated as the Piggery, with the western half having no distinguishable surface, although bedding deposit **1107** did extend across this area becoming increasingly clayey. Due to the presence of an electric cable, the demolition deposit **1101** was not removed from the western side of the Piggery, but hand dug trenches indicated the continuation of bedding deposit to the west wall (**1111**) of the Piggery.

4.8 THE COURTYARD AND BOUNDARY WALLS

- 4.8.1 The north boundary of the complex is formed by a brick wall (**1002**), which forms the north wall of all the buildings. The east wall comprises brick walls **2036** and **2037**, which form the east wall of the Apprentice House Corridor. The west wall is **1111** which is also the west wall of the Piggery. There is a gap in this wall, and its continuation is described as the south wall (**1005**). Two small trenches excavated at the terminus of west boundary wall **1111** and south boundary wall **1005** revealed the foundations of walls aligned east/west, which were not shown on the historical plans.
- 4.8.2 A brick wall (**1506**) 1.0m long and aligned east/west was revealed near the terminus of south boundary wall **1005**. Near the terminus of west boundary wall **1111** another brick wall (**1505**) 0.2m long and of the same construction as **1506** was revealed. Further excavation along the alignment of wall **1505** revealed another section of wall foundations (**1502**) 2.4m long (Plate 8) with a terminus where the base of a wooden post (**1515**) remained *in-situ*.
- 4.8.3 Brick wall foundation **1502** was truncated by a rectangular brick-lined drain (**1504**) aligned north/south. Drain **1502** formed a foundation for the edge of the brick setts **1100**. Drain **1504** emptied to the north and rodding showed it to continue at least 4.0m beyond north boundary wall **1002**.

- 4.8.4 A slot 1.0m deep was excavated at the south side of the junction of walls **1309** and **1307** to check for evidence of a courtyard surface. Natural geological deposits were reached at a depth of 0.84m below the existing ground surface, and this comprised mid-reddish-brown clay with no inclusions (**1006**). Deposit **1514** was brown silty-clay with frequent pieces of brick, mortar and charcoal which was made ground 0.52m deep. On this were a series of very compacted, almost concreted, layers which created a base for the yard surface. Above **1514** was a layer (**1513**) 70mm thick of dark greyish-black silty-sand with 10% gravel inclusions. Above this was layer of compacted brick rubble (**1512**) 70mm thick which was covered with a layer of crushed mortar (**1511**) 40mm thick. Above **1511** was a layer of mid-reddish-brown crushed brick and mortar (**1510**) that was 50mm thick. On layer **1510** was a 0.24m thick layer of dark greyish-black sandy-silt (**1507**) and crushed coal with 80% gravel and small fragments of brick and mortar. Within this layer was a lens of compacted tar-like sandy-silt, grit and small stones (**1508**). Another lens within **1507** was a dark reddish-brown sandy-silt (**1509**) with 20% gravel inclusions. A thin layer of dark greyish-black demolition debris (**1500**) lay above **1507**.
- 4.8.4 Three pieces of slate flagstones were uncovered during the initial mechanical clearance of the site. One was unstratified but two, from the same flagstone, were possibly *in-situ* and may, therefore, be a remnant of a courtyard surface. Slate flagstone pieces (**1008**) sat on a bedding layer of dark greyish-black ash and cinder (**1101**).

4.9 THE FINDS

4.9.1 **Introduction:** in all, 853 fragments of artefacts and ecofacts were recovered during the investigation. Their distribution is shown below (Table 1). All were well-preserved, with little abrasion. The majority of the finds were fragments of glass, metal and pottery. The majority of finds suggested activity from the early nineteenth to the twentieth century, with deposition continuing to the 1970s.

Context	Pottery	Glass	Tobacco Pipe	Bone	Oyster Shell	Metal	Other	Totals
1001	91	277		3		209	29	609
1100	2			2				4
1101				10				10
1105	6		1		1	1		9
1107			1	29				30
1108				1				1
1403	9				1			10
1500		5						5
1501	6		2	2				10
1503	2	1		6		1	2	12
2003						1	1	2
2026							1	1
2030	55	49	3			24	1	131
2041	1					2		3
2052				1				1
2053	4							4
U/S			1	10				11
Totals	175	332	8	64	2	238	34	853

Table 1: Distribution and quantification of artefacts and ecofacts by context

4.9.2 **Pottery:** most of the pottery fragments were collected from demolition deposit **1001** and backfill deposit **2030**. Most of the fragments are plain refined white earthenware kitchen and tablewares, with a number of transfer-printed fragments. These came into widespread production in the nineteenth century and those from backfill **2030** date mainly from the nineteenth century while those in **1001** are mainly twentieth century. The patterns represented on the white earthenware included ‘Willow’ and ‘Swinnertons’. The types of white earthenware represented were mainly dinnerware and tea-ware, with little identifiable bedroomware. The assemblage comprised large quantities of tablewares (principally white earthenware and bone china) and coarsewares (black-glazed red earthenware kitchenware vessels, such as crocks and pancheons, and stoneware bowls and storage jars). Of particular interest was a piece of a mug bearing the YMCA logo from demolition deposit **1500**. This logo was the second created for the organisation and was designed so that people would recognise it as the logo of the YMCA and was in use from 1897 to 1967 (www.ymcamission.org).

4.9.3 **Tobacco Pipes:** clay tobacco pipe fragments were of particular interest with eight recovered and details are provided in Table 2.

Context	Description
1105	50mm long stem fragment, some bluing. Bore 7/64. No identification marks. Probably c 1670 – 1730
1107	33mm long stem fragment. Bore 4/64. Impressed mark ‘Southorn, Broseley’. Stamp is mark of Southorn family. c 1825 1850
1501	2 stem fragments – 38mm and 42 mm long, adjoining. Bore 4/64. No identification marks. Probably late 18 or early 19 century
2030	2 stem fragments Large dia. 7/64 30mm long c 1680-1730 Small dia. 4/64 23mm long late 18 th or 19 th century
2030	Bowl. R.L. stamped on bowl and heel. Tooling marks around rim. Bowl 18mm diameter, length 43 mm. Possibly Richard Legg, Broseley area 1660-1680
Unstratified	38mm long stem fragment with bowl heel, some bluing. Bore 7/64, heel as impressed mark ‘Roberts.’ John Roberts, Much Wenlock, c 1680-1730. Kiln in Spittle Street has been found and excavated.

Table 2: Summary catalogue of clay tobacco pipe fragments

4.9.4 **Ceramic Building Material:** the most common artefacts category recovered from the excavation was ceramic building material, fragments of which were recovered from structural remains and demolition deposit **1001**. A survey was made of the named bricks, and these were photographed. Several bricks were removed from their location as samples and named bricks were collected from demolition rubble **1001**. These are summarised in Table 3.

4.9.5 Examples of bricks from numerous brickworks were recovered. These included: Rufford and Co, Stourbridge, c 1809-1936; J C Edwards Ruabon, 1903 –1956; Castle Brickworks Buckley, Flintshire, 1866 to 1970; Hanwood, probably post-1921, but could be c 1890 onwards until closure in 1941; Dennis, Ruabon, 1878 –1980 (effectively end of brick production); Monk and Newell, Ruabon, closed in 1920s; Lilleshall, Shifnal, company obvious, but undated. Unidentified bricks were: BPB; Bowe[n]? and PLU[].

4.9.6 The foundations of the majority of the walls and remaining courses above ground were constructed of unfrosted and unnamed bricks. Many of the bricks in the Wash House and other outbuildings bore comparison to those used in other parts of the mill complex and were, therefore, very late eighteenth and early nineteenth century in date.

Context	Description
1100	A mixed brick floor with occasional named firebricks: part of, 'Rufford Stourbridge' in situ; 'Rufford Stourbridge' sampled; part of a firebrick that looks like '& BE' and 'Stour**', sampled, possibly Harris and Pearson of Stourbridge; part of a firebrick 'Rufford', part 'Stourbridge' below this?, original size unknown, sampled.
1301	The Stable, with brindle paviers in floor, sampled, and 'Monk & Newell, Ruabon', not sampled, see also U/S 5.
2015	Base of wall 2012 with some or all 'Hanwood' bricks with c13mm stamp, one photo, sampled.
2042	Part firebrick, one photo, sampled, possibly 'Bowen Stourbridge'
2045	Chimney base. 'B.P.B.' brick, see U/S 13 and part 'Rufford Stourbridge,' in situ.
U/S	<p>U/S1 'J C Edwards, Ruabon', chamfered stretcher, parts of two probably unrelated bricks.</p> <p>U/S 2 'PLU-', firebrick, if standard size probably only one letter lost.</p> <p>U/S 3 part hard red brick with '-CE' and '6 1/8', possibly J.C.Edwards, 1902 -56.</p> <p>U/S 4 [Monk &?]'Newell Ruabon' bull nose.</p> <p>U/S5 clearer 'Ruabon' mark on example of 1301.</p> <p>U/S6 'JCE' presumably J C Edwards as U/S 1 above. Part brindle brick possibly an even more damaged example of U/S 9 below.</p> <p>U/S 7 'Lilleshall Shifnal' pressed red.</p> <p>U/S 8 'Lilleshall Shifnal,' but yellowish.</p> <p>U/S 9 'JCE' presumably J C Edwards as U/S 1 above. Part brindle sloped sill header.</p> <p>U/S 10 Castle brickworks, pressed red.</p> <p>U/S 11 'Hanwood' pressed red, c 10mm stamp.</p> <p>U/S 12 'Hanwood' pressed red, c 13mm stamp.</p> <p>U/S 13 'B.P.B.' pressed, better example of 2045 above.</p> <p>U/S14 pressed 'Ltd' and 'R' alone legible.</p> <p>U/S 15 'Dennis Ruabon' no photo but probably a bull nose.</p>

Table 3: Summary catalogue of the stamped bricks

4.9.7 **Glass:** the majority of the glass assemblage comprised fragments of window panes of varying thicknesses, recovered from deposits **1001** and **2030**. Fragments of colourless glass machine-blown bottles from early to mid-twentieth-century date were also present, mainly in **2030**. A Swan Ink bottle with a screw neck and an unmarked bottle without its stopper were recovered from this deposit. A milk bottle was found in demolition deposit **1401** and was marked 'Hanwood Dairy' and the number '1933' which is associated with the formation of the Milk Marketing Board in that year.

4.9.8 The number of marbles from the site is of interest, with glass examples present in contexts **1001** and **1500**. One of these, from **1500**, is probably a reused mineral-water stopper, but the examples with deliberate coloured swirls are likely to have been mass-produced with the game of marbles in mind.

- 4.9.9 The first mass-produced glass marbles were made in Germany in the mid-nineteenth-century (www.marblechamp.com/history-of-marbles), but the technology spread rapidly and by the early twentieth century they were made in great quantities. Marbles games appear to have been at their most popular in England in the 1930s and 1940s, with the creation of the World Marble Championships at Tinsley Green in West Sussex, in 1932 (Pearson 2003). The numbers lost on the site suggest that the courtyard was a popular spot for playing this popular childhood game.
- 4.9.10 **Metal:** comprised mainly ironwork from demolition deposit **1001** and seems most likely to derive from mill machinery and the construction and maintenance of buildings. Bolts, washers, nails and screws formed a large part of the metal assemblage. Parts of bicycles were also recovered. A brass bullet casing of a .303 rifle bullet was found in **2003**, and is probably associated with the use of the Apprentice House and associated buildings by the military during the 1939-45 Second World War.
- 4.9.11 All of the fragments were recovered from demolition or backfill deposits which were probably imported to the site. Backfill deposit **2030** dates from the construction of the Wash House and first Stable in the early nineteenth century, although it was disturbed by later service and building works in the mid-nineteenth and twentieth centuries.
- 4.9.12 **Animal Bone:** in total, 64 animal bone or teeth fragments were recorded, weighing 0.9kg. All of the bones were collected by hand, with no material from soil samples. All of the bone is phased as modern.
- 4.9.13 The material was identified using the reference collection held by the author. All parts of the skeleton were identified where possible, including long bone shafts, skull fragments, all teeth and fairly complete vertebrae. Reference was also made to Halstead and Collins (1995), Schmid (1972), and Cohen and Serjeantson (1996) for the identification of mammal and bird bone. Sheep/goat distinctions were made using reference material and published work by Boessneck (1969), Kratochvil (1969) and Prummel and Frisch (1986).
- 4.9.14 **Quantification and Condition:** of the, 64 fragments of bone or teeth 29 (45%) were identified to a species level or low order group (Table 4). Table 4 presents a complete species list and the number of individual specimens (NISP) per species within each context. Overall the bone and teeth are in a very good condition, with little to no erosion the bones surface and limited fragmentation of the original bone.

Species	1001	1100	1101	1107	1108	1501	1503	2032	U/S	Total
Cattle							1			1
Pig				3		1	1			5
Sheep/Goat	2		2	6	1		1			12
Sheep			1	4						5
Rabbit			1						5	6
Cattle/Red Deer				2						2
Sheep/Goat/Roe Deer									1	1
Cat-Sized Mammal							2		4	6
Medium Mammal		1	4							5
Large Mammal	1	1	2	1			1			6
Unidentified Mammal				12		1		1		14
Dom. Fowl/Pheasant				1						1
Total	3	2	10	29	1	2	6	1	10	64

Table 4: Number of Individual Specimens (NISP) by context

4.9.15 *Discussion:* domestic stock animals comprise the bulk of the assemblage, although rabbit bones were also present from deposit **1101** or collected as unstratified. Most of the sheep/goat category are likely to be of sheep, as goat historically has not comprise a major element of the British diet. Butchery marks were recorded on 17 bones, of which 13 were collected from deposit **1107**. This included seven instances of sheep or sheep/goat tibias being sawn though the shaft. In five specimens, the lower part of the tibia was present associated with lamb shank. Two specimens comprised the upper part of the tibias, which would have been retained with the remainder of the leg of lamb. Filleting marks were also recorded on one of these tibias. Other butchered bones of the same deposit included a cattle or red deer sacrum had been sawn longitudinally when the carcass was divided in two; the illial fragment of a pelvis which had also been sawn, both probably to remove the hind leg; a pig astragalus with dismembering marks; and a cow/red deer thoracic vertebra fragment with cut marks from the removal of the tenderloin.

4.9.16 Other butchered bone included a cow/red deer cervical vertebra sawn longitudinally to divide the carcass in two; a lower fragment of a cow femur sawn to separate the leg from the topside and flank; a sheep/goat metacarpal with filleting marks upon it; and a sheep humerus with dismemberment marks at its lower end to separate upper leg from the shank.

4.9.17 Most of the bones present appear to be from prepared joints brought from a butcher's shop. Rabbit may also have been acquired from a butcher, reared for the pot, or caught from the wild.

- 4.9.18 **Plastic:** the assemblage contained a number of items including a deflated plastic football commemorating the 1972 World Cup which was recovered from demolition deposit **1001**. This deposit dates from the 1970s when, according to records, the Wash House was demolished. Another plastic toy, in this case a pink pig from the latter half of the twentieth century when the Apprentice House was used for domestic accommodation, was recovered from drain deposit **2026**. A handle for a toothbrush from **1107** appeared to be plastic but was probably ivory or bone and marked 'Warrant'.
- 4.9.19 **Conclusion:** the bulk of the material derived from demolition and backfill deposits. The material was mainly dated to the nineteenth and twentieth centuries, and reflected the use of the Apprentice House and outbuildings at points throughout their history. There was little by way of domestic finds, with the majority associated with the construction of the buildings and the industrial nature of the site. The construction of the Wash House reflected its original use as a laundry, and the outbuildings showed use as a stable due to the flooring.

5. DISCUSSION

5.1 INTRODUCTION

5.1.1 The excavation revealed information relating to the sub-surface survival of remains of archaeological interest at the site of the former Wash House, Stable, Cow House and Piggery to the north of the Apprentice House. The discussion of the results presents a three phase model of development that is pre-1855, with specific reference made to a map dated 1849, post-1855 to 1902, and post-1902. The discussion has integrated contributions by participants which were made in the spirit of a public-led excavation.

5.2 THE APPRENTICE HOUSE CORRIDOR

5.2.1 The corridor connecting the Apprentice House to the Wash House had three phases of development. The main elements of each phase are summarised below.

5.2.2 **Phase 1:** the 1855 plan of the mill complex shows a door in the centre of the north side of the Apprentice House facing a door in the south side of the wash house. Linking the two buildings was a wall (2036) with a gate allowing access to the gardens at the side and front of the Apprentice House building. Tiled floor surface 2059 provided a walkway between the buildings. Both the 1849 and 1855 maps show a pipe running from the Flax Warehouse to the Wash House beneath the Apprentice House and this is probably iron pipe 2060. The 1855 map labels this Pipe 37, which is described as ‘a pipe conveying the Rain Water from the cistern at the base of Flaxwarehouse to the Bath and Washhouse’. These are the main features representing Phase 1.

5.2.3 The Ordnance Survey map of 1902 shows a structure linking the Apprentice House and the Wash House. A roof line (2077) is visible on the wall of the Apprentice House around the doorway. Brick wall 2022 formed the western side of the structure and is built on tile surface 2059. Two internal walls, 2038 and 2039, were also built on tile surface 2059 and may have supported a sink and provided an alcove. The 1902 map shows a small yard to the west of the corridor, in the space between the Apprentice House and the Wash House, with an entrance to the main courtyard. Tiled surface 2021 matches this area and may have been laid as the floor surface.

5.2.4 A doorway in the east corridor wall gave access to the former garden area and brick platform 2064 and remnant of a flagstone pathway 2074 corresponded to the location of a greenhouse against the east wall of the Wash House shown on late nineteenth-century mapping but had been demolished by the time of the 1902 edition of Ordnance Survey mapping.

5.2.5 Phase 3 is represented by concrete floor surface 2025, and brick threshold 2020 that was a modern replacement of an earlier threshold.

5.3 THE WASH HOUSE

- 5.3.1 The 1855 plan shows a rectangular, almost square floor plan of a building called that Wash House, with a single feature labelled 'Bath'. The footprint of the Wash House on mapping from 1849 to 1963 remains basically the same but for an anomaly that corresponds to the area of Room 5. While the scale of the available nineteenth-century mapping is not of sufficient detail to indicate the presence of specific features, the Wash House, Stable, Cow House and Piggeries are less detailed than other structures depicted on mapping. Excavation has demonstrated that the Wash House comprised several rooms, and different phases of development.
- 5.3.2 In Room 1 east wall **2037**, south wall **2019**, threshold **2027**, tile surfaces **2014**, **2018**, **2056**, **2042** and ash pits **2040** and **2041** represent the earliest phase of development (Phase 1). The sides of the walls in this room sloped noticeably up to the walls and this could have been a wet room, allowing water to form without damaging the fabric of the building with drain **2044** providing an outlet. Ash pits **2040** and **2041** were probably for two separate fires. Excavation of ash pit **2040** provided evidence of a thermal break in the form of a clay band between the fire brick sides and wall **2037** that was constructed of less robust bricks. These features represent Phase 1 in Room 1.
- 5.3.3 Phase 2 in Room 1 consists of brick wall **2082** that was built on brick tiles and made formed rectangular Room 2 in what was originally the north-west corner of Room 1.
- 5.3.4 Phase 3 in Room 1 is the concrete floor surface **2043** that varies in depth from 50mm in the eastern half to a skim in the western half, with it breaking away from floor tiles **2056**. A fracture line in the concrete flooring running north/south may indicated where, for some reason, the original tile floor was removed prior to the laying of the concrete. In the south-east corner of Room 1, a slot indicated that walls **2019** and **2037** extended to an excavated depth of 14 bricks which appears overly deep for foundations, and raises the question as to whether a cellar may have originally existed in this part of the Room 1.
- 5.3.5 In Room 2 walls **2015** and **2003** along with tile floor **2016** represents Phase 1. Phase 2 consists of wall **2082** and possibly floor tiles **2028** that replaced tiles removed to facilitate the insertion of two lead pipes (**2083**) through wall **2003**. Lead pipes **2083** are the same as lead pipes **2058** located beneath the floor of the Apprentice House, although no damage to or replacement of floor tiles was discernible there. Phase 3 consists of concrete surface **2017** that was a repair to broken tiles along the base of wall **2082** in the south-east corner of the room.
- 5.3.6 The outer walls (**1003** and **2037**) of Room 3, along with refractory brick tile surface **2046**, represented Phase 1 activity. Drain **2047** with floor drainage channels **2048** also belong to this phase. Phase 2 is represented by ceramic drain **1402** that is on the outside of the north wall, and links to the later drainage system rather than the Open Drain depicted on the 1855 plan. Phase 3 consists of modern brick feature **2063** that acts as an internal buttress or blocked a drain in the junction of the north and east walls.

- 5.3.7 Between Rooms 1 and 3 was brick feature **2045** which is a chimney with associated structures and is mainly Phase 1. Room 3 was probably a drying area and ironing room of the Wash House, with fireplace **2067** providing the necessary heat source. In Room 1 flues **2066** and **2065** were associated with the ash pits for coppers. Wall **2037** and the section of north wall **1003** were appreciably thicker than other outer walls and this was probably related to heat retention. Building platform **2064** was located attached to or adjacent to wall **2037** and could have utilised heat to enable it to function as a hot house rather than a green house. Elements of Phase 2 were evident in the form hearths **2068** and **2086** that were laid on brick floor surfaces **2046** and **2042** respectively. Phase 3 features were not present in the chimney structure.
- 5.3.8 In Room 4 walls **1002**, **2002**, and **2003** were from the primary phase of construction. The Grinsall flagstones that provided a floor surface around the Bath, Grinsall threshold **2001** and the features associated with the Bath were all Phase 1. The use of Grinsall sandstone for features such as thresholds, the corners of doorways in the Apprentice House corridor, the flagstones (**2074**) in the hot house (**2064**) pathway was probably decorative as well as functional. Its occasional use throughout the mill complex has an aesthetic quality, through the material's colour and texture which embellishes what is essentially a monument to brick and iron. The Bath provides a perfect example, with its clean design enhanced by the brick walls and floor that are complemented yet highlighted by the five steps of Grinsall sandstone.
- 5.3.9 The 1855 and 1849 plans show a pipe from the Gas Pit to the Wash House and this is described as 'A 1 1/2 In (ch) pipe carries Water from Bath in Wash House to Gas Pit'. This pipe (**2090**) juts through a flagstone in the south-west corner of the room.
- 5.3.10 Phase 2 in Room 4 is probably represented by ceramic tile pipe drain **2052**. This cuts through earlier features in Room 5, and directed rainwater from a Wash House downpipe to the bath, perhaps installed as a later, supplementary supply to that from the Flax Warehouse cistern. The infill of the Bath and concrete covering **2005** is Phase 3 in this room.
- 5.3.11 Room 5 was the most complex room in the Wash House, and was probably the anomaly in the footprint of the building in 1855 compared to that in later mapping. Brick platform **2049**, brick-lined drain **2054**, and wall **2035** are the earliest structural features of this area. Brick setts **2013** provided an exterior floor surface above these features. Originally they were on the exterior of the building, in a corner formed by walls **2003** and **2015**. The 1849 and 1855 plans do not show the walls of the building in any detail, only its outline. Platform **2049** was substantial and designed and built to provide a base for something. Drain **2054** was formerly a drain for a downpipe, and probably connected with drain **2089**. Wall **2035** was not substantial and may have provided a barrier between whatever stood on the brick platform and the courtyard but allowing access from the west. Wall **2035** respects the alignment of wall **2003**, but juts out to the west and this may be the anomaly in the building's footprint shown of the 1849 and 1855 plans.

- 5.3.12 Phase 2 represents the building of wall **2012** and the truncation of the south-east end of drain **2054** and the east end of platform **2049** to install ceramic rain pipe **2052** that directed rain water to the Bath. A segmented ceramic drain (**2034**) was built at the south-east corner of wall **2012** and plumbed into **2089** with **2054** truncated at the base of wall **2012**. Phase 3 in Room 5 is the concrete floor surface **2092** on brick setts **2013**. The function of Room 5 is difficult to determine as there was not an obvious doorway into Room 2 although there was possibly a doorway allowing access to it at the junction of wall **2012** with **2052**. The platform is the key to this space with, perhaps, a water pump associated with the water pipe from the Gas Pit.
- 5.3.13 The passageway between the Wash House and the Stable was of practical use in that a water pipe (**2032**) was located at the north end and a brick-lined drain **2089** that was aligned north/south. These features are Phase 1. The ceramic segmented drain **2034** represents Phase 2 with a later drain **2029** and a concrete flagstone (**2000**) being Phase 3. This passage way is narrower on the 1855 plan than on the 1849 plan due to the enlargement of the Stable. Certainly its main purpose is to separate a building for animal stock from one that was a wash house or laundry. The passageway permitted access to services laid along its length.

5.4 THE STABLE

- 5.4.1 The outbuilding shown on the 1855 plan had three distinct sections marked 'Piggeries, Cow House and Stable'. The 1849 plan showed a smaller building as the Stable with a structure at the west end of the courtyard. The excavation demonstrated that there were five distinct sections in the exposed building, and these corresponded to the areas marked on the 1855 plan.
- 5.4.2 The area identified as the Stable is at the east end of the main structure. In terms of the phasing system employed, the Stable is essentially a Phase 2 building. Phase 1 is restricted to a few features. The north wall **1002** serves all the buildings, and is clearly a primary feature. Brick-lined drain **2089** is a north/south-aligned drain that was located beneath the east wall of the Stable at its northern end, accounting for the depth of the wall's foundations at this point. The foundation of a wall (**1314**), formerly the east wall of the building shown on the 1849 plan was located beneath stable floor. Beneath wall **1314** and built into its foundations was a square brick-lined drain (**1311**). Another square brick-lined drain (**1312**), aligned north/south, was located in the south-west corner of the stable.
- 5.4.3 The Stable shown on the 1855 plan is an extension to the east of the original Stable. East wall **1306**, south wall **1307**, a short section of wall (**1309**) and floor surfaces **1300**, **1301** and **1304** are all Phase 2. The integrated floor drainage channel **1302**, drain **1308** and two segmented drain pipes were laid as drainage for the extended building. The segmented ceramic drain sections **1321** and **1322** are the same as segmented drain **2034**, part of Phase 2 in the Wash House.

- 5.4.4 Phase 3 exists in the form of a collapsed section of reinforced concrete wall (**1007**). Excavation uncovered reinforced bars set in wall **1002** and these matched those in concrete wall **1007** as well as the bricks adhering to the base of the concrete matching the those on top of the remains of **1002**. At some point the north wall of the Stable was demolished and replaced with a concrete wall. When the building was demolished the concrete wall had been pulled outwards and collapsed adjacent to but at an angle from its original position.
- 5.4.5 The Stable in the 1855 form consists of two parts, a box for a horse and a tack room. The horse box is an extension with dark blueish-grey setts and the tack room, with dark red tiles, is located in what was formerly the eastern part of the former stable building. It is possible the space for the tack room filled the same function in the former stable given the outline of the building on the 1849 plan.

5.5 THE COW HOUSE

- 5.5.1 The area designated the Cow House on the 1855 plan occupies the site of the former horse box in the 1849 building marked as Stable. The Cow House has north wall **1002** and two large Grinsall sandstone blocks (**1205** and **1206**) as remaining evidence of Phase 1. In addition, a probable section of foundation of the former east wall (**1207**) was exposed in a slot in the north-east corner of the Piggeries.
- 5.5.2 Phase 2 in the Cow House is represented by the east **1203**, south **1202** and west **1202** walls. Phase 3 is the distinctive concrete floor (**1200**). The two Grinshill sandstone blocks were distinctive by virtue of their presence in a brick building. Excavation revealed a section of the west wall of the former stable (**1207**) which was used as foundation for wall **1204**. Wall **1207** was exactly in line with sandstone block **1206** and marked the line of the former stable west wall. Excavation did not unearth a remaining section of the former east wall but as block **1206** is to wall **1204** so block **1205** is to wall **1203**.

5.6 THE PIGGERIES

- 5.6.1 Walls **1002** and wall **1111** formed the north and west walls of a building shown on the 1849 plan. A square brick-lined drain aligned north/south (**1504**) also belonged to the first phase. A short section of wall (**1112**) was revealed that was probably a remnant of the structure. A second section of wall (**1207**) had the same stratigraphic relationship to surrounding contexts as **1112**, but may have been a part of another structure, possibly associated with the main drain. Indeed, it may have been a part of an inspection chamber.
- 5.6.2 Phase 2 is evidenced by south wall **1103** and surface **1100**. Brick setts **1100** were set in line with drain **1504**. Excavation did not reveal a surface to the west of **1100**, and it may have been removed during demolition of the site. Certainly a piggery would have required a brick or solid surface due to pigs rooting and waste disposal. Excavation revealed layers of made ground and demolition deposits. A modern service trench aligned north-west to south east cut across the piggery.

5.7 THE COURTYARD AND BOUNDARY WALLS

- 5.7.1 The north (**1002**,) and south (**1005**) walls are Phase 1. The west boundary wall is Phase 2 due to a modification in the size of the entrance way to the courtyard which was wider on the 1849 plan than on the 1855 plan. This entrance had been infilled by the time of the Ordnance Survey map of 1927, but evidence was not secured through excavation although this would have represented Phase 3.
- 5.7.2 The west boundary wall and entrance has been subject to modification prior to the 1849 plan as excavation revealed an east/west-aligned wall (**1502**) that was cut by drain **1504**. Wall **1502** was respected by wall **1506** on the opposite side of the entrance. Both walls were constructed of hand-made bricks of poor quality.
- 5.7.3 Drain **1504** was the same construction as drains **1312** and **2089**. All were aligned north/south, and were equidistant, being 6.2m to 6.3m apart. The system of drains probably dates from the building of the Apprentice House in 1812. Therefore, walls **1502** and **1506** probably predate 1812.
- 5.7.4 The courtyard surface may have been a composite heavily compacted surface (**1507**), appearing almost like tarmac. However, the surface may have been slate flagstones (**1008**) that were removed during demolition of the Stables in the late fifties or of the Wash House in the early 1970s.

5.8 THE OPEN DRAIN

- 5.8.1 The Open Drain (**1403**) is marked on the 1849 and 1855 plans. As the Flax Mill was built at the same time as the canal in 1797, it is probable that the drain dates from around this time which can be viewed as Phase 1.
- 5.8.2 Between the 1855 map and 1902 Ordnance Survey map, the Open Drain had an 18inch glazed pipe placed in the channel and it was backfilled (**1401**). This information is marked on the 1855 map in faint, barely legible pencil with the words Open Drain erased. This is Phase 2.
- 5.8.3 In terms of development a Phase 3 is not evident although segmented ceramic pipe **2029** is probably a twentieth-century drain.

5.9 CONCLUSION

- 5.9.1 The ancillary buildings investigated were the Wash House and the Stables, Cow House and Piggeries as depicted on the 1855 plan of the Old Factory and Outbuildings. The footprints of these buildings were located to a certain extent although the Piggeries was much damaged by demolition.
- 5.9.2 Three main phases of development were identified. Phase 1 was pre-1855 and the archaeological remains corresponded to the footprint illustrated on a Plan of the Old Factory and Outbuildings 1849. Phase 2 was developments post 1855 and probably related to the change of use of the site from a flaxmill to a maltings in the 1880s. The third phase was developments that were modern or post 1901. An earlier phase of development was identified with boundary walls that predated the construction of drains probably associated with the building of the Apprentice House *c* 1812.
- 5.9.3 This model of three phases of development is rather arbitrary, but does provide a framework within which to understand the site. Certainly, developments took place throughout the site's history and particularly in the twentieth century.
- 5.9.4 The excavation revealed information relating to the sub-surface survival of remains of archaeological interest at the site of the former Wash House, Stable, Cow House and Piggery to the north of the Apprentice House. In addition to data pertaining to the extent of survival of sub-surface remains, the evaluation also provided insights into the extent and character of features associated with the mill and the nature of materials used in the construction of these features.
- 5.9.5 The excavation at Ditherington Flax Mill provided a valuable opportunity to engage the local community in the cultural heritage of the site. The ancillary buildings proved appropriate for investigation by local community volunteers under the guidance and tuition of professional archaeologists.

6. PUBLIC ENGAGEMENT

6.1 PUBLIC ENGAGEMENT

- 6.1.1 The project involved a large number of volunteers during the course of the excavation. Many of the volunteers attended for more than one day and gave of their time readily to the project. A range of activities were carried out including excavation and recording tasks, post-excavation activities, and contributions to the report. In addition, there were a very large number of visitors during the course of the excavation and particularly during the Open Weekend, which was held in early May. There were nearly 2,000 visitors to the Flax Mill Open Weekend, many of whom visited the excavation site. In the evenings two groups, the Shawbury and Mid-Shropshire Rotary Club and the St.Chad's Womens Group, visited the Flax Mill, and the excavation site formed a key element of their visit.
- 6.1.2 A group of 12 pupils from Sundorne and Grange Secondary schools visited the site on five occasions for two hours during which they were involved in site tours and updates, excavation work and an explanation of post-excavation work. The pupils' behaviour, hard work and enthusiasm were a credit to their schools, and made a very positive contribution to the success of the project. In addition, a small group from the Flaxivity Youth Group visited the site for a short tour.
- 6.1.3 As well as excavation work there was post-excavation work, and the presentation of a working archaeological site for the Open Weekend. Participants were encouraged to contribute to the report, and their comments have been integrated into this document.



Plate 14: Volunteers excavating the remains of the Wash House



Plate 15: Volunteers excavating the remains of the Wash House



Plate 16: Volunteers excavating the remains of the Wash House

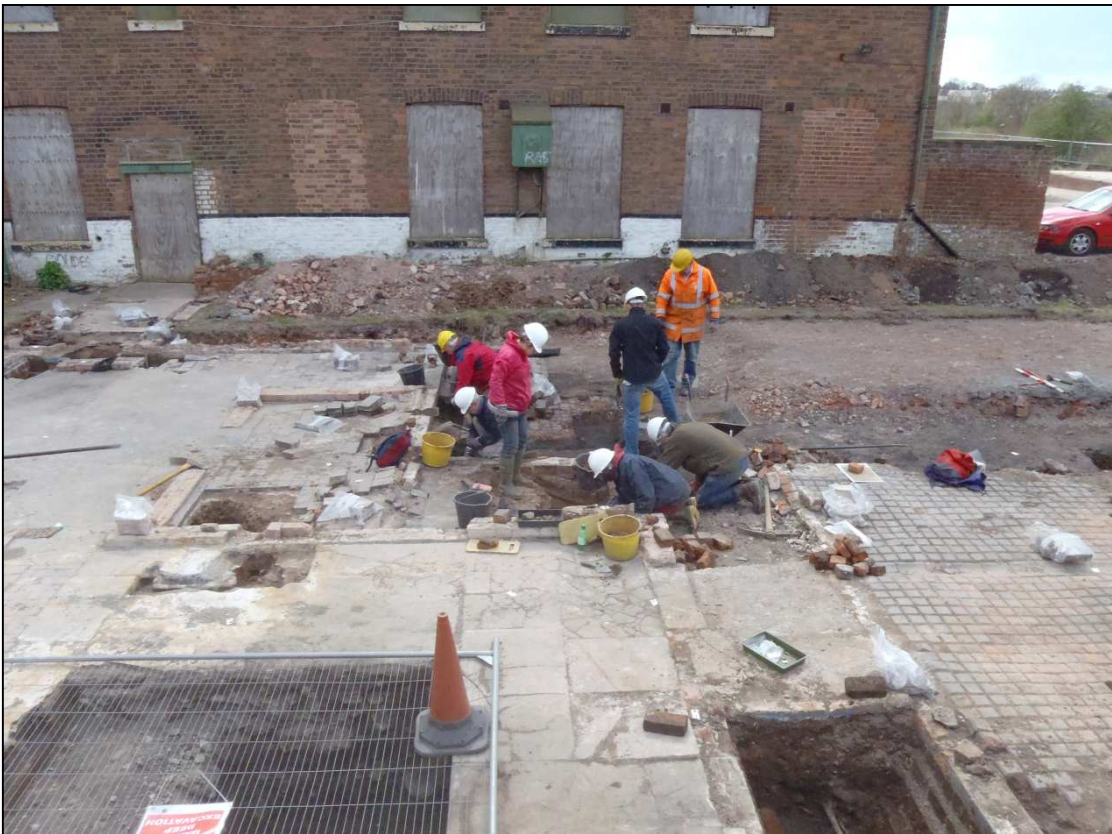


Plate 17: Volunteers excavating the remains of the Wash House



Plate 18: Volunteers excavating the remains of the Wash House



Plate 19: Volunteer excavating the remains of the Wash House



Plate 20: Volunteers excavating the remains of the Wash House



Plate 21: Volunteers recording the excavated remains of the Wash House



Plate 22: Visitors to the excavation during the Open Weekend



Plate 23: Public tour of the excavation site during the Open Weekend



Plate 24: Visitors to the excavation during the Open Weekend



Plate 25: Public tour of the excavation site during the Open Weekend

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APPENDIX 1: WRITTEN SCHEME OF INVESTIGATION



Ditherington Flax Mill, Ditherington, Shrewsbury

Community-led Archaeological Excavation

Written Scheme of Investigation



**Oxford Archaeology
North**

March 2013

Proposals

The following Written Scheme of Investigation is offered in response to a request from Lisa Cowling, Development Officer for the Friends of the Flaxmill Maltings, for a community-led archaeological excavation at Ditherington Flax Mill.

1. BACKGROUND

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 In September 2012, Oxford Archaeology North (OA North) was commissioned by the Feilden Clegg Bradley Studios, acting on behalf of English Heritage, to carry out a programme of archaeological investigation in advance of proposed regeneration and development works at the Ditherington Flax Mill site near Shrewsbury (centred on NGR SJ 49888 13849). The project is being supported by a grant obtained from the Heritage Lottery Fund, and the scope of the archaeological works required includes advice to support the drafting of a Conservation Plan, and the delivery of a community-led excavation on the site. This Written Scheme of Investigation provides an archaeological method statement for the delivery of the community-led excavation.
- 1.1.2 It is proposed that the community-led excavation should target a group of former outbuildings, including a stable and a wash house linked to a gas holder, that occupied the northern part of the flax mill site (Figs 1 and 2). These structures were targeted during an archaeological evaluation that was carried out in 2010, which revealed well-preserved structural remains at a depth of c 300mm below the modern ground surface (Plate 1).



Plate 1: Remains of the wash house exposed in the evaluation trench in 2010

1.2 OXFORD ARCHAEOLOGY NORTH

- 1.2.1 Oxford Archaeology North is an educational charity (Registered Charity No 285627), and is Institute for Archaeologists Registered Organisation (No 17). OA North, formerly Lancaster University Archaeology Unit, has been serving the archaeological needs of the North West since 1979, and this has included close involvement with amateur groups on projects throughout the region. This latter work has included professional support and also the provision of expertise, training, and resources for archaeological excavation, survey, and documentary studies.
- 1.2.2 As an educational charity, public education and training are central to the very fibre of the organisation, and we have developed an impressive track record in all aspects associated with community training and public presentation, as outlined below.
- 1.2.3 *Training and Community Archaeology:* OA North has considerable experience of working with, and providing training to, local communities and amateur groups on archaeological projects. These projects can range from surveys, which incorporate training for the local groups, to major training excavation projects aimed at volunteer groups. The following are some examples of community-based projects undertaken by OA North:
- ***Greenside Lime Kiln:*** the successful excavation and restoration of Greenside Lime Kiln, Kendal combined the leading expertise of OA North with resources from the local community including Young Archaeology Clubs, school children aged 8-15 years and local masons and artists. The result of this project raised awareness of the presence of a listed Ancient Monument and united a community in an appreciation of their heritage;
 - ***Ingleton:*** OA North, in conjunction with the Ingleborough Archaeology Group, undertook excavation and survey of a Roman settlement at Ingleton, North Yorkshire. During this investigation OA North offered training and supervision for upward of a core of 10 people, and more general training for 30 people from the local area. This allowed for an intensive archaeological investigation, which culminated in a high-profile excavation of this complex Roman settlement;
 - ***Skipwith Common:*** OA North is presently working with the Friends of Skipwith Common, to undertake a survey of Skipwith Common, to the south of York. The work is funded by Natural England;
 - ***Muncaster Fell:*** OA North undertook a survey of Muncaster Fell, West Cumbria, and an integral part of this work included training members of the Eskdale Local History Society in techniques of archaeological survey. Following the field survey a publication was produced detailing the results of the work;
 - ***Duddon Valley Cairn:*** OA North, in conjunction with the Lake District National Park Authority, undertook a community-training project involving the excavation and survey of two ring cairns at Duddon Valley, Cumbria;

- **Lathom House:** OA North undertook an archaeological and historical at Lathom Park, Lancashire, in conjunction with the Lathom Trust. This project involved training members of the community to undertake documentary research and building survey. OA North is presently undertaking a follow-on project evaluating and excavating the site of the former Lathom House fortified palace;
- **Holcombe Moor:** OA North undertook a community project surveying Holcombe Moor, South Lancashire, which was funded by the Ministry of Defence. The project was extremely successful and, in consequence, it won an MOD award;
- **Dunham Massey:** in July 2010, OA North provided archaeological training and supervision for The National Trust and The South Manchester Archaeological Research Team (SMART) in support of a series of community archaeological training events at Dunham Massey in Trafford, Greater Manchester. This project met with considerable success;
- **Quarry Bank House:** building on the success of the Dunham Massey excavation in 2010, The National Trust commissioned OA North to facilitate another community-based project at one of their properties in 2011. The site chosen was a former glasshouse in the Upper Garden of Quarry Bank House, which was carried out over a two-week period in July 2011;
- **Whitworth Art Gallery, Manchester:** in 2012, OA North facilitated a community-led excavation in Whitworth Park in Manchester on behalf of the University of Manchester. This project engaged local residents, special interest groups and local schools, and uncovered the buried remains of the formal gardens and structures associated with a nineteenth-century town house.

1.2.4 *Working with children:* as an educational charity, training and education are central to OA North, and the organisation has significant experience of working with children in a variety of situations. Of particular relevance to this project is the design and preparation of teacher's packs on Medieval Carlisle, undertaken for Tullie House Museum, Carlisle, and the Liverpool Docks for the Liverpool One development's museum.

2. AIMS AND OBJECTIVES

2.1 ACADEMIC AIMS

2.1.1 The principal aim of the project is to engage members of the local community in an archaeological excavation, and to raise the historical profile of the site locally. A second aim of the excavation is to provide a detailed record of the buried archaeological remains that exist in the northern part of the site.

2.2 OBJECTIVES

2.2.1 The objectives of the project may be summarised as follows:

- to offer an enjoyable learning opportunity for members of the local community who wish to become involved in an archaeological excavation;
- to compile a detailed record of those buried archaeological remains that are known to exist in the northern part of the site;
- to involve volunteers in the post-excavation works required, and create an appropriate site archive;
- to produce a full excavation report that can be passed on in digital format to all stakeholders at the end of the project;
- to carry out an appropriate level of dissemination of the results.

3. METHOD STATEMENT

3.1 THE PROPOSED ARCHAEOLOGICAL PROGRAMME

- 3.1.1 The programme of works will comprise the open-area excavation of a single targeted area (Figs 1 and 2), which will be placed across the open ground in the northern part of the site (Plate 2). The trench will measure *c* 25 x 12m, will incorporate the evaluation trench excavated in 2010, and will examine the footprint of the outbuildings shown on a plan dating to 1855 (Fig 2).



Plate 2: Arrow marking the proposed location of the excavation area, superimposed on a recent aerial view of the Ditherington Flax Mill Malting site

- 3.1.2 It should be noted that a flexible approach will be taken to the precise location and extent of the excavation area. The discovery of *in-situ* buried remains that extend beyond the edge of the excavated area, for instance, may require the targeted areas to be extended slightly to maximise the archaeological dataset recovered from the site.
- 3.1.3 The archaeological programme will involve, and train where required, participants from the local community who have registered to take part in the project. It is hoped that the excavation will directly involve up to 16 volunteers per day with ranging levels of archaeological experience. These volunteers may also include participants who might have physical limitations.

- 3.1.4 One of the primary aims of this excavation will be to guide, encourage, train, and nurture the volunteers in the techniques of archaeological excavation, and a particular emphasis will be placed on the quality of experience for those taking part. The techniques that participants will engage in will include excavation and all aspects of site recording. Following the completion of the fieldwork, a full site report and archive will be produced.

3.2 METHODOLOGY

- 3.2.1 **Excavation Methodology:** the uppermost levels of topsoil and overburden will be removed using a mechanical excavator of appropriate power, fitted with a toothless ditching bucket, to the top of the first significant archaeological level. The work will be supervised closely by a suitably experienced archaeologist, and will be carried out prior to the arrival on site of the volunteers. Spoil from the excavation will be stockpiled in a convenient location. Thereafter, all excavation will be carried out using manual techniques.
- 3.2.2 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 will be subject to 10% excavation.
- 3.2.3 Structural remains will be excavated manually to define their extent, nature, form and, where possible, date. Any hearths and/or internal features will be 100% sample excavated to provide information on their date and function, and the extent of any associated floor surfaces will be determined. It should be noted that no archaeological deposits will be entirely removed from the site unless their excavation is necessary to reveal other features and/or deposits. If the excavation is to proceed below a depth of 1.2m then the sides will be stepped in. Cut features identified against the edges of the excavation will not be excavated below a safe working limit of 1.2m.
- 3.2.4 **Recording:** all information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and colour photographs) to identify and illustrate individual features. The trenches and features will be located by use of high accuracy differential GPS equipment or total station; altitude information will be established with respect to Ordnance Datum. Archaeological features within the trenches will be planned using manual techniques or by means of a total station. All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record to illustrate individual features.
- 3.2.5 Results of all field investigations will be recorded on *pro-forma* context sheets. The site archive will include both a photographic record and accurate large-scale plans and sections at an appropriate scale (1:50, 1:20 and 1:10).

3.2.6 ***Finds policy:*** OA North employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham.

3.3 POST-EXCAVATION WORK, ARCHIVE PRODUCTION AND REPORTING

3.3.1 An archive for the project will be prepared during and immediately following the fieldwork programme for deposition in an appropriate repository. The results of the excavation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). 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 quantified, ordered, and indexed project archive in an appropriate repository is an essential and integral element of all archaeological projects.

3.3.2 An appropriate programme of analysis will be undertaken to prepare a research archive, as detailed in Appendix 6 of *Management of Archaeological Projects* (English Heritage 1991). A provisional programme of post-excavation analysis is proposed, on the basis of the anticipated recovery of material from the excavation; however, the extent of the programme can only be reliably assessed on completion of the fieldwork. The proposed programme anticipates analysis of the artefactual evidence and of the site stratigraphy, and may also involve palaeoenvironmental assessment, leading to the production of a final report.

3.3.3 The report will present, summarise, and interpret the results of the archaeological work, and will incorporate specialist reports on artefact assemblages and environmental reports, as appropriate. It will include an index of archaeological features identified in the course of the project, with an assessment of the site's development. It will incorporate appropriate illustrations, including copies of the site plans and section drawings, all reduced to an appropriate scale. The report will consist of a statement of acknowledgements, lists of contents, executive summary, introduction summarising the brief and project design, methodology, interpretative account of the site and associated structures, gazetteer of features, a complete bibliography of sources from which data has been derived. All digital survey information will be supplied in a CAD compatible format as a .dwg file, and all digital photographs will also be supplied as individual jpegs.

3.3.4 At the start of project, an OASIS on-line record will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS on-line form will be completed, and will include an uploaded pdf version of the final report.

3.4 HEALTH AND SAFETY

- 3.4.1 OA North provides a Health and Safety Statement for all projects and maintains a Safety Policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (3rd Edition, 1997).
- 3.4.2 At the commencement of the work, all project team members will undergo a site induction, whereby they will receive instructions on relevant issues, and will also include an introduction to site health and safety procedures. All participants will be asked to read the relevant OA North documentation covering the risk assessment for the site. All participants will also be required to sign an induction form, acknowledging that they have read and understood the health and safety documentation. A signing in and out book will be maintained daily by OA North for the duration of the works.
- 3.4.3 All attendance of volunteers will be strictly by prior arrangement. It is anticipated that all participants will be over the age of 16; volunteers between the ages of 8 and 16 may participate, but must be supervised at all times by a parent or guardian. No visitors will be allowed to participate in the archaeological survey without the permission of the senior OA North member of staff. All visitors will be required to adhere to site safety rules, will be escorted by an OA North team member at all times.
- 3.4.4 All OA North staff will wear PPE at all times while on site; volunteers will be required to wear clothing appropriate to the task undertaken, including sturdy shoes or boots. The project team will be provided with information on the clothing requirements in advance of the fieldwork. Any volunteers wearing inappropriate clothing may be excluded from participating in certain tasks on site. All work will be supervised by two OA North staff members.

3.5 OTHER MATTERS

- 3.5.1 **Community Participation:** the excavation will be a community-led archaeology project. Following the mechanical stripping of the targeted site, the area will be excavated by local residents, students and special interest groups, working under the supervision and guidance of professional staff from OA North. The Friends of the Flaxmill Maltings have strong links with the local community and schools, and will liaise with potential volunteers who have expressed an interest in participating in the excavation.
- 3.5.2 Local primary and secondary schools will be encouraged to visit the site, and participate in the excavation. A post-excavation power-point presentation will be sent to each school that participates in the project following the Open Days.
- 3.5.3 Four evenings will be provided for the members of Flaxivity, the local youth group. An introductory talk, plus a visit to the view the opened excavation trench will be facilitated on Monday 15th April, with opportunities for youth group members to participate in the excavation on Thursday 18th and Monday 22nd. A further site visit and talk to the youth group will be offered on Thursday 25th April.

- 3.5.4 **'Blog'**: a blog as part of the Friends website will be maintained during the course of the excavation. A daily entry by OA North will be made, and volunteers, Flaxivity and school groups will be encouraged to contribute.
- 3.5.5 **Open Day**: a public open day will be held on Saturday and Sunday 11th and 12th May. The open day will be intended to allow interested members of the public to view the excavated remains, any finds that have been recovered, and talk to the archaeologists.
- 3.5.6 **Timetable**: a two-week period should be allowed to fully excavate and record the excavation areas. It is proposed that the mechanical stripping of the targeted areas in preparation for the excavation is carried out on Monday 15th April. The excavation with the volunteers will commence on 16th April, and is scheduled for completion on Friday 26th April.
- 3.5.7 The initial post-excavation work will be carried out in Ditherington in collaboration with the volunteers during the week commencing 26th April.
- 3.5.8 A report will be submitted within four weeks of the completion of the fieldwork.

4 STAFFING PROPOSALS

- 4.1 The project will be under the overall charge of **Ian Miller BA FSA** (OA North Senior Project Manager) to whom all correspondence should be addressed. Ian has over 25 years experience of professional archaeology, and has been responsible for managing numerous community-led excavations.
- 4.2 The excavation will be directed by **David Maron** (OA North Supervisor). Prior to pursuing a career in archaeology, David was a headmaster of a primary school, and has a unique range of skills that enable him to deliver community-led archaeological projects to a very high standard.
- 4.3 Assessment of any finds recovered from the excavation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA** (OA North Finds Manager). Christine has extensive knowledge of all finds of all periods from archaeological sites in northern England, and is a recognised expert in the analysis of post-medieval artefacts.

5 MONITORING

- 5.1 Monitoring meetings will be established with the archaeological curator at the outset of the project. Monitoring of the project will be undertaken by the Archaeology Service of Shropshire Council, who will be afforded access to the site at all times.

ILLUSTRATIONS

FIGURES

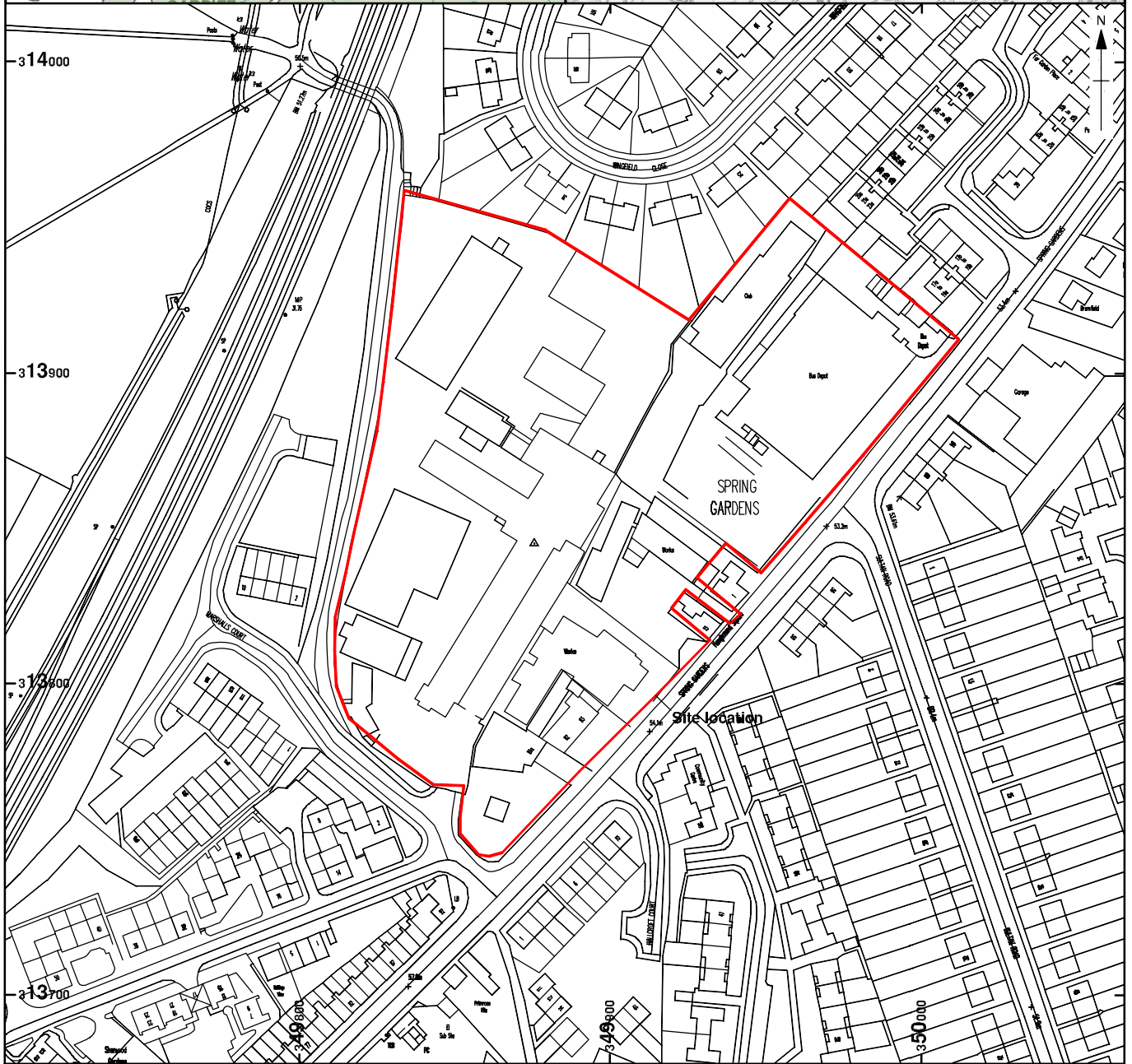
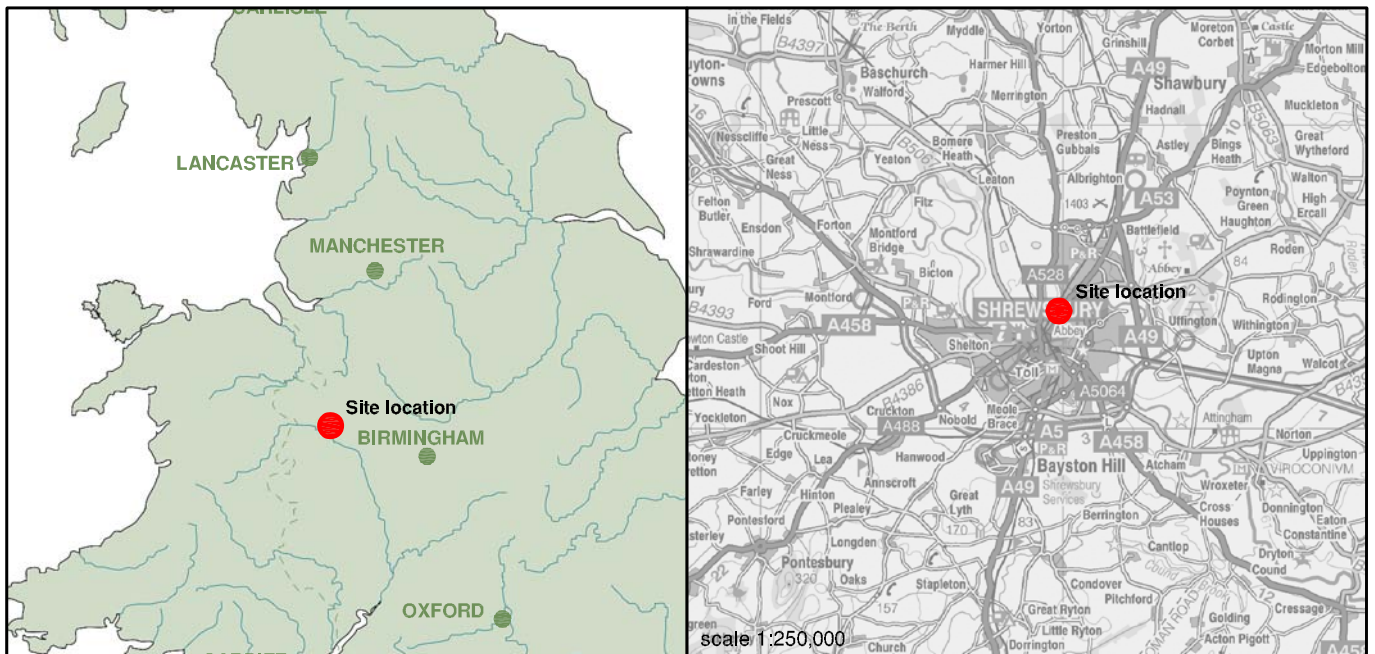
Figure 1: Site location

Figure 2: Excavation area superimposed on a Plan of Ditherington Flax Mill of 1855

Figure 3: Excavation area superimposed on an extract from the 1963 Ordnance Survey map

Figure 4: Detail of the remains exposed in the eastern part of the excavation area

Figure 5: Detail of the remains exposed in the western part of the excavation area



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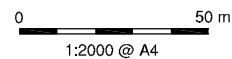


Figure 1: Site location

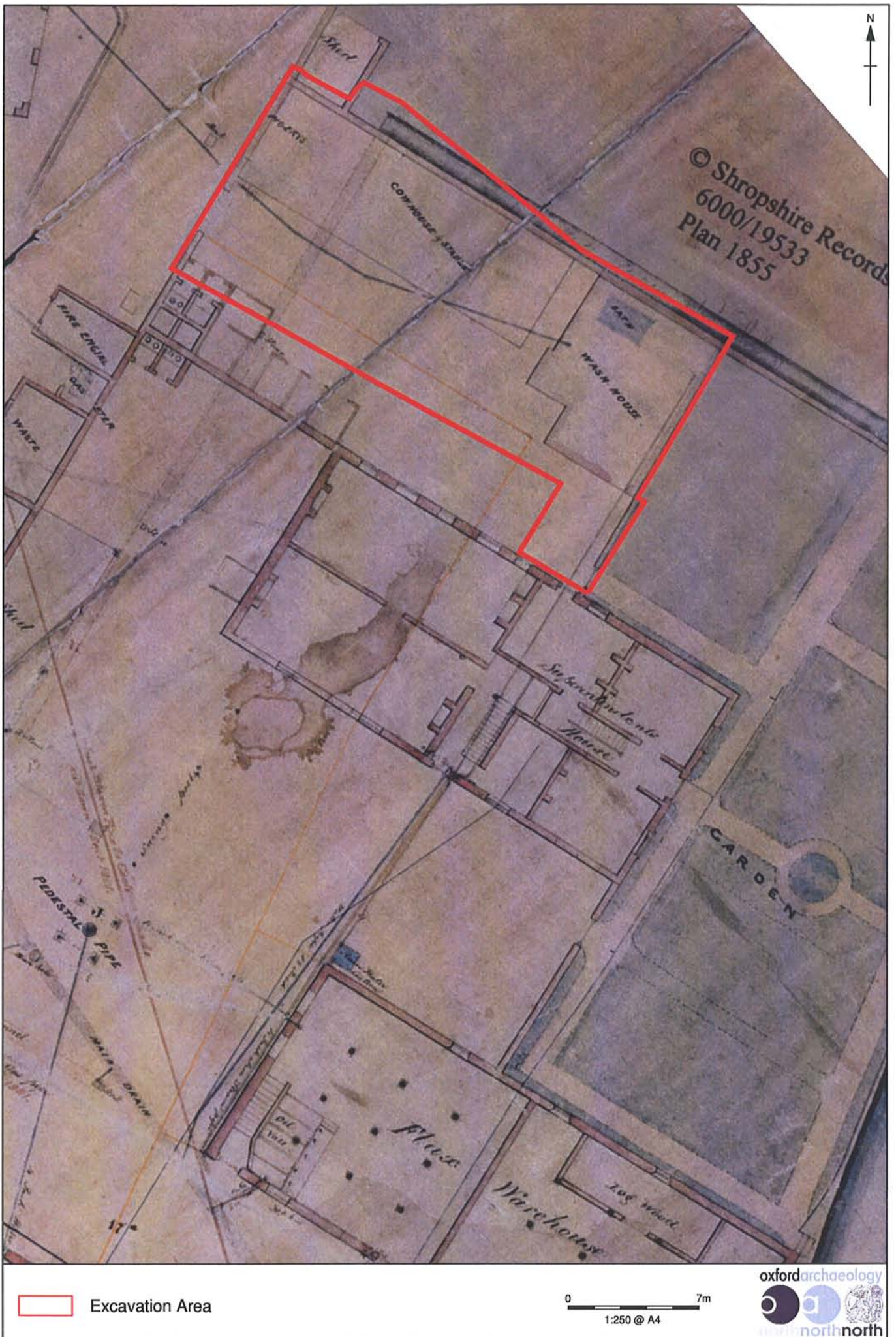


Figure 2: Excavation area superimposed on a Plan of Ditherington Flax Mill of 1855

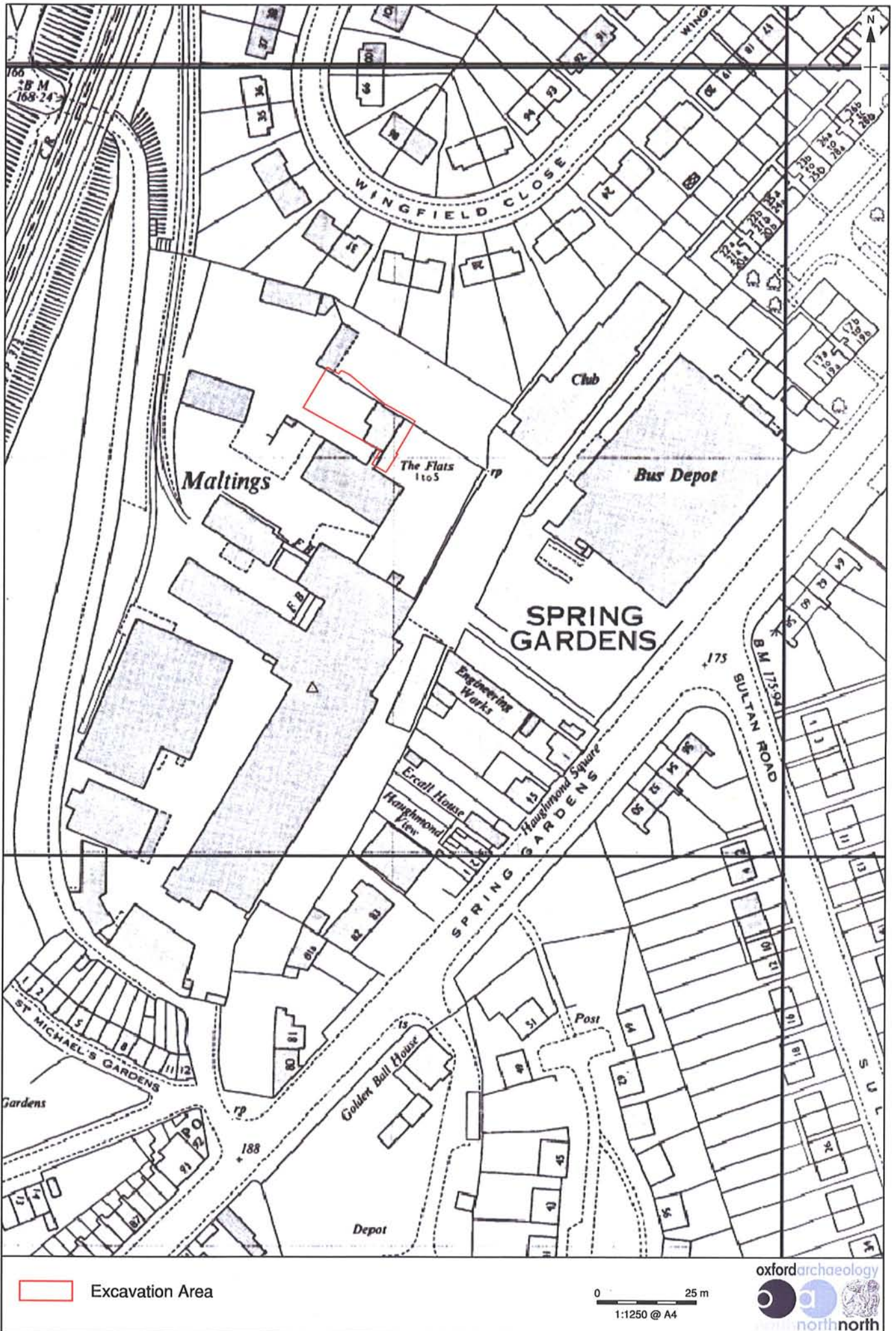


Figure 3: Excavation area superimposed on an extract from the 1963 Ordnance Survey map

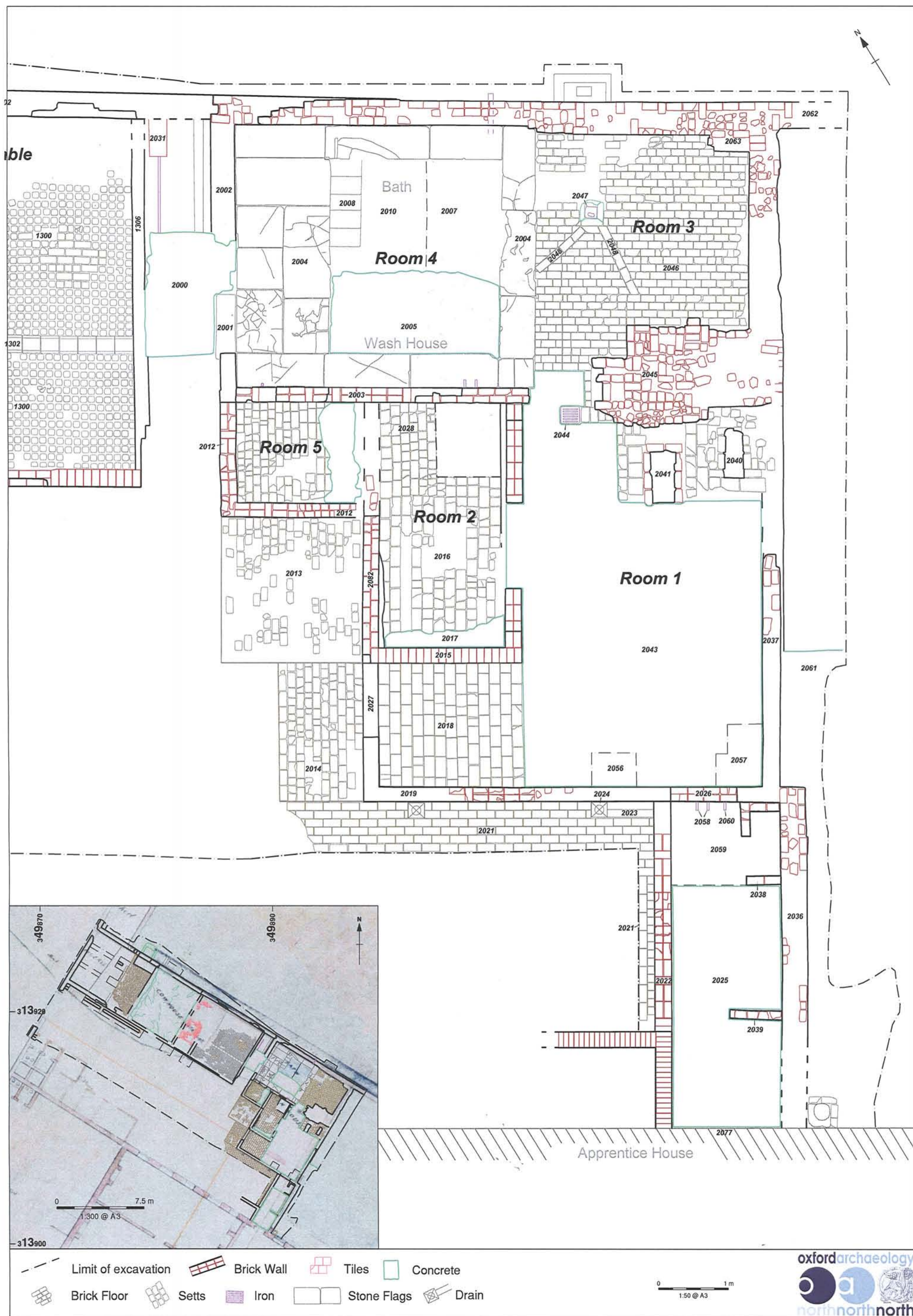


Figure 4: Detail of the remains exposed in the eastern part of the excavation area



Figure 5: Detail of the remains exposed in the western part of the excavation area



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