ArcHeritage

BRITANNIA MILL, MACKWORTH ROAD,

DERBY, DERBYSHIRE

BUILDING AND EVALUATION REPORT

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YAT York Archaeological Trust

AOD Above Ordnance Datum

ABSTRACT

Historical research shows that Britannia Mill was built following the demolition of an earlier colour works at the site. Prior to this a mill with 18th century origins is known to have occupied parts of the Britannia Mill site. The 18th century mill utilised water power, the colour works water power and steam. Medieval and later mills are recorded in the general area but their exact locations are unknown.

The fieldwork consisted of two parts, building recording and evaluation trenches. The recorded building was a 2 – 3 storey extension to the NE side of the mill of earlier 20th century date which is known to post-date the 1912 Britannia Mill. The lower floors of the building appear to have related primarily to the provision and regulation of power, and/or heat, to the Mill. An intermediate space at the SE end of the building functioned principally as a space for loading unloading with direct access to all floors of the mill via the lift shaft. The upper floor of the building may originally have formed office space. In recent years the lower floors have been used for storage and for housing electrical switch-gear whilst the upper floor has been fitted out to serve refectory purposes. These conversions have involved only limited structural alterations, most alterations being purely cosmetic.

Three evaluation trenches revealed structural activity pre-dating the existing mill, evidence for a deliberate build up of ground level subsequent to this as well as structures relating to the mill and its extension (ie. the recorded building). The evidence for pre Britannia Mill structural activity is formed by the walls and surfaces within Trenches 1 and 3 that were aligned at variance to the prevailing alignments of Britannia Mill and its extension. All these structural remains are believed to relate to the 19th century and probably to the Markeaton Colour Works. The variance of alignment of these earlier structural in relation to the existing mill is likely to relate to an alignment based on the need to utilise the watercourse for the production of power to run the works. The context of origin of a cistern-like structure in Trench 2 is uncertain. Later structural activity appears to relate to the existing mill and its extension.

1. INTRODUCTION

On 24th May 2010 an early 20th century 2–3 storey extension to the NE side of Britannia Mill, Derby (NGR SK 3411 3686), (Figure 1, Site location), was recorded. This extension is due for demolition and will be replaced by a new building of similar height but larger footprint (Planning ref: DER/04/08/00635/PRI). Between 1st-2nd June an evaluation comprised of three evaluation trenches was conducted within the footprint of the proposed new building (Figure

2, Trench location). Subsequently, an investigation into the historical background of the site using documentary and cartographic sources was carried out.

The building recording and evaluation were carried out in accordance with a Written Scheme of Investigation approved by Steve Baker, Development Control Archaeologist, Derbyshire County Council. The investigative works were funded by Rok plc, acting on behalf of the University of Derby, the owners of the site. The site archive, containing context cards, registers, plans and descriptive notes, is currently held by YAT under the accession code DBYMU:2010.18. At the completion of all works this archive will eventually be deposited with Derby Museum.

Figure 1 *Site location*

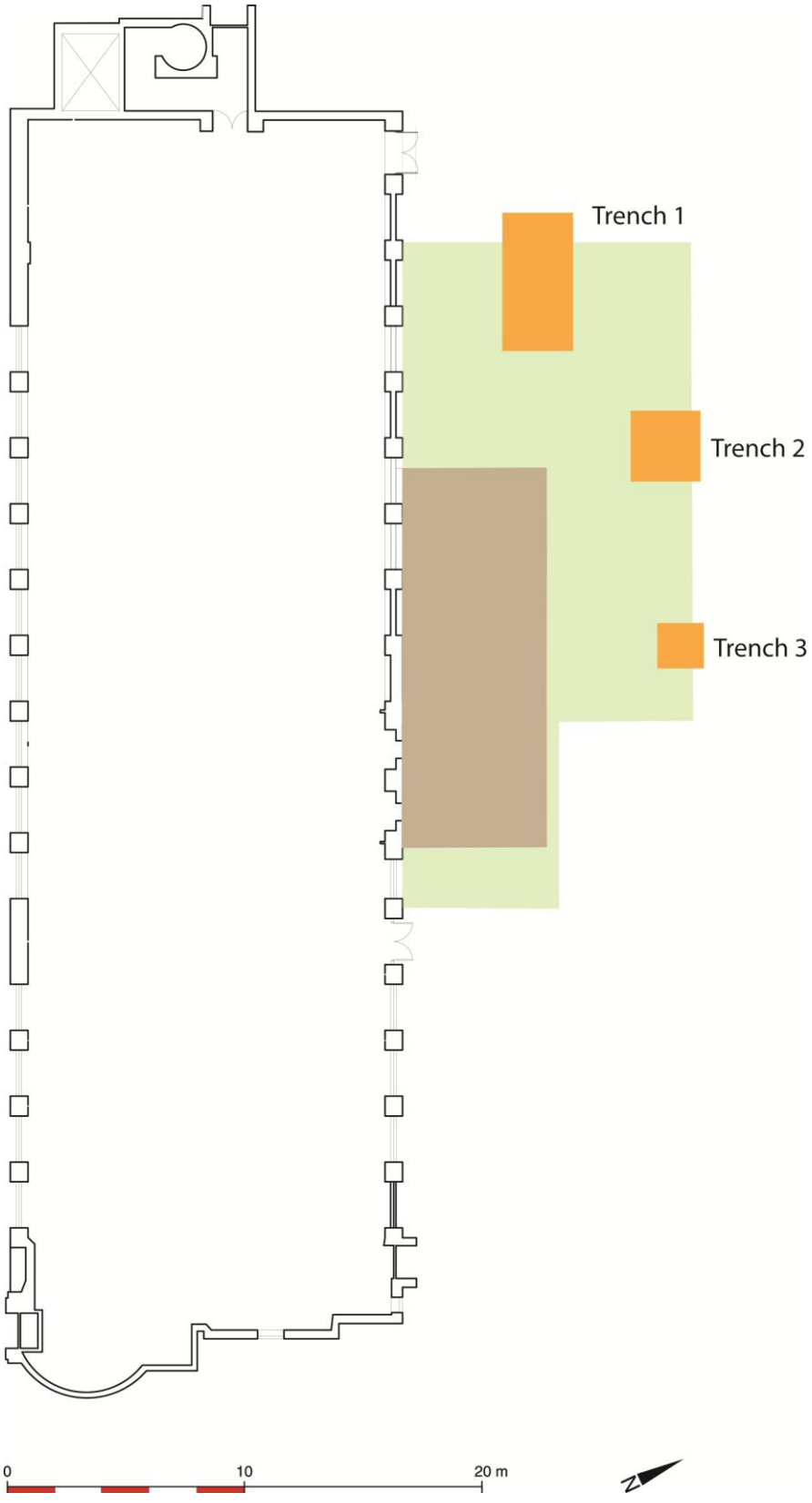


Figure 2 *Trench location, also showing outline of recorded building and proposed larger new building*

2. METHODOLOGY

The earlier 20th century extension to Britannia Mill was recorded to a standard somewhat in excess of Level 1 of the English Heritage guidelines (English Heritage 2006). Handwritten notes were made of each exterior elevation of the building and of each interior space. Additionally 35mm monochrome photographic prints and colour digital photographs were taken of the exterior elevations and interior spaces.

The evaluation was intended to be comprised of two trenches, but owing to the presence of a number of services one of these was split into two separate areas. The trenches were excavated by a combination of mechanical excavator (under direct archaeological control) and hand excavation. All recording was carried out in accordance with York Archaeological Trust fieldwork standards (YAT 2005).

All site records and finds are currently held by York Archaeological Trust (awaiting the completion of the project), under the Derby Museum accession code DBYMU: 2010.18. An OASIS record has been created at yorkarch1 -79275.

3. LOCATION, GEOLOGY AND TOPOGRAPHY

Britannia Mill is located on the western side of Derby in what is now a largely suburban part of the city predominantly of a residential character. The immediate environs of the site are fairly level and typically at a height around the 52m AOD mark. The solid geology of the area is of rocks of the Mericia Mudstone Group with an overlying drift geology of sand and gravel with alluvium. A watercourse known as Markeaton Brook presently runs a course around the E, N and W sides of the site. Formerly this watercourse was culverted through parts of the site and utilised for the generation of power.

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

4.1 HISTORICAL BACKGROUND

There are no known records of archaeological excavations in the immediate vicinity of the site.

4.2 MEDIEVAL

Fourteen mills were recorded in Derby in 1040, ten of which remained extant at the time of the 1086 Domesday survey (Hutton 1791; Morgan 1978). The location of the mill that was

listed at Markeaton in 1086 is not clear. However, during this period it was common for a manorial lord to oblige those who lived on his estates to pay for corn to be ground in a seignurial mill. The sole mill recorded at Markeaton in 1086 is thus likely to have been that which stood in the vicinity of Markeaton Hall, rather than one situated within the proposed development area approximately 1.3km to the south-east.

A mill may have been constructed within the site by the 13th century, as three water mills belonging to Kingsmead Priory were recorded along the course of Markeaton Brook in 1272 (Hutton 1791). None of these mills, which were all being leased to tenants, were named (Glover 1829). It is not known if the priory, a Benedictine nunnery that had been founded in 1160 (British History Online), had acquired control of existing mills or had been responsible for their construction.

Should one of the priory's mills have been situated within the proposed development area during this period, it is possible that the mill dam, to the west of the site, and the mill race or leet that channelled water through the site until the mid-20th century, may have developed from medieval predecessors.

4.3 16TH TO 18TH CENTURIES

Kingsmead Priory was dissolved by Henry VIII in 1536 and its lands, mills and fish ponds were granted to Francis Talbot, 5th earl of Shrewsbury, in 1541 (British History Online). By the late 16th century, the site was owned by the Mundy family, who had held the manor of Markeaton since 1516.

John Speed's 1610 plan of Derby did not cover the site and the scales used in the 1637 Christopher Saxton map and the 1673 Richard Blome maps of Derbyshire precluded the depiction of individual areas. Surviving Mundy estate rentals from the second half of the 17th century, which may contain references to the mill, could not be accessed during the timescale of this report.

Should a medieval mill have survived within the site during the early post-medieval period, a series of extensive floods along Markeaton Brook, such as those of 1587 and 1673 which destroyed several bridges (Hutton 1791; Glover 1829), may have damaged the buildings and resulted in several phases of rebuilding or repair.

Markeaton was recorded as 'Marton' from around 1690 (Farnsworth 2008) and the site was recorded as 'Marton Mill' in a 1737 survey of the Mundy estates (DRO D6782). As a separate entry detailed the mill that stood in the vicinity of Markeaton Hall, the 1737 survey

currently provides the earliest evidence of a mill within the proposed development area. Marton Mill had been leased to Elizabeth Grovesnor at the time of the survey and was worth £14.14s.0d per annum.

Marton Mill may have become the focus of milling within the Mundy estate after the closure of the mill near Markeaton Hall, which appears to have occurred in association with the creation of Markeaton Park in 1760 (Farnsworth 2008). Expansion, or perhaps the demolition and rebuilding, of Marton Mill, may thus have occurred during this period in order to accommodate the increased activity.

The mill was not depicted on a 1763 plan that showed 'old inclosures' and the recent parliamentary enclosures in Markeaton (DRO D1052 A/PZ1). This need not indicate that Marton Mill had been demolished by that date as the plan did not depict other mills, such as St. Mary's Mill, that are known to have been extant along the brook in 1763 (Farnsworth 2008). However, Peter Perez Burdett's 1767 map of Derbyshire also failed to mark Marton Mill. An unnamed corn mill was marked in the vicinity of the site but was depicted immediately south of the course of Nun Street. This suggests that the Burdett map marked the location of St. Mary's Mill, approximately 0.35km to the south-east of the site.
Burdett marked the mill on Markeaton Brook with a symbol and it is possible that the map's scale and generalised depictions precluded precision when locating individual features. It should also be noted that several mills known to be extant during this period were not shown on Burdett's map (Farnsworth 2008). It is also possible, however, that the absence of Marton Mill from the 1760 and 1767 maps may indicate that the mill was not in use or had been demolished by this period. This cannot be determined on the basis of the current evidence.

4.4 19TH CENTURY

Neither John Cery's 1801 map of Derby or G. Cole's 1806 plan of the town covered the proposed development area. However, an 1815 plan by John Chatterton and John Thomas Swanwick, which cannot be reproduced due to copyright restrictions, depicted the site clearly. Buildings stood around three sides of a large, sub-rectangular yard while three smaller, detached buildings stood at the east. It is not known if these structures had been part of the 1737 Marton Mill or represented a new complex that had been constructed since the production of Burdett's 1767 map.

The 1815 plan depicted a narrow, rectangular range along the mill's Markeaton Street frontage, with the entrance into the yard located at the south-east. A large, rectangular block stood at the west of the site, while a triangular plot of cultivated land was situated between this building and the mill dam to the west.

A mill race or leet ran from the north-east corner of the dam, channelling water through the northernmost building, before it emerged to the north-east of the mill and emptied into Markeaton Brook. The course of the leet indicates that the waterwheel was situated within the building at the north of the mill yard. This area is thus likely to have been the location of the principal buildings of any medieval mill that may have stood within the site. A small, rectangular feature to the north-west of the mill was depicted as a cultivated plot, while the land to the north and east of the mill was depicted as open fields, probably pasture.

Chatterton and Swanwick's map did not name the mill or indicate the type of activity that was undertaken at the site in 1815. It is possible that the site remained a corn mill at that date, although this practice ceased when the Mundy family sold the site shortly thereafter. The sale may have been associated with a re-organisation of the Mundy estates following the death of Francis Mundy in October 1815.

Pigot's 1818-1820 trade directory listed Benjamin and William Challinor, 'colour (sugar & lead & pyroligneous acid) manufacturers', at Markeaton Street. Subsequent directory entries demonstrate that the Challinors were based at Markeaton Mill. The nature and extent of any alterations that may have been made to the site in association with its change of usage are not known.

Benjamin Challinor and Co. occupied the site at the time of Pigot's 1835 directory, although the mill was put up for sale in 1837. An article in the *Derby Mercury* in December of that year described the site as a four-storey water mill 'with an upright shaft from the water wheel throughout, capable of having any kind of machinery attached to it' (quoted in Butterton 2006, 86). Fixtures within the mill included a steam boiler, large bleaching becks, vats, stoves and 'apparatus, for the manufacture of Sulphate of Byrites or Dutch Lead, Colours, and Roman Cement on a large scale' (quoted in Butterton 2006, 86). The mill was said to offer suitable premises for 'Colour Manufacturers, Cement Manufacturers, Rail Road Contractors, & c' (quoted in Butterton 2006, 86). Bagshaw's 1846 directory indicated that the site had been purchased by William Ellam, colour manufacturer.

By 1850, this company had become Ellam Jones and Co., who were listed in Freebody's 1852 directory as colour and paint manufacturers. Ellam Jones occupied the site at the time of its depiction on the 1852 Derby Board of Health map, which also cannot be reproduced due to copyright restrictions. The buildings that had been shown around the perimeter of the works yard in 1815 remained extant in 1852, although extensive additions or alterations had taken place at the north-west and north-east corners of the mill. A rectangular block that had been added to the latter area ran south-east before terminating in a large, square building.

These new structures occupied the site of the small, detached buildings that had stood at the east of the yard in 1815.

Further modification had taken place at the south-east of the mill, with the large, early 19th-century site entrance having been replaced by a narrow lane that provided access from Markeaton Street. A large, detached square building stood immediately east of the new works' road, while a footpath ran from the site entrance, around the eastern and northern sides of the mill buildings to the small, rectangular plot at the north-west.

The site was marked as 'Markeaton Works' on the 1883 Ordnance Survey map (Figure 3). Extensive redevelopment had occurred within the site by that date. The mill's northernmost building had been extended both to the north-east and southwards into the yard and several new structures had been added around the site. These included extensions to the detached, square building at the site's south-east entrance; two narrow, rectangular buildings on the south bank of the mill race; a large, square building at the south-west of the mill; and two small rectangular structures at the north-west. The various functions of these buildings were not marked on the 1883 map.

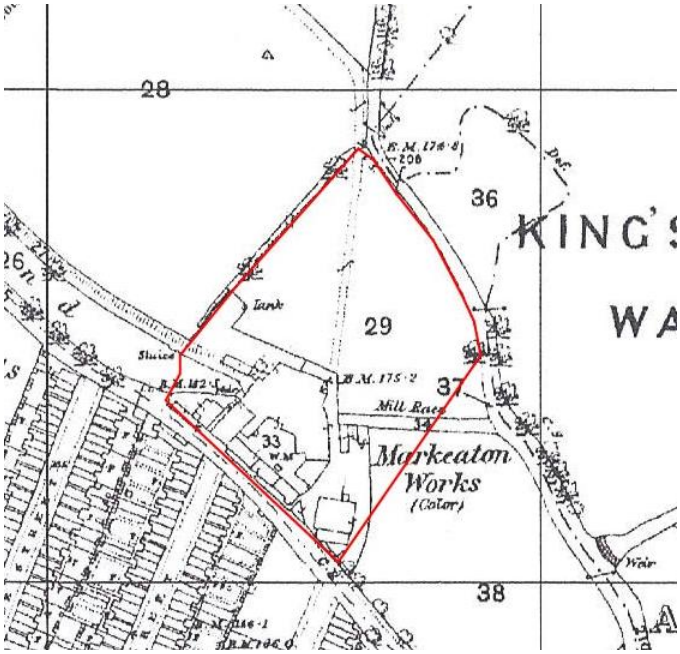


Figure 3 *Ordnance Survey map of 1883*

A weighing machine was marked within the yard, while a small, circular tank stood within the rectangular plot at the north-west of the mill. A footpath crossed the leet at the north of the site, leading across the field to the mill's north-east corner. The Markeaton Brook's course in

this area had been straightened during the second half of the 19th century, perhaps in an attempt to alleviate the flooding that had continued to occur during that period.

Ellam Jones and Co. remained at Markeaton Mill throughout the 19th century and were profiled in the 1891 edition of *Derby Illustrated*. Fifty members of staff were employed at the 'extensive premises', which were said to contain 'a large amount of machinery, which is driven by water-power as well as by steam' (*Derby Illustrated* 1891, 44). The mill itself was not described, although the company's products indicated the processes that were employed on site. These included 'levigation' – 'grinding pigments, oxide of iron...and mineral colours, freeing them from grit and reducing them to an impalpable powder or paste...by using powerful and effective machinery' (*Derby Illustrated* 1891, 44).

The company also specialised in the 'preparation of the finest bleached sulphate of barytes', which involved repeated levigation in water followed by bleaching, washing and drying to create powder, and the production of 'Improved Teregrine', a spirit dryer. In addition to Ellam Jones' long-established colour and paint manufacture, the *Derby Illustrated* profile also stated that the mill produced emery glass-cloth and paper, and emery corn and flour (*Derby Illustrated* 1891, 44). The latter were polishing products produced by the crushing of emery stone in steam- or water-powered 'stampers', followed by grinding into a fine powder. This indicates the type of activity taking place within the site, and the types of machinery that were present within the mill.

4.5 20TH CENTURY

No change was shown within the site on the 1901 Ordnance Survey map, although Mackworth Road had been constructed at the east of the site by that date. Ellam Jones and Co. continued to be listed in Kelly's 1908 directory, although the company ceased trading that year and Markeaton Mill was demolished shortly thereafter.

No entries were listed on the north side of Markeaton Street in Kelly's 1912 directory, but Britannia Mill had been constructed within the site by 1914. The new mill was principally the premises of Moore Eady Murcott and Goode Ltd, hosiery manufacturers. Kelly's 1915 directory also listed Pybus Brothers, paint and colour manufacturers, at the site.

The 1919 Ordnance Survey map (Figure 4) depicted the principal mill building as a large, sub-rectangular structure along the site's Markeaton Street frontage. This occupied the majority of the site of the Markeaton Mill's southern range and that of the detached square building at the south-east. The sites of the buildings that had been shown on the 1883 OS map between the mill and the dam did not appear to have been redeveloped by 1919. Two

detached, rectangular buildings were shown to the north of the main Britannia Mill block, while the eastern course of the mill leet continued to be marked immediately to the west of Mackworth Road.

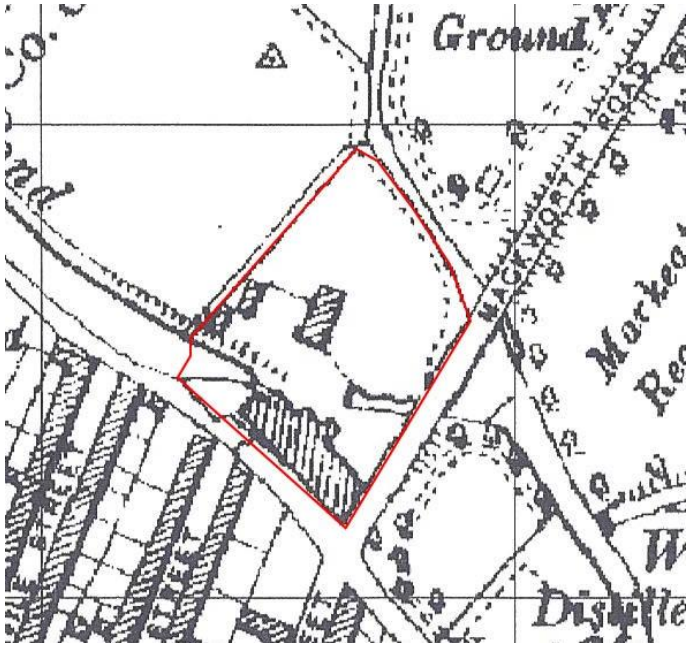


Figure 4 *Ordnance Survey map of 1919*

By 1922, Pybus Brothers had left the site and Britannia Mill remained the premises of Moore Eady Murcott and Goode. The mill was not water-powered, although a water-driven turbine was in use at the site during the 1930s (Farnsworth 2008). This suggests that the former mill leet may have remained open until that period.

The detached structures that had been marked on the 1919 map were not shown on the 1938 Ordnance Survey map, which depicted a large, rectangular feature running south-west from the site's northern boundary and a larger feature to the north-west of the mill itself. The nature of these features is not clear, but as they occupied the sites, but not the footprints, of subsequent buildings it is possible that they represented structures that had been laid out or planned but not yet constructed in 1938.

Moore Eady Murcott and Goode were listed in various trade directories simply at 'Markeaton Street' until Barrett's 1952 directory, which named their premises as 'Britannia Mills'. However, the site is likely to have held this name from its construction, as a statue of Britannia stood on the mill's cupola and the former premises of Moore Eady Murcott and Goode in Burbage, Leicestershire, had been named 'Britannia Buildings'.

Extensive development had taken place to the north of the original Britannia Mill block by the time of the 1950 Ordnance Survey map (Figure 5). A large, irregularly-shaped building dominated the western part of the site, while three smaller, rectangular blocks had been constructed at the centre of the plot. Three further rectangular buildings had also been constructed at the east of the site. The eastern course of the leet was not marked on the 1950 map, suggesting that it had been infilled or covered by that date.

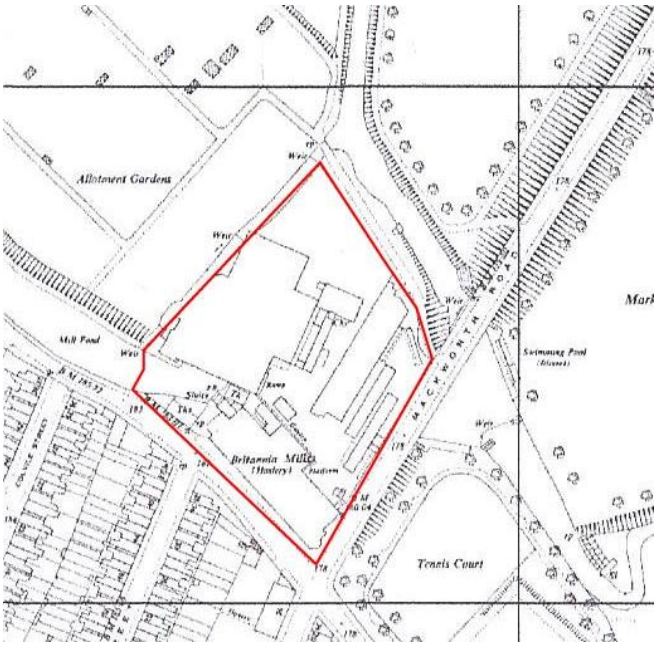


Figure 5 *Ordnance Survey map of 1950*

The new structures had been built in the formerly undeveloped land that had stood to the north of Markeaton Mill, with the exception of the south-east corner of the largest block, which had been constructed over the north-west corner of the former mill. The majority of the area occupied previously by the former mill's northernmost building was shown as an open area on the 1950 map. It is not clear if the new building had impacted on the probable site of the former waterwheel. Various features were marked throughout the site on the 1950 Ordnance Survey map, including a platform, gantry and ramp in the mill yard; tanks, a sluice and a footbridge at the east end of the mill dam; and a chimney at the centre of the site.

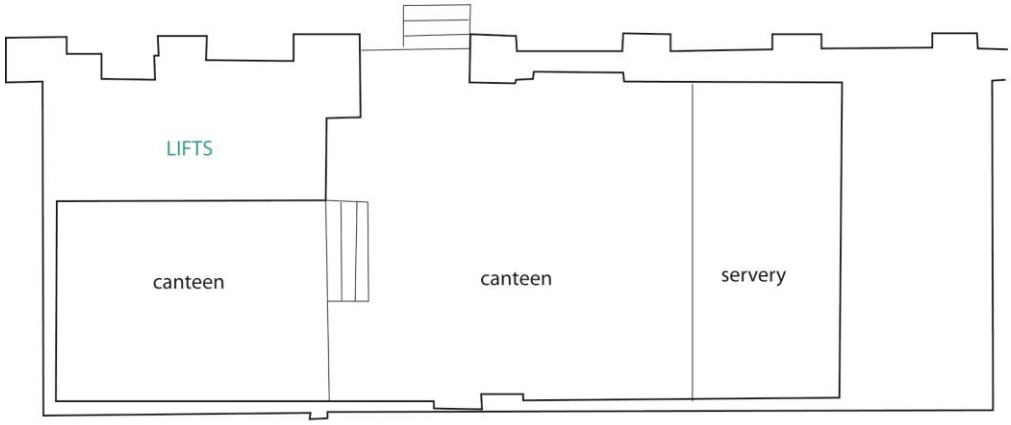
The post-war buildings, which occupied the majority of the site, had been modified by the time of the 1972 Ordnance Survey map, when they were shown as smaller structures with more regular, sub-rectangular footprints. Moore Eady Murcott and Goode had been listed in trade directories as Moore Eady Ltd from 1966. Having employed 200 to 250 people at the site during the post-war period, the firm ceased trading in 1982. Britannia Mill was used

subsequently as a storage centre, before being purchased by the University of Derby in the early 1990s.

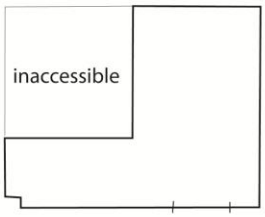
It is not clear to what extent sub-surface archaeological remains may survive within the proposed development area. While the mill recorded at Markeaton in 1086 is likely to have been the seignurial mill in the vicinity of Markeaton Hall, one of the three mill owned by Kingsmead Priory in 1272 may have stood within the site. However, this cannot be demonstrated. Should a medieval mill have been present, it is likely to have been a corn mill, focused around the area of the head leet to the east of the mill dam. Marton Mill, recorded in 1737, is also likely to have stood in this area. Marton Mill may have been modified or rebuilt during the late 18th century and substantial elements of this structure appear to have been incorporated into the 19th-century Markeaton Mill. Alterations are likely to have occurred in the process of changing this structure from a corn mill in 1815 to a colour and paint mill by 1820. Markeaton Mill underwent substantial expansion throughout the 19th century and was demolished in 1908. Sub-surface features associated with the mill may survive in the area immediately north of the original Britannia Mill block, while the course of the leet may also survive as a sub-surface feature in this area. It is not clear if the likely site of the Marton/Markeaton Mill waterwheel has been impacted by the construction and expansion of Britannia Mill.

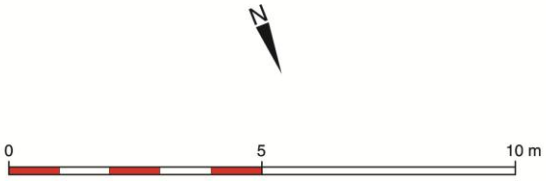
5. BUILDING RECORDING

The extension to the mill is of a single build that effectively wraps around the lower part of the twin lift shafts and central part of the NE facing elevation of the mill up to first floor level (Figure 6, Building floor plans). This extension is constructed of red brick, with some detailing in grey blue engineering brick, has a flat roof with low parapet wall and is of two – three storey's. All floors and ceilings within the extension are of concrete supported by steel beams whilst the windows all share common detailing. Although there is greater stylistic variation to the doorways this relates primarily to a combination of function e.g. greater width of loading bay doors, and later alteration. Until recently this structure extended further to the NW with this part being understood to have contained a garage. This NW part of the structure was apparently demolished in recent months.

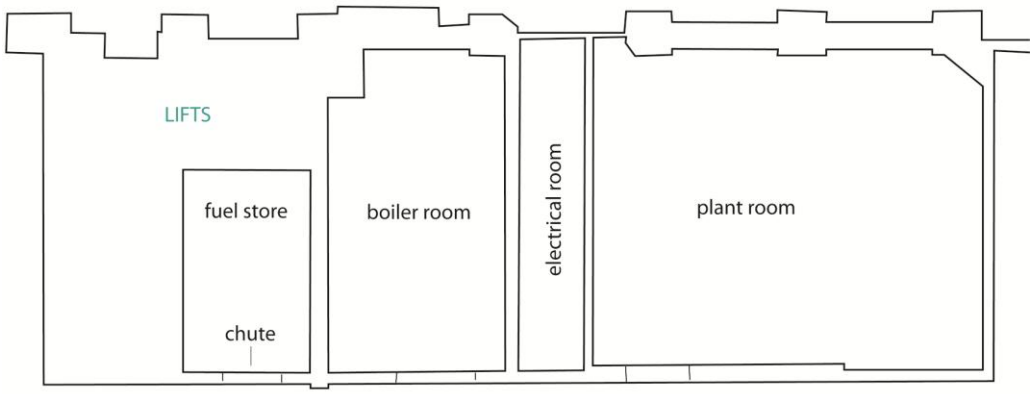


First floor plan





Intermediate floor plan



Ground floor plan

Figure 6 *Building floor plans, usage labelling to ground floor is suggested original usage – excepting electrical room (all now storage or empty), usage labelling to first floor is for recent usage.*

5.1 EXTERIOR

5.1.1 SOUTH-EAST FACING ELEVATION (PLATE 1)

The brickwork of the SW side of this elevation is stitched in to that of the SE side of the lift shaft, which in this area houses a shuttered doorway, now blocked. A tall, wide opening with a steel lintel and shutters of steel opens on the lower part of this side of the structure. The base of this opening is some 750mm above exterior ground level and it would appear to have originally functioned as a loading bay. Brickwork below the ledge of the loading bay was all of grey blue engineering bricks. To the upper floor above this opening two windows, each with a concrete lintel and a sill formed of three courses of chamfered grey blue engineering bricks, are present. The windows (as elsewhere) are of wooden frames and each of twelve panes. A rainwater downpipe extends from a cast-iron hopper at parapet level at the NE end of this elevation.

Plate 1 *SE facing elevation*

5.1.2 NORTH-EAST FACING ELEVATION (PLATE 2)

The openings to the NE facing elevation are of somewhat staggered appearance owing to an internal arrangement of two floors to the NW side and three floors to the SE side. Towards the SE end of the elevation (beneath the lower landing of the fire escape) a small square aperture at ground level represents a chute for coal/coke for a boiler room at semi-basement level. Directly above this chute is a wide doorway with concrete lintel and jambs of grey blue

engineering bricks. This doorway, which is at the same level as the intermediate floor of the loading bay door to the SE facing elevation, provides access to what is now an open space with modern partitioning around the lift shaft. Immediately NW of this are a set of wooden slat double doors with a wooden slatted vent to their SE side. These doors, which are later 20th century replacements for an earlier door arrangement, provide access to what was formerly a boiler room. To the NW of the boiler room doors lies a further wooden door with four pane fanlight beneath a concrete lintel. This door gives access to a narrow space that until recently housed electrical switchgear, though originally formed part of the adjacent plant-room immediately to the NW. The plant-room doorway has a concrete lintel and four pane fanlight, though the door itself is a later 20th century replacement. Two former windows are present to the NW of the plant-room door. These have concrete lintels and grey blue brick sills but the windows themselves have been replaced with slatted wooden vents.

External access to the upper floor of the extension, until recently a refectory, is provided by a doorway with stone lintel and blocked fanlight at the head of the fire escape. To the NW of this doorway are three large windows of equal size. Each has a concrete lintel, a sill of grey blue bricks and a wooden frame of sixteen panes. Immediately SE of the doorway is smaller twelve pane window with similar lintel and sill, whilst adjacent to this are two further widows of similar pattern but of slightly smaller scale. The sills of the three windows to the SE of the doorway are set at a slightly higher level than those to the NW owing to their relating to a slightly higher floor level, this being necessitated by the intermediate floor level of the SE part of the extension. Towards the NW end of the elevation a rainwater downpipe extends from a hopper below an aperture in the parapet wall.

Plate 2 *NE facing elevation*

5.1.3 NORTH-WEST FACING ELEVATION (PLATE 3)

The upper part of this elevation is stepped back slightly from the lower part. The lower part of the NW facing elevation originally housed a window and a door, both of which have been sealed with concrete blocks. The former window has a concrete lintel and brick sill whilst the doorway has a segmental arch of brick. Scars to this lower part of the elevation relate to later works in the now demolished former garage area immediately to the NW.

The upper part of this elevation forms the exterior wall of the refectory. This is lit by two twelve pane windows with concrete lintels and brick sills. Extractor ducting and an air-conditioning system are affixed to the exterior of the upper part of this elevation.

Plate 3 *NW facing elevation*

5.2 INTERIOR

5.2.1 LOWER FLOOR

NW end (Plant room)(Plates 4, 5)

The NW-most ground floor room is accessed via a shallow flight of modern wooden steps from the threshold of the door of the NE facing elevation. These steps lead down to a concrete floor some 450mm below present exterior ground level. All walls are of white painted brick, excepting the blocking to the former window and doorway of the NW wall, a former doorway in the SW wall and the SE wall which are of concrete blockwork. It is clear that prior to the insertion of the SE wall this room also incorporated the narrow electrical switch room adjacent to the SE. The SW wall is formed of what was originally the exterior face of the mill, complete with pilaster's and the NW side of a blocked doorway in the southern corner. A single cast iron column supporting part of the ceiling is present in the NNW part of the room. All lighting in this space is artificial as the two windows to the NE elevation have been replaced by frames holding angled wooden slats. Information provided by staff at the University suggests that prior to its current storage use, this room was originally a plant room which housed various machinery connected with the running of the mill.

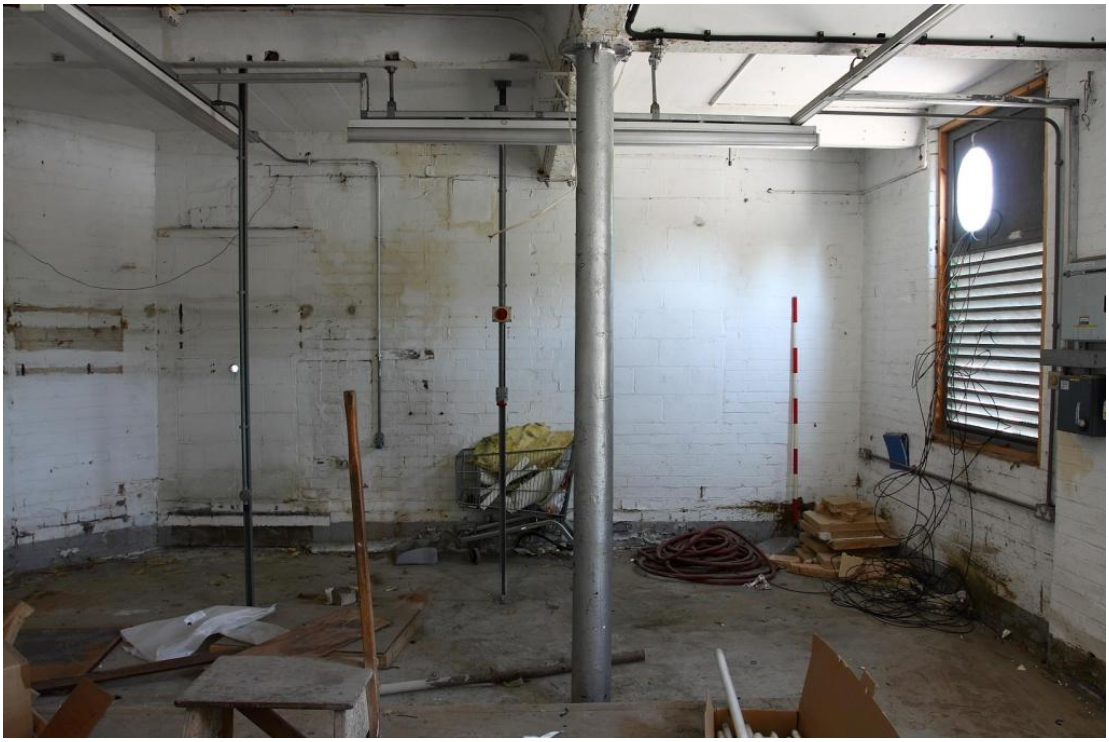


Plate 4 *Plant room, looking NW*

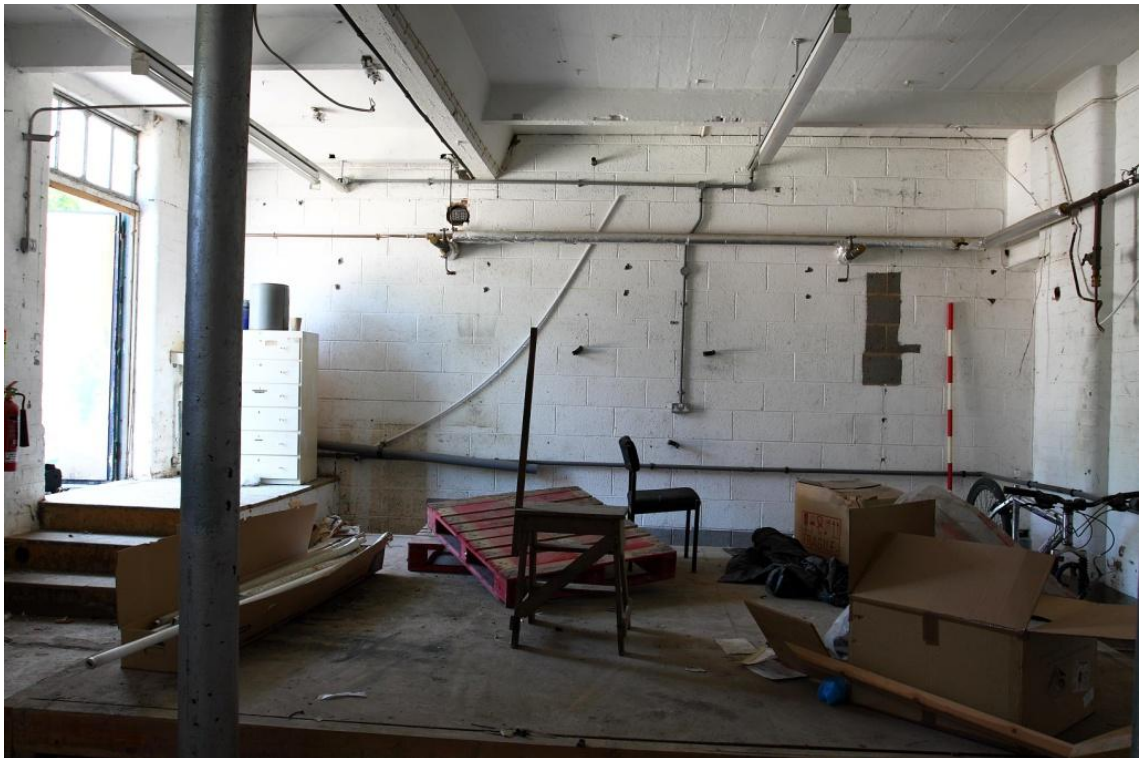


Plate 5 *Plant room, looking SE*

Electrical switch room (Plate 6)

This narrow space, which is sandwiched between the plant room and boiler room, is accessed via two concrete steps which lead down to a concrete floor. The SE wall is an original brick wall whilst the NW is constructed of modern concrete blocks. As mentioned above, prior to the insertion of the NW wall this narrow spaced formed part of the plant room. The lower part of the SW wall is of concrete blocks and it is clear that the blocked doorway in the S corner of the plant room extended fully into this space also. This room is an entirely modern creation and was formed to house electrical switch gear, some of which still remains.

Plate 6 *Electrical switch room, looking SW*

Boiler room (Plates 7, 8)

The two rooms that form the former boiler room lie at the SE end of the to be demolished building and are accessed via double doors and a flight of three concrete steps which lead down to the concrete floor of the larger room. In the S corner of this room a chimney stack, which extends to the full height of the mill against the NW side of the lift shaft, is present. Access to the second room, which lies immediately SE of the larger room but has a much lower ceiling, is via a low doorway. To the NE side of the small room a blocked up chute is present. Excepting modern materials in storage, both rooms are devoid of original fittings and equipment. However, the presence of the chimney and a chute (presumably for fuel) together with information supplied by university staff, suggest that these two rooms originally functioned as a boiler room and fuel store.

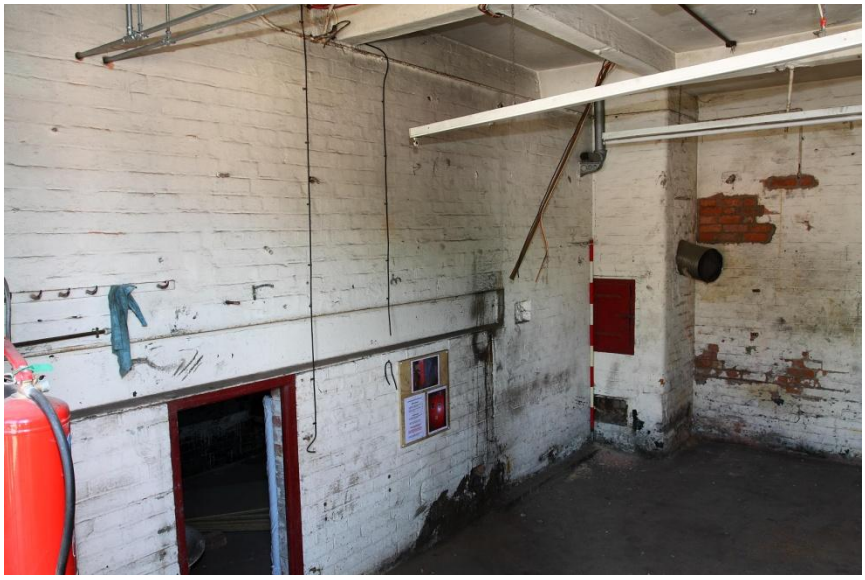


Plate 7 *Boiler room, looking S*

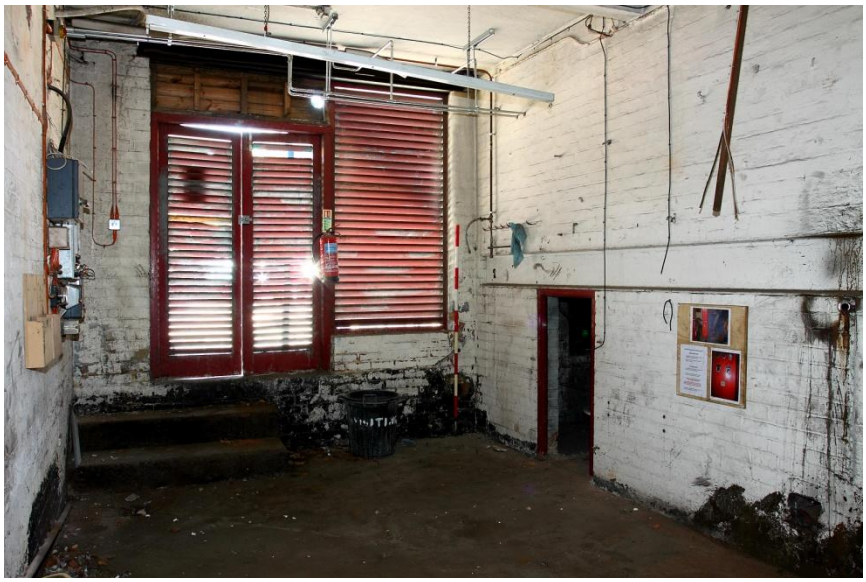


Plate 8 *Boiler room, looking NE*

5.2.2 INTERMEDIATE FLOOR (PLATE 9)

A single room at the SE end of the building, which is located directly over the low ceilinged fuel store, sits at an intermediate level between the lower and upper floors. This room also has a low ceiling, no windows, and is accessed via the first landing of the fire escape. The interior of the room is 'L' shaped as the S corner of the room is partitioned off to house equipment relating to adjacent the lift shaft. This screening has largely covered over the loading bay-type door visible in the SE facing exterior elevation. The room is currently used for the storage of some materials. The original function of the room seems likely to have

related to the movement of goods in and out of the mill via the loading bay at the SE end and the lift shaft that will have provided access to all floors of the mill.

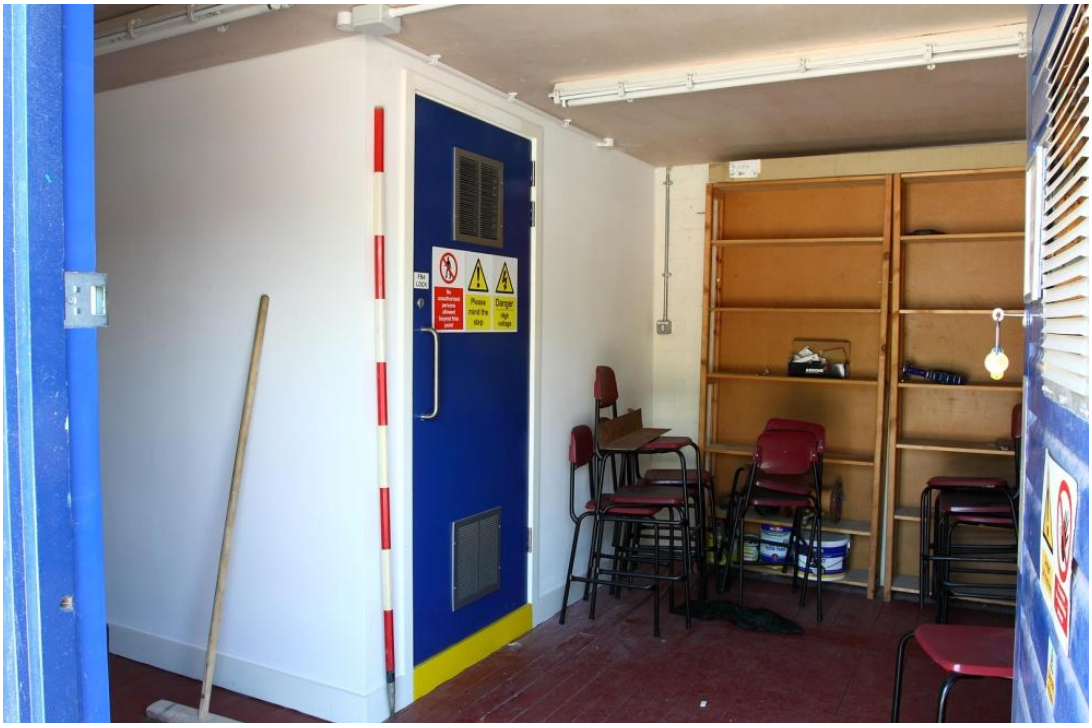


Plate 9 *Intermediate level room, looking SW*

5.2.3 UPPER FLOOR (PLATES 10,11)

The upper floor forms a large single space accessible from within the main body of the mill building and from the top of the fire escape. The SE part of the room is narrower than that of the larger NW part owing to the presence of the lift shaft and is also set at a higher level, this latter being due to the intermediate floor level located immediately below. Faint scarring to the SW wall of the upper area suggests the likelihood that the lift shaft was once accessible from this area. There is no indication that the upper and lower areas were ever separated by solid walling. The presence of ten large windows to this area provides it with a very light and airy feel. Communication between the two parts of the room is via a broad flight of four steps. The ceiling in both areas is of modern suspended type. Modern renovation of this upper floor appears likely to have removed physical indicators of original usage, though this may have been as office space. At the present time this space is fitted out as a refectory with a food preparation and servery area at the NW end. The fittings within this servery suggest it was fitted out within the last decade or two.

Plate 10 *Upper room, looking SE*

Plate 11 *Upper room, looking NW*

6. EVALUATION TRENCHES

It was originally intended that the evaluation would be comprised of two trenches, each 6m x 3m, one straddling the footprint of the proposed new building and the other fully within the footprint. However, the services check indicated the presence of a complex maze of live services that precluded the cutting of a trench of this size within the footprint. It was necessary therefore to cut two smaller trenches between the services within the footprint.

6.1 TRENCH 1

(Figures 7, 8, 9; Plate 12)

Trench 1 measured 6m x 3m and was excavated immediately NW of the existing (to be demolished) building and positioned to straddle the NW building line of the proposed new works. It was necessary to step-in the lower parts of this trench in order to permit excavation at greater depth.

The earliest deposits encountered were clean, yellow, coarse gravels, context 019, which occurred at an upper height of some 1.5m BGL (52.01m AOD). This material is interpreted as natural of the drift geology.

Directly over natural deposits lay a patchy spread of mid greyish brown, clayey silts, context 020. Typically less than 150mm thick this material contained occasional fragments of brick, pebbles and very occasional flecks of coal or charcoal. Some variation in texture, colour and consistency was apparent within this material which was seen to be truncated by a later post-medieval drain. Although no pottery or other finds were recovered from deposit 020 the thickness of some of the fragments of brick (up to 75mm) is suggestive of a later post-medieval date.

An episode of structural activity sealed deposit 020. These structural elements were comprised of two short stretches of walling and remnants of a brick surface. The two stretches of walling, or more probably wall footings, contexts 012 and 013, were aligned at right angles to one another and each was around 230mm wide. This walling was constructed of plain red bricks (size 230 x 110 x 75mm) bonded with a creamy coloured lime mortar and survived up to three courses high. The surface, context 011, was constructed of flat lain plain red bricks (size 225 x 100 x 65mm) set in a bedding of buff coloured clay containing a few fragments of brick, context 017, and butted up to the SE and NE sides of the walls. This surface was undoubtedly contemporary with the walls. These remains survived to an upper height of some 52.31m AOD. Although it is probable that this brick surface formed an internal floor within a structure this cannot be conclusively proved. A single sherd of 19th century creamware was recovered from 017.

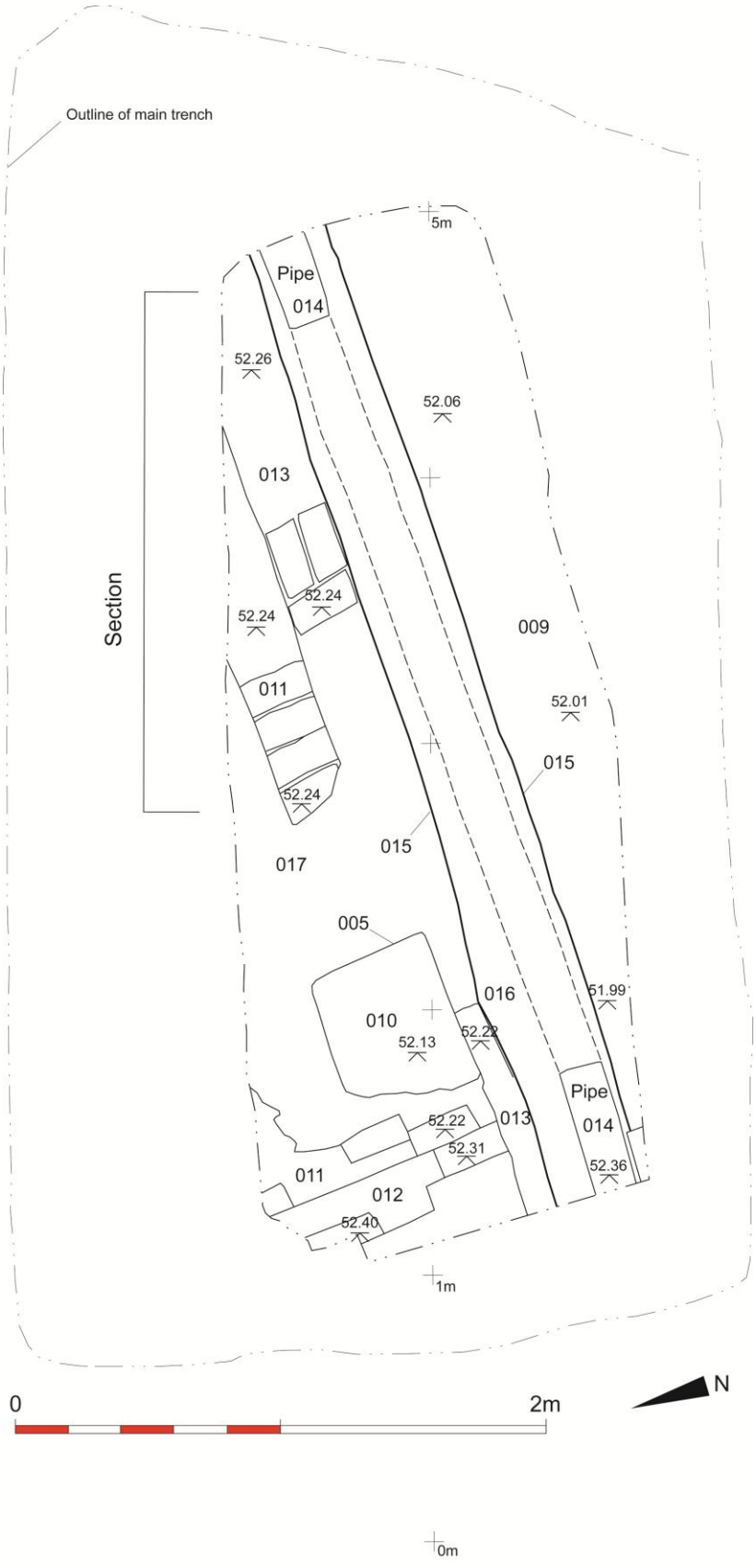


Figure 7 *Plan of Trench 1 showing brick surface 011walls 012, 013, later intrusive padstone 010 and drain cut 015*

A sequence of mixed deposits, predominantly buff clayey silts, brick rubble and dark sandy clay silts, collectively numbered as context 009, overlay the earliest structural elements of contexts 012, 013 and 011. Generally less than 200mm thick this context may represent a re-levelling up of the ground after the demolition of the earlier structural features. A ceramic piped drain of around 170mm diameter, context 014 within a cut, context 015, and surrounded by a backfill of brick rubble and yellowish brown sandy clays, context 016, cut obliquely across the trench in approximately an E – W direction. Although the sequential relationship between this drain and the deposits of 009 was not apparent it is clear that the drain pre-dates the structural episode that succeeded 009.

This later structural episode was comprised of the partially truncated remnants of a further brick surface, context 004. The red, plain bricks of this surface were bedded on a thin layer of sand and orientated at the same alignment as the earlier structures of 012, 013 and 011. Within the limits of the trench no walls were associated with this surface, which had an upper height of some 52.69m AOD.

Surface 004 was truncated by a number of features. One of these was construction cut 003 which sliced through the surface and held the concrete foundation 002 which supported brick walling 001. This walling was built of plain red bricks (size 230 x 110 x 80mm), bonded with a cement mortar, and survived up three courses high. Aligned in a SE to NW direction walling 001 formed a part of the walling of the recorded building and is said to have been demolished in recent months. A sub square cut through the floor, cut 005, housed a squared slab of stone, context 010, which measured some 560 x 510 x 130mm and was seated some 140mm below the upper level of the brick surface. It is assumed that this block of stone may have supported a vertical structural member such as a column although no traces of such survived, the cut simply being backfilled with a rubbly fill, context 006. The remaining intrusion through the brick surface 004 was context 021 which contained the very mixed rubbly deposit 007 in which large quantities of roof slate fragments were present. It is thought that 021 and 007 may relate to disturbance during the demolition of wall 001 and its related structure in recent months.

Figure 8 *Plan of Trench 1 showing brick surface 004, cut by intrusion 005 and cut/foundation/wall 001,002,003*

The uppermost deposit sealing virtually all of the trench was context 018, a loose mix of brick and mortar rubble which contained some modern, including plastic, materials. This deposit, which was up to 800mm deep, relates to the recent demolition works.

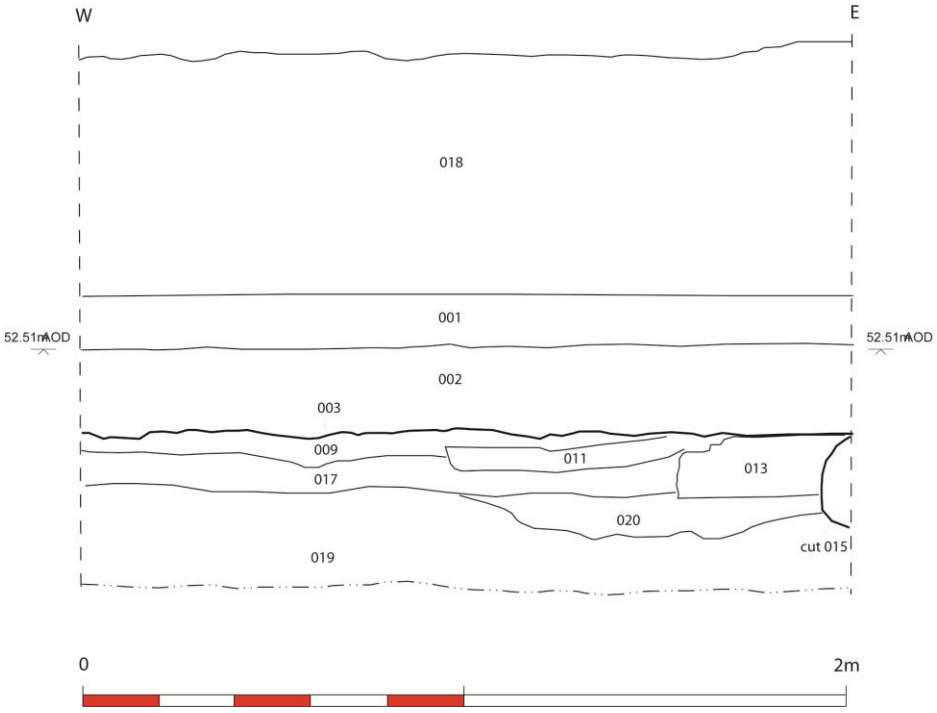


Figure 9 *Trench 1, S facing section (see Fig – for location)*

Plate 12 *Trench 1 at completion of excavation, looking NNE*

6.2 TRENCH 2

(Figures 10, 11; Plate 13)

Trench 2 measured some 3m square and was located immediately NE of the NW end of the recorded building and lay within the footprint of the proposed new building. Excavation of this trench was severely hampered by the presence of services and structural features which, for safety reasons, could not be broken out and removed. Consequently, only in the W corner of the trench could excavation proceed to a depth of 1.55m BGL (51.95m AOD), and even at this depth natural deposits were not reached.

Within this deeper area the lowest encountered deposit was 210, essentially a yellow, clayey silt containing fragments and flecks of coal and brick. This was overlain by context 209, a loose deposit of greyish brown sandy silt and reddish brown sandy clay containing quantities of brick fragments, coal and mortar flecks. Context 208, a dark gritty sand with patches of reddish brown clay containing fragments of brick, mortar, roofing slte and coal sealed 209 and was in turn overlain by context 207. Context 207 was a mixed deposit, predominantly of yellowish grey silty sand, again containing building rubble together with small amounts of pebbles. Ventilation brick fragments recovered from this context appear to be of 19th – early 20th century date whilst a copper alloy gas fitting and fragment of glazed earthenware may be of broadly similar date. Only small parts of these deposits could be observed within the trench, however, their disposition suggests that they may have been intended to raise and level-up the ground in this part of the site. This deposit sequence was cut by a number of features.

In the N corner of the trench the construction cut (216), for a large brick-built structure, context 212, capped with a steel reinforced concrete top, context 213, was encountered. The bricks displayed slight variation in size but were generally around 220 x 110 x 75m. This structure extended beyond and beneath the limits of excavation. The curved walling of the brickwork suggests that if this forms part of a circular structure then it would have a diameter of around 5m. A cast iron plate adjacent to the trench appears to provide access to this space which is partially full of water. Dipping with a measuring staff suggests a depth for this structure of around 3m below existing ground level. The top of the structure occurred at around 52.76m AOD (generally around 650mm BGL). The visible parts of this structure may suggest a cistern like function. However, given that a culvert is thought to lie in the immediate locale it is possible that it relates to this in some manner.

In the central part of the trench and aligned approximately SW – NE was a trench cut, context 214, containing a cast iron pipe of around 180mm diameter, context 211, and surrounded by a fairly loose backfill of brown silty sand containing some brick rubble and

stone. This pipe, which may be an old gas service (it's live, or otherwise, status is unknown) occurred at an upper height of around 700mm BGL.

Directly over the cast iron pipe a SW – NE aligned concrete footing, context 205, within a construction cut, context 206, supported fragments of a brick-built wall some 0.24m wide, context 204. The very uppermost parts of this wall survived up to a height of 53.30m AOD, little more than 0.15m BGL. This wall and its footing were aligned at an angle in keeping with that of the existing mill and not the variant angle of walls and surfaces encountered in trenches 1 and 3. It is also noteworthy that wall 204 was built from a level higher than that of the variant angled walls and surfaces.

Sealing wall 204 was a deposit of dark brownish grey silty sand containing small fragments of brick and cinder, contexts 202 and 203. This material formed a level bedding for the extant surface of concrete some 120 – 140mm thick.

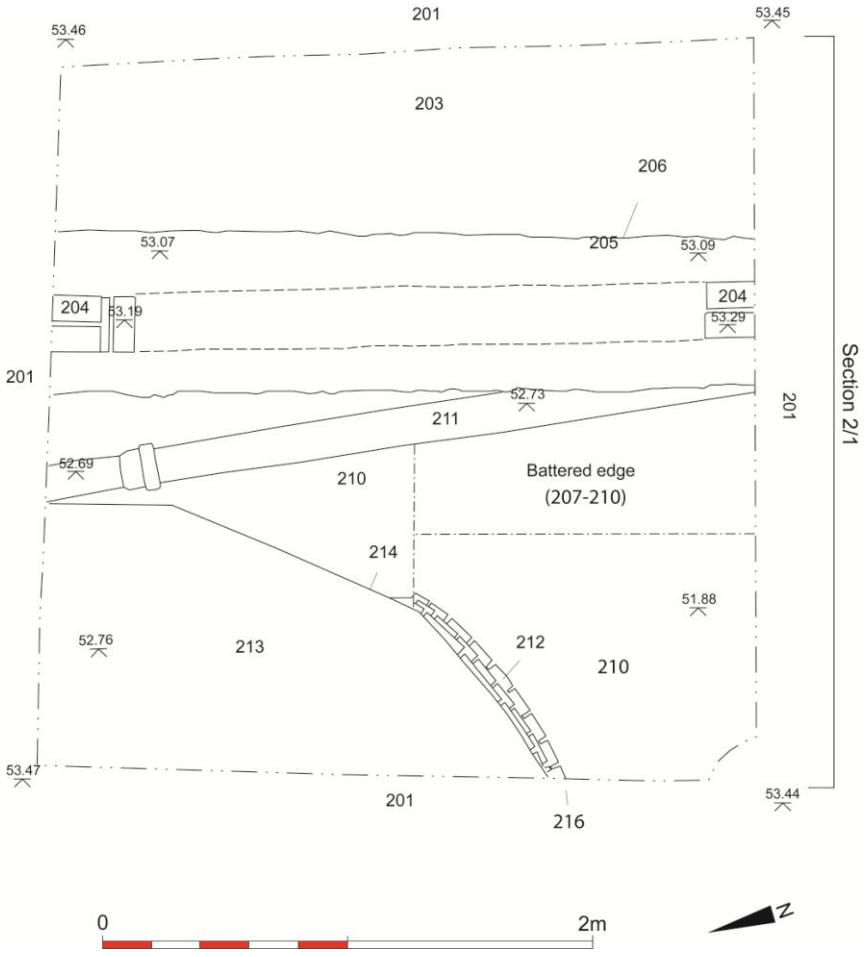


Figure 10 *Trench 2 showing excavated features*

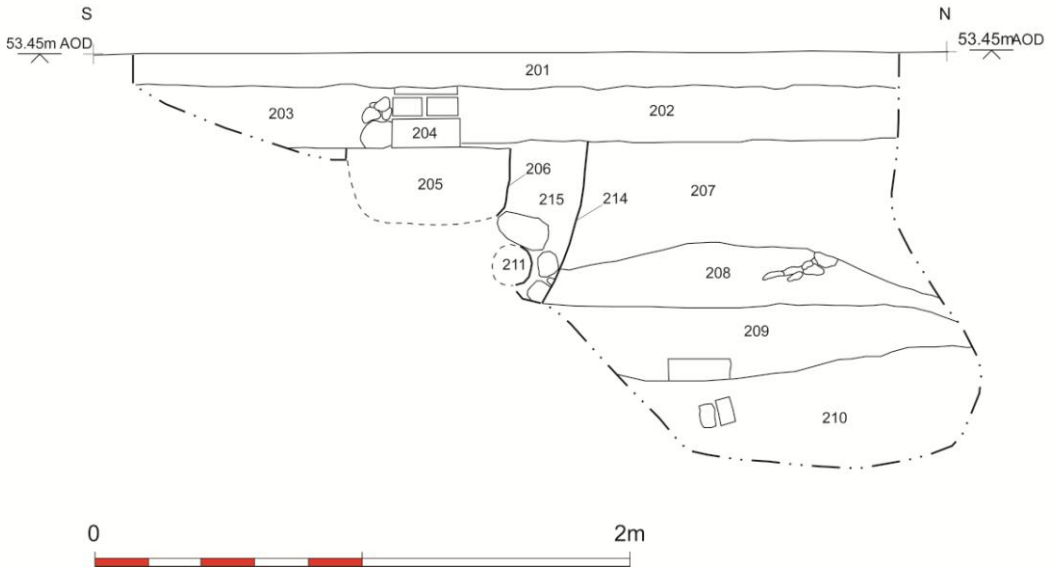


Figure 11 *Trench 2 NE facing section (see Fig 7 for location)*

Plate 13 *Trench 2 at completion of excavation, looking NNE*

6.3 TRENCH 3

(Figure 12, 13, Plate 14)

Trench 3 was located to the NE of the recorded building, around 6m to the SE of Trench 2 and within the footprint of the proposed new building. Measuring some 2m x 2m it proved necessary to reduce this size slightly on the NE side owing to the presence of an unexpected utility service. The trench was excavated to a maximum of 2.08m BGL, this lower depth

partly being achieved by use of a mechanical excavator. Although enough could be seen to ascertain that natural deposits were not reached at this depth, slumpage from the lower edges made it impossible to certainly identify the precise nature of these deposits.

The lowest deposit that could be inspected was context 310, essentially a light brown, clayey sand containing occasional flecks of charcoal, lime mortar and pebbles. Some laminations appeared to be present in this material which produced no dating evidence.

A foundation formed of angular blocks of stone, of a size up to 0.39m, context 308, and bonded with lime mortar was seen to sit within deposit 310. None of the inspected stone pieces had indications of obvious re-use. This foundation was generally around 490mm wide and in excess of 350mm deep (not fully revealed) and did not extend fully across the trench. The upper part of the foundation had a height of 51.98m AOD (1.60m BGL). Although a cut for this foundation material could not be seen to cut through 310 it is assumed that such a cut, context 311, did in fact exist. The walling atop the foundation was of plain, red brick (size 225 x 110 x 72mm) with a bonding material of a creamy coloured lime mortar. The walling stood some 1.35m tall – extending to within 0.24m of the existing ground surface, and had a width of around 0.39m. Quite why the wall extended only so far into the trench before terminating is uncertain. It may be that this represented the end of an exterior wall, or even the gap for a doorway within a building?

A series of interleaved deposits, context 309, comprised essentially of buff coloured clayey sands and lenses of dirty brownish yellow sands, butted up to the lower parts of the wall. This material contained small fragments of brick and mortar together with occasional pebbles and flecks of charcoal. Context 309 appears to represent the deliberate building up of the ground around the lower part of the wall, perhaps around the time the wall was built. Built directly on the upper horizon of 309 was an arrangement of bricks parallel, and at 90 degrees, to walling 301. This arrangement, context 302, was not mortar bonded and stood only one course tall. In the angle between 302 and wall 301 a surface of hard, grey mortar, context 304, was present. This surface was partially truncated on its SW side and had a thickness of around 45mm. The structural elements of 302 and 304 were generally around 1m BGL (approximately 52.60m AOD).

A very mixed deposit composed largely of brick rubble, ash and cinder together with some silty sand, context 307, overlay 304 and 302. With a depth in excess of 600mm, context 307 is likely to represent the dumping of waste debris in order to raise the ground level after the demise of elements 304, 302. This deposit produced sherds of window glass and pottery of 19th – 20th century date together with a piece of ferrous slag. Context 306, a compacted

deposit of black cinder some 220mm thick sealed 307 and formed the bedding for the concrete slab, context 305, that forms the extant ground surface. Within 306, in the NE part of the trench a small diameter iron service pipe, context 303 (possibly gas, and a spur to the pipe in Trench 2?), was observed. No cut for a trench housing this pipe could be seen.

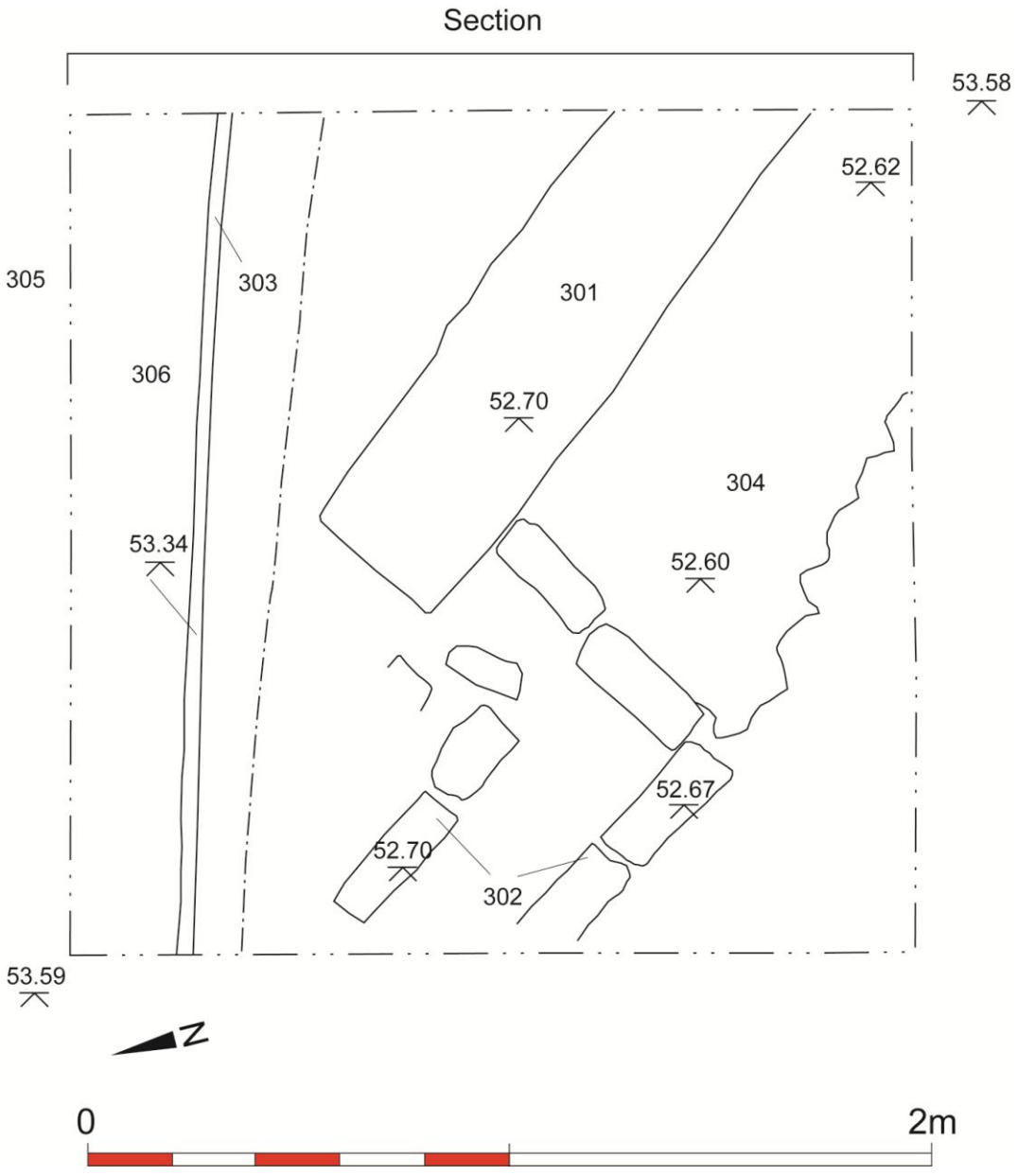


Figure 12 *Trench 3 showing excavated features*

Plate 14 *Trench 3, showing structural features, looking ESE*

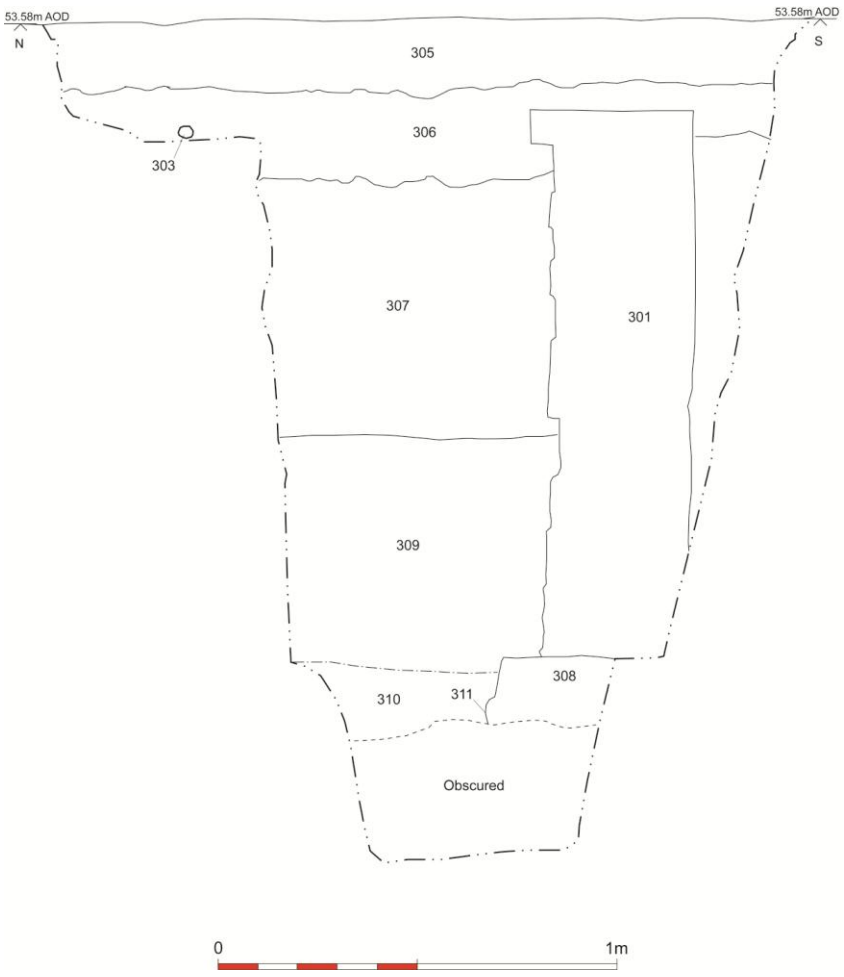


Figure 13 *Trench 3 W facing section (see Fig – for location)*

7. DISCUSSION

The recorded building which post-dates the 1912 Britannia Mill was constructed in the earlier part of the 20th century. The lower floors of the building appear to relate primarily to the provision and regulation of power, and/or heat, to the Mill. The intermediate space at the SE end of the building would appear to have functioned principally as a space for loading and unloading with direct access to all floors of the mill via the lift shaft. That the large SE door of this space opens at around 0.75m above exterior ground level may be owed to a requirement to load goods on/off vehicles. The upper floor of the building may originally have formed office space. In recent years the lower floors have been used for storage and for housing electrical switch-gear whilst the upper floor has been fitted out to serve refectory purposes. These conversions have involved only limited structural alterations, most alterations being purely cosmetic.

The three trenches revealed structural activity pre-dating the existing mill, evidence for a deliberate build up of ground level subsequent to this as well as structures relating to the mill and its extension (ie: the recorded building). The evidence for pre Britannia Mill structural activity is formed by the walls and surfaces within Trenches 1 and 3 that were aligned at variance to the prevailing alignments of Britannia Mill and its extension. In Trench 1 this is formed of walls 012, 013 and the associated brick surface 011 as well as the later brick surface 004 and the probable post-pad 005 (plus directly associated contexts). In Trench 3 this is formed of wall 301, brickwork 302, surface 304 and their directly associated contexts. All these structural remains are believed to relate to the 19th century and probably to the Markeaton Colour Works which occupied the site prior to the construction of the Britannia Mill textile manufactory. The variance of alignment of these earlier structural elements in relation to that of the existing mill is likely to relate to an alignment based on the need to utilise the watercourse for the production of power to run the works. The brickwork of the pre Britannia Mill walls suggests a 19th century, rather than 18th century, date and appear likely to relate to structures associated with the former colour works.

To exactly which episode of building the cistern in Trench 2, contexts 212, 213, 216, belongs is not entirely certain.

Later structural activity appears to relate to the existing mill and its extension, this being found in Trenches 1 and 2. Within Trench 1 these later works relate to wall 001 and related contexts, this forming a part of the NE building line of the recorded extension. In Trench 2 later work was restricted to a SW – NE aligned brick wall, 204, and associated contexts (ie: at 90 degrees to the long axis of the extant mill).

8. ACKNOWLEDGEMENTS

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Illustrations	I. Milsted, M Johnson
Photographs	M Andrews, M Johnson
Building recording	M Johnson
Evaluation	S Grimmer, M Johnson
Editor	M. Stockwell

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1737 Survey of the Estates of Edward Mundy in Mackworth, Markeaton and Allestree (DR0 D6782)

Historic Maps

1610 John Speed Map; 1637 Christopher Saxton map; 1673 Richard Blome map; 1801 John Cery map; 1806 G. Cole map: http://freepages.genealogy.rootsweb.ancestry.com/~genmaps/genfiles/COU_Pages/ENG_pages/dby.htm

1763 Plan of Old and New Enclosures in Mackworth, Markeaton and Allestree (DRO D1052 A/PZ 1)

1767 Burdett map of Derbyshire

1815 Chatterton and Swanwick survey of Derby (Derby Local History Library Misc. 138)

1852 Board of Health plan of Derby (Derby LHL)

1883 Ordnance Survey map

1901 Ordnance Survey map

1919 Ordnance Survey map

1938 Ordnance Survey map

1955 Ordnance Survey map

1972 Ordnance Survey map

1979 Ordnance Survey map

APPENDIX 1: FINDS

Context	Find	Material	Name	Spotdate	Description
017	BF4	Pottery		19th century	1 small cream ware sherd - 19th century.
207	BF1	Ceramic Building Material	Brick	1850+	
207	BF3	Copper Alloy	Fitting	20th century	Junction/fitting for 20th century gas pipe
207	BF2	Pottery			Glazed earthernware cog with broken edges. Uncertain function
307	BF6	Glass		20th century	1 sherd of 20th century window glass
307	BF7	Miscellaneous	Slag		1 large piece of iron slag
307	BF5	Pottery		19th/20th century	1 white glazed earthenware utility jar base - 19th/early 20th century

Table 1 *Finds by context*

The small quantity of finds recovered from the site all relate to the 19th and 20th centuries. The small number of items, combined with their context of deposition at the site, which was predominantly within dumped deposits seemingly associated with raising the ground level, precludes concise interpretation. Perhaps the most notable aspect of the assemblage is how small a number of items were present given the volume of material excavated. This may relate to a regime of cleanliness operated at the site and to the materials used in ground raising being non-domestic in origin.

APPENDIX 2: CERAMIC BUILDING MATERIAL

by J.M. McComish

A small quantity of CBM was recovered from the site (2350g) which comprised seven fragments of machine made ventilation bricks dating to the mid 19th century or early 20th century. All the fragments were recovered from Context 207. The fragments probably originally came from three bricks.

The first brick was pierced by three complete and eleven partial vents; each vent comprising a circular indentation 21mm in diameter and 43mm deep within which were 8 circular piercings 2mm in diameter which pierced the full thickness of the brick, these were arranged with one central piercing with seven radially around it, this fragment had an olive green glaze on all surfaces.

The second brick had light brown glaze and was pierced by five complete and twelve partial vents each comprising a circular indentation 22mm in diameter and 46mm deep within which were twelve circular piercings 2mm in diameter penetrating the full thickness of the brick arranged with a central piercing with eleven radially around it.

The remaining five fragments were probably all form a single ventilation brick originally as they had identical light yellow-brown glaze; this brick was 57mm thick and was in excess of 184mm broad. The fragments had a total of 13 complete and 32 partial vents each comprising a circular indentation 21mm in diameter and 49mm deep within which were twelve circular piercings 2mm in diameter penetrating the full thickness of the brick arranged with one central piercing with the remaining eleven radially around it.

The material was mainly of use to provide dating for the context in question; there was too little present to merit any further research.

APPENDIX 3: CONTEXT LISTING

CONTEXT	TRENCH	DETAILS
001	1	Brick wall
002	1	Concrete footing for 001
003	1	Construction cut for 002
004	1	Brick surface
005	1	Cut – intrusive hole/slot
006	1	Fill – of 004
007	1	Deposit – demolition/levelling
008	1	Cut – truncation of 004
009	1	Deposits between structural episodes
010	1	?padstone
011	1	Brick surface
012	1	Brick wall (n-s)
013	1	Brick wall (e-w)
014	1	Ceramic pipe
015	1	Cut for pipe trench
016	1	Fill – of pipe trench
017	1	Deposit – lowest under brick surface
018	1	Recent overburden
019	1	Natural
020	1	Levelling/use deposit?
021	1	Demolition cut
201	1	Extant concrete surface
202	2	Dark deposit N of wall 204
203	2	Dark deposit S of wall 204
204	2	NE-SW raligned brick wall
205	2	Concrete footing for 204
206	2	Cut for footing 205
207	2	Mixed dump deposit
208	2	Dark dump deposit
209	2	Dump deposit
210	2	Dump deposit
211	2	Cast iron pipe
212	2	Brick: ‘cistern’
213	2	Concrete cap to 212
214	2	Cut for pipe 211
215	2	Fill of 214
216	2	Construction cut for 212
301	3	Brick wall
302	3	Unid. brickwork
303	3	Iron pipe
304	3	Concrete surface
305	3	Concrete slab
306	3	Bedding for slab 305
307	3	Dump deposit
308	3	Foundation for wall 301
309	3	Mixed deposits
310	3	Early deposits
311	3	Cut – for foundation 308

APPENDIX 4: SPECIFICATION

SPECIFICATION FOR ARCHAEOLOGICAL BUILDING RECORDING, FIELD EVALUATION AND WATCHING BRIEF

SITE NAME: Britannia Mills, Mackworth Road, Derby
PLANNING APPLICATION NUMBER: Derby City Council DER/04/08/00635/PRI
NGR: SK 3411 3658 (centred)
ISSUED BY: Steve Baker (Development Control Archaeologist for Derby City Council)
DATE: 30th March 2010

1 Introduction

1.1 Planning consent DER/04/08/00635/PRI has been granted for extensions and alterations to the Britannia Mills building, Mackworth Road, Derby, to form an entrance for disabled people, a staircase, reception/offices, refectory, and a new roof and windows.

1.2 The site is a historic mill site with standing buildings of historic significance and potential for buried archaeology relating to former uses of the site. The following condition has therefore been attached to the planning consent:

> 8) No development shall take place until the applicant or their successor in title has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation (WSI) submitted by the applicant and approved in writing by the Local Planning Authority. The archaeological work will include buildings recording and archaeological excavation.

1.3 The initial archaeological programme will comprise a brief **photographic building record, evaluation trenching** of the proposed extension footprint, and **watching brief** on works to the culverted mill race. **Further work** may be required should evaluation results prove archaeologically significant, and a further WSI may be required at this stage.

1.4 This document is a specification for the archaeological programme defined in 1.3, and will allow the archaeological contractor to prepare a written scheme of investigation (WSI) for approval by the Development Control Archaeologist. The WSI must be submitted for approval at least two weeks before the scheduled commencement of fieldwork on site.

1.5 Please note the archaeological condition is not a pre-start condition to be discharged before site works commence. Approval of a WSI is sufficient for works to start, but full discharge will not be possible until all of the archaeological work is complete to the required standard including reports and archiving.

2 Background

2.1 The Britannia Mills building (HER 18978) is a former hosiery mill constructed in 1912. While the building is unlisted, it is a significant local example of an industrial building of this period. The building was constructed on the southern end of the Markeaton mills site (HER 32135), and replaced an earlier colour works built some time before 1818. Before this, the Markeaton mills site was used for corn milling, powered by the Markeaton Brook, and activity on the site is likely to go back at least as far as the medieval period. There is potential, therefore, for below-ground survival of archaeology relating to the early industrial history of the site (pre-dating the Britannia Mills) and to medieval and earlier activity.

2.2 A mill race, now culverted, runs beneath the site. The date of this feature is unknown, although it certainly supplied the early 19th century colour works, and may originate in the earlier corn-milling phase of the site.

3 Objectives

3.1 The archaeological programme should provide overall for achieving an appropriate level of *preservation by record* for the historic buildings and buried archaeology within the site.

3.2 The archaeological evaluation trenching exercise aims to provide sufficient information for informed decisions to be made regarding i) the presence or absence of archaeological

features, ii) their importance (e.g. using the Secretary of State's criteria as set-out in Annex 4 of Planning Policy Guidance note 16 (1990)), iii) the likely impact of the development upon any such features and iv) the appropriate mitigation of the development's impacts upon those remains.

5 Methodology

Documentary study and building recording

5.1 In the absence of an archaeological desk-based assessment for the site a basic documentary study will be necessary to place the buildings and below-ground archaeology in context.

5.2 The documentary study should attempt to provide a clear analysis of the available evidence regarding the chronological development and use of the historic mill site. Problems in documenting or establishing such an account should be highlighted. Archives consulted should include the Derbyshire Historic Environment Record, Derby Local Studies Library, and Derbyshire Records Office.

5.3 All building recording work should be carried out using the guidelines established in English Heritage's document *Understanding Historic Buildings: A guide to good recording practice*. (1st edition 2006), and the IfA's *Standards and guidance for the archaeological investigation and recording of standing buildings and structures* (October 2008).

5.4 The existing refectory building on the north-eastern side of the Britannia Mills is part of the 1912 mill structure and is therefore of some local historical significance. This part of the building is to be demolished as part of the proposals.

5.5 The refectory building will be subject to building recording at English Heritage **Level 1**. This will include:

- A brief written summary of the building's form, function, date and sequence of development;
- A photographic record.

5.6 The photographic record will include general views, a series of oblique or straight-on views of the building exteriors, views of internal rooms and circulation areas where these are judged to be relevant to the wider understanding of the building, and any external or internal detail which is judged to be relevant to the wider understanding of the building.

5.7 Black and white 35mm SLR photography should be used as the primary archive medium. This should be supplemented by 35mm colour slide photography or SLR colour digital photography at 7 megapixel minimum. All views are to be numbered in sequence and recorded on a photographic register detailing location, direction and subject of each shot. Position and direction of each photographic viewpoint should be recorded on plans of the site. All photographs will include a graduated photographic scale.

5.8 Following completion of building recording, provision should be made for the Development Control Archaeologist to inspect the site archive. Demolition may not commence until this meeting has taken place and the archive is confirmed in writing to be satisfactory.

Evaluation trenching

5.9 Evaluation trenching will aim to sample the footprint of the proposed extension to the Britannia Mills.

5.10 A detailed trenching plan should be formulated by the archaeological contractor following completion of the documentary study and discussion with the Development Control Archaeologist. A preliminary guide would be to place two trial trenches across the footprint of the proposed extension. Provision in trench design should be made for shoring or stepping trenches to enable deeper excavation where necessary. A contingency area should be allowed for extensions to trenches.

5.11 Evaluation trenches will be excavated under the supervision of a professional archaeologist, using a mechanical excavator of appropriate size and tonnage fitted with a toothless bucket, to the level at which archaeological features/structures are identified, or to the upper surface of natural deposits, whichever level is reached first. A concrete breaker or toothless bucket may be used at the discretion of the supervising archaeologist to remove hard surface and/or obstructions only.

5.12 Following machine excavation and cleaning, sample excavation and recording of features will take place according to the general guidelines set out below.

5.13 Recording of blank trenches (where no archaeological features are identified), should be as follows:

- Completion of trench record sheet, giving dimensions, stratigraphy and interpretation;
- At least one photograph of trench base and another of a typical trench section;
- Drawn 2m sample section of stratigraphy;
- EDM/Total Station survey of trench location, including AOD levels of top and bottom of trench section.

5.14 Recording of trenches where archaeological features are present should be as follows:

- Plan of trench base at 1:20, with AOD levels (pre-excavation and post-excavation planning should be carried out as appropriate);
- At least one long trench section should be drawn at 1:20.
- Further detailed plans/sections of features and groups of features should be drawn at 1:10/1:20 as appropriate, with AOD levels;
- Standard stratigraphic recording using pro-forma sheets;
- General photographic shots of trench base and section(s), and detailed shots of archaeological features as appropriate;
- EDM/Total Station survey of trench location, including AOD levels of top and bottom of trench section.

5.15 No backfilling should take place until the Development Control Archaeologist has inspected trenches and is satisfied that the work has been carried out to an appropriate standard.

5.16 Following completion of the evaluation trenching a site meeting should be held with the Development Control Archaeologist to review the results and to determine the requirement for any further mitigation to satisfy the terms of the planning condition. It is possible that an additional WSI (or an addendum to the existing WSI) may need to be submitted and approved for this work.

Watching brief

5.17 The appointed archaeological contractor will monitor all works associated with the former mill race culverted beneath the site. Groundworks will be carried out under the supervision of a professional archaeologist, using a mechanical excavator of appropriate size and tonnage fitted with a toothless bucket.

5.18 This will be a *continuous* watching brief, with an archaeologist present during all stages of ground excavation.

5.19 The on site archaeologist will be given the opportunity to stop work where necessary in order to enter the excavations and inspect the surfaces and structures revealed. Where archaeological features or deposits are present then time must be allowed for the archaeologist to carry out the appropriate cleaning and recording before work recommences.

5.20 Site contractors carrying out the works to the mill race must carry out the work in such a way as to allow archaeological access and recording to be maximized. A passive watching brief with photographic recording only will not be acceptable. The WSI should provide a detailed breakdown of proposed works to the mill race, indicating how opportunities for recording will be maximized at each stage. Cross-sections through the race structure should be surveyed if possible.

General guidelines for excavation and recording

5.21 All archaeological fieldwork, recording of archaeological features and deposits and post-excavation analysis should be carried out to acceptable archaeological standards. The contractor will be expected to abide by the Code of Practice of the Institute of Field Archaeologists, and to follow the guidance provided in *Archaeological Science at PPG16 Interventions* (English Heritage 2003).

5.22 Decisions made on the methods and strategies for sampling features should be based upon the nature and extent of any deposits which are revealed. These decisions should be made in consultation with the DCA. Discrete features will be half-sectioned in the first instance; linear features will be sampled a minimum of 20% along their length (each sample section not less than 1m), or a minimum of a 1m sample section if the feature is less than 10m long. In addition, the deposits at junctions or interruptions in linear features should be sufficiently excavated for the relationship between components to be established.

5.23 Features are to be recorded according to the normal principles of stratigraphic excavation, and should be accurately located on a site plan and recorded by photographs, summary scale drawings and written pro forma sheets. Sufficient EDM/Total Station survey should take place to allow all features to be located accurately with relation to the National Grid and Ordnance Datum. Individual features will be planned at 1:20 where additional detail is required. Sections and profiles of each feature sampled will be drawn at 1:10 or 1:20, depending on the size of the feature. All plans, sections and profiles will be related to Ordnance Datum, in metres. Drawing conventions should follow the MoLAS *Archaeological site manual* (2004).

5.24 For brick/stone structures, the record should include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins).

5.25 Site photography should be in 35mm b/w print film and either 35mm colour slides or high resolution (7 megapixel or greater) colour digital photographs. Photography should include general site shots, shots of each trench, and shots of individual features and groups of features. All photographs should include a suitable photographic scale and will be recorded on a photographic register with the subject and direction of each shot.

5.26 Should deposits of palaeo-environmental importance be identified then a recognized environmental specialist will visit the site to advise on a sampling strategy and the suggested strategy will then be implemented.

5.27 Artefact collection policy should be concerned with the provision of adequate samples for meeting the objectives of the work. Discarded artefactual materials should be described and quantified through assignment to broad categories in the field. All retained finds and palaeo-environmental samples should be treated in accordance with the EH guidance document *A strategy for the care and investigation of finds (1995)* and the UKIC's document *Guidelines for the preparation of excavation archives for long term storage*. Assessment and analysis of finds and palaeo-environmental samples will be undertaken, as necessary, by suitably qualified specialists.

5.28 Where there is evidence for industrial activity, samples will be taken to identify macroscopic technological residues in accordance with *Archaeometallurgy* (English Heritage 2001) and *Science for Historic Industries* (English Heritage 2006).

5.29 Any human remains encountered must initially be left *in* situ. If removal is necessary, this must comply with the relevant Ministry of Justice, Diocesan and other regulations, as appropriate. A strategy for the excavation, analysis, retention and/or reburial of a) disarticulated and b)

articulated human remains will need to be developed and specified in the WSI. The cataloguing and analysis of all human remains will be undertaken, as necessary, by a suitably qualified osteoarchaeologist.

5.30 Contingency provision will be made for additional specialist advice, eg for finds analysis, analysis of palaeo-environmental or industrial samples, and conservation.

5.31 The appointed archaeological contractor should undertake a site risk assessment and operate at all times with due regard to health and safety regulations.

6 WSI and monitoring

6.1 A written scheme of investigation (WSI) should be formulated by potential contractors and submitted to the Development Control Archaeologist for approval. This document forms an agreed scope of works, and should explicitly cover all the requirements of this brief:

The proposal should include:

- A description of the proposed fieldwork methods to be used.
- An explanation of the sampling strategies to be used
- A projected timetable for work on site
- Details of the arrangements made for deposition of the finds and site archive
- A list of specialists available for undertaking finds, industrial and palaeo-environmental analyses

6.2 The work will be carried out by appropriately qualified and experienced staff. CVs should be submitted to the Development Control Archaeologist for approval. Details of staff numbers and their relevant experience should be included, plus their responsibilities in carrying out the work.

6.3 Any changes to the agreed WSI will be discussed with, and agreed with, the Development Control Archaeologist before implementation

6.4 During the course of the fieldwork the Development Control Archaeologist may undertake monitoring visits. One week's prior notice of the commencement of fieldwork should therefore be given, including the name and contact number of the archaeologist on site.

6.5 Should significant archaeological deposits be encountered the archaeological contractor should contact the Development Control Archaeologist and arrange a convenient date and time for a site visit. Your contact will be:

Steve Baker,
Development Control Archaeologist,
Derbyshire County Council,
Shand House,
Dale Road South,
Matlock,
Derbyshire DE4 3RY

steve.baker@derbyshire.gov.uk
Tel: 01629 539773

7 Report

7.1 The preparation of reports should follow the guidelines published by the Institute of Field Archaeology and English Heritage (MAP2). Provision should be made for assessment reporting (*sensu* MAP2) and interim reporting to be undertaken where appropriate.

7.2 A final report should be submitted within six months of the completion of fieldwork. Bound copies of reports should be provided for the interested parties. This should include the Development Control Archaeologist and the Derbyshire Historic Environment Record. The archive should be deposited with the appropriate museum.

7.3 The final report should include as a minimum:

- Non-technical summary
- Introductory statement
- Aims and purpose of the archaeological work
- Method
- An objective summary statement of results
- A brief written summary of the building recording survey
- Full phased stratigraphic discussion of the archaeological features
- An interpretive discussion of the results, placing them in a local and regional context
- The results of assessments and/or analyses of artefacts and ecofacts carried out by suitable specialists
- Key building record photographs (printed at a minimum of 5" x 4") and a selection of supporting images of at least laser copier standard.
- Archaeological site photographs including key features and working shots
- Supporting illustrations and plans, suitably captioned, at appropriate scales. To include as a minimum: a location map at not less than 1:25000 and a site plan at not less than 1:500; copies of historic map extracts and historic photographs where relevant; a plan indicating positions of photographs used within the report; a plan and section of each trench (sample section if blank); detail plans/sections of archaeological features and structures as appropriate.
- A detailed context index
- Supporting data – tabulated or in appendices
- Index to archive, details of archive location and accession number, and a proposed date for final deposition.
- References
- A copy of the OASIS form
- A copy of this brief

7.4 A short summary report should be supplied as hard copy and a pdf to the Development Control Archaeologist along with the full report. The appointed archaeological contractor should also provide the Development Control Archaeologist with a written statement on how the project is to be published. *Where no further publication is envisaged then the short report will be published in an annual round-up on developer-funded archaeology in Derbyshire Archaeological Journal within 2 years of*

8 Archive deposition

8.1 From the outset of the project arrangements should be made for the archive, consisting of record sheets, original drawings, drawn plans, photographs, notes, copies of all reports along with an index to the archive to be deposited at Derby Museum and Art Gallery in accordance with the procedures set out in *Procedures for the Transfer of Archaeological Archives* (2003). All archive material should be marked with the museum accession number.

8.2 Initial contact with the Museum should be made before the commencement of fieldwork, using the appropriate notification form (Appendix 1 of the archive guidelines). An accession number should be drawn and notified to the Development Control Archaeologist. Please note that WSIs will not be approved until this initial notification is complete.

Derby Museum and Art Gallery
The Strand
Derby
DE1 1BS
☎ 01332 641901
Fax 01332 716670
museum@derby.gov.uk

8.3 The Development Control Archaeologist and museum curator must be notified in writing on completion of fieldwork, with a proposed timetable for deposition of the archive. This should be confirmed in the project report.

8.4 The Development Control Archaeologist must be informed in writing on final deposition of the site archive.

8.5 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form must be completed for submission to the HER. This should include an uploaded pdf version of the entire report (a paper copy should also be included with the archive).

9 Publication

9.1 Contingency publication costs must be built into agreed project budgets from the outset. Where no further publication is envisaged then a summary of the project, with selected drawings, illustrations and photographs, should be submitted within 2 years of the completion of the project to Derbyshire Archaeological Journal for publication. A sheet of instructions for contributors is attached.

7

Guidance notes for contributors to the *Derbyshire Archaeological Journal* of interim and short reports on developer funded archaeology:

The aim is to publish annual compilations of short reports on developer funded archaeology in the county on a regular basis in the *Derbyshire Archaeological Journal,* in order to better inform the public of the results of the work being undertaken.

It is envisaged that the reports will take one of two forms;

1. Interim reports – short interim descriptions of an excavation or survey that will eventually be subjected to fuller publication.
2. Definitive reports – summaries of archaeological work which will not be pursued further. Note that even if the results were negative, if valid questions were posed then a brief explanation will be worthwhile.

MODEL – see 'Some Fieldwork in Derbyshire by the Trent & Peak Archaeological Unit in 1998-9' edited by Graeme Guilbert and Daryl Garton, *DAJ* vol. 121 (2001): 223-5. Number 18 is an example of an Interim report and numbers 19 to 20 are examples of definitive reports.

DETAILED NOTES
Set individual reports out in alphabetical order of site names.
NGR should follow site name, followed by names of those responsible for the report and/ or fieldwork.
Give due acknowledgement to sponsors of project within text.
Definitive reports should include whereabouts of the related written, drawn and photographic archive, as well as any artefacts.
Illustrations – include line drawings and/or photographs if appropriate.
References – include where appropriate at the end of each report.

FUNDING
The Derbyshire Archaeological Society will require an offer of grant-aid towards the printing costs of short reports submitted in order to guarantee publication. Costs will be determined from the printer's estimate. A contribution towards these costs of around 60% will be sought from the relevant contracting archaeological organisation. For further information contact Pauline Beswick (Hon. Editor), 4 Chapel Row, Froggatt, Calver, Hope Valley, S32 3ZA or tel. 01433 631256.

DEADLINE
Reports received by the end of July will be considered for inclusion in *DAJ* in the year following. If too late they will be saved for consideration for the succeeding year.

Reports to be submitted in hard copy and on disk to:
Steve Baker at Environmental Services Department, Derbyshire County Council, Shand House, Dale Road South, Matlock, Derbyshire DE4 3RY.

8

APPENDIX 5: WRITTEN SCHEME OF INVESTIGATION

WRITTEN SCHEME OF INVESTIGATION FOR
ARCHAEOLOGICAL EVALUATION, BUILDING RECORDING
& WATCHING BRIEF

Prepared for Rok Building plc by ArcHeritage, 6th May 2010. Amended 17th May 2010.

Site Location: Britannia Mills, Mackworth Road, Derby
NGR: SK 3411 3658
Proposal: Extensions and alterations
Planning ref: DER/04/08/00635/PRI
Status of WSI: Approved

1 SUMMARY

1.1 Planning permission has been granted for extensions and alterations to the former Britannia Mills building on Mackworth road, Derby.

1.2 The implementation of a programme of archaeological work is required as a condition of planning consent.

1.3 This Written Scheme of Investigation (WSI) has been prepared in response to a Brief supplied by Steve Baker, Development Control Archaeologist for Derby City Council. The work will be carried out in accordance with the Brief and this WSI, and according to the principles of the Institute for Archaeology (IfA) Code of Conduct and all relevant standards and guidance.

2 SITE LOCATION & DESCRIPTION

2.1 The proposal site is located at the junction of Mackworth Road and Markeaton Street.

3 DESIGNATIONS & CONSTRAINTS

3.1 There are no known statutory designations for the site.

4 ARCHAEOLOGICAL INTEREST

4.1 The mill building is of interest and is recorded on the Derbyshire HER (18978). It is a former hosiery mill, constructed in 1912 at the southern end of the Markeaton Mills site, replacing an earlier colour works built prior to 1818. Prior to this corn was milled on the site, and there is reason to believe that evidence for industrial, medieval and earlier activity may be present on the site.

4.2 A culverted mill race, possibly relating to the previous corn mill, is present on the site.

5 AIMS & APPROACH

5.1 The aims of the evaluation are:

- to determine the extent, condition, character, importance and date of any archaeological remains present
- to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made
- to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site
- to provide a photographic record of the part of the building which will be demolished
- to monitor works associated with the mill race, and create a full archaeological record of it, where exposed/altered during the development works.

5.2 The evaluation will comprise the following elements:

- Trial trenching
- Photographic survey & documentary study
- Watching brief
- Reporting

Please note that further stages of work or other mitigation measures could be required by the local authority, depending upon the results of the evaluation.

6 EXCAVATION METHODOLOGY

6.1 Two trenches will be excavated. The location of the trenches is shown on Illustration 1. Both trenches will measure 6m x 3m and will be placed to examine the footprint of the new extension. A contingency area of 10sq m will be allowed for.

6.2 Due to the potential for deep deposits trenches will be stepped if necessary. This will be undertaken so as to ensure their stated full size (6m x 3m) will be exposed at the base of the trench.

6.3 The trench locations will be accurately plotted by measurement to local permanent features shown on published Ordnance Survey maps. All measurements will be accurate to +/-10cm, and the trenches locatable on a 1:2500 Ordnance Survey map. This is to ensure that the trenches can be independently relocated in the event of future work.

6.4 Overburden such as turf, topsoil or other superficial fill materials would be removed by a machine fitted with a toothless bucket. Mechanical excavation equipment would be used judiciously, under archaeological supervision down to the top of

archaeological deposits, or the natural subsoil, whichever appears first. If archaeology is present machining will cease and excavation will normally proceed by hand. Where deep homogenous deposits, or deposits such as rubble infills, are encountered, these may be carefully removed by machine, after consultation with Steve Baker.

6.5 The use of mechanical, air-powered, or electrical excavation equipment may also be appropriate for removing deep intrusions (e.g. modern brick and concrete floors or footings) or through deposits to check that they are of natural origin, after consultation with Steve Baekr. The machine will not be used to cut arbitrary sondages down to natural deposits.

6.6 All trenches will be sufficiently cleaned by hand to enable potential archaeological features to be identified and recorded; areas without archaeological features will be recorded as sterile and no further work will take place in these areas. The stratigraphy of all trenches will be recorded on trench record sheets even where no archaeological features are identified.

6.7 A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner in order to establish the aims of the evaluation.

- Discrete features will be half-sectioned in the first instance.
- 20% of linear features greater than 5m will be sample excavated, with each sample being no less than 1m in length.
- A 1m section of linear features which are less than 5m in length will be sample excavated.
- Deposits at junctions or interruptions in linear features will be sufficiently excavated to allow relationships to be determined.
- Structures will be sample excavated to a degree whereby their extent nature, form, date, function and relationships to other features and deposits can be established.

7 RECORDING METHODOLOGY FOR EXCAVATION

7.1 All archaeological features will be recorded using standardised pro forma record sheets. Plans, sections and elevations will be drawn as appropriate and a comprehensive photographic record will be made where archaeological features are encountered.

7.2 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-section of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation.

7.3 Each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.

7.4 Photographs of work in progress and post-excavation of individual and groups of features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic record will comprise 35mm format colour slides and black and white film. Digital photography may be used in addition, but will not form any part of the formal site archive. All site photography will adhere to accepted photographic record guidelines.

7.5 Areas which do not contain any archaeological deposits will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded (2m sample section).

7.6 All finds will be collected and handled following the guidance set out in the IfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds,* and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

7.8 Other samples will be taken, as appropriate, in consultation with ArcHeritage specialists and the English Heritage Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments.

7.9 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and the Development Control Archaeologist will be informed immediately. An osteoarchaeologist will be available to give advice on site.

- If **disarticulated** remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for immediate reburial by the Church.
- If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines (see 6.12) and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.10 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, IfA Technical Paper 13 (1993) and English Heritage guidance (2005).

8 METHODOLOGY FOR ARCHAEOLOGICAL WATCHING BRIEF

8.1 This work will comprise a **continuous/comprehensive** watching brief, on the all works associated with the former mill race culverted beneath the site. The watching brief may be stepped down **to intermittent monitoring**, depending on the results, and following agreement from the Development Control Archaeologist.

8.2 All earth-moving machinery must be operated at an appropriate speed to allow the archaeologist to recognise, record and retrieve any archaeological deposits and material.

8.3 It is not intended that the archaeological monitoring should unduly delay site works. However, the archaeologist on site should be given the opportunity to observe, clean, assess and, where appropriate hand excavate, sample and record any exposed features and finds. In order to fulfil the requirements of this WSI, it may be necessary to halt the earth-moving activity to enable the archaeology to be recorded properly. Cross sections through the race will be surveyed if suitable

portions are exposed. A reflectorless total station may be used to help mitigate health and safety concerns. The recording will aim to establish construction techniques and dating evidence for the race.

- Under the footprint of the new building the race will be exposed and cleared out. The walls and floor will be broken through to accommodate pile caps etc for the new building
- On the rest of the site, the race may be exposed, cleaned of sludge, and then backfilled. Parts of the race may remain intact.

8.4 Plant or excavators shall not be operated in the immediate vicinity of archaeological remains until the remains have been recorded and the archaeologist on site has given explicit permission for operations to recommence at that location.

8.5 Recording methodology will be as per the trenching methodology above, except for the following:

- Unique context numbers will only be assigned if artefacts are retrieved, or stratigraphic relationships between archaeological deposits are discernable. In archaeologically 'sterile' areas, soil layers will be described, but no context numbers will be assigned. Where assigned, each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions.

9 METHODOLOGY FOR PHOTOGRAPHIC RECORDING & RESEARCH

9.1 The refectory building on the north-eastern side of the mill building will be recorded to English Heritage Level 1. A brief description of the building will be made. A photographic record of the buildings will be made. The primary archive will comprise 35mm black and white film. Colour slide and/or digital photographs will be taken to supplement the primary archive, particularly where decorative details or colour are important. Plans showing the location and direction of each photograph will be compiled.

9.2 A basic documentary study and map regression will be undertaken, to enable the building to be placed in its historical context.

10 SPECIALIST ASSESSMENT

10.1 The stratigraphic information, artefacts, soil samples, and residues will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.

10.2 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilization of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), IfA (2007) and Museums and Galleries (1992).

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

10.4 Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with Steve Baker of DCC.

11 REPORT & ARCHIVE PREPARATION

11.1 Upon completion of the site work, a report will be prepared to include the following (also see the Brief for additional information):

a) A non-technical summary of the results of the work.
b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
c) An account of the methodology and detailed results of the operation, describing structural data, archaeological features, associated finds and environmental data, and a conclusion and discussion.
d) A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, trench locations, selected feature drawings, and selected artefacts, and phased feature plans, and photographic viewpoint location plans where appropriate.
e) Specialist artefact and environmental reports where undertaken, and a context list.
f) Details of archive location and destination (with accession number, where known), together with a context list and catalogue of what is contained in that archive.
g) A copy of the key OASIS form details
h) Copies of the Brief and WSI
i) Additional photographic images may be supplied on a CDROM appended to the report

11.2 Three copies of the report will be submitted to the commissioning body. Bound and digital copies of the report will be submitted direct to the HER.

11.3 A field archive will be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs will be produced. ArcHeritage will liaise with Derby Museum and Art Gallery prior to the commencement of fieldwork to establish the detailed curatorial requirements of the museum and discuss archive transfer and to complete the relevant museum forms following the *Procedures for the Transfer of Archaeological Archives* (2003). The relevant museum curator would be afforded access to visit the site and discuss the project results.

11.4 Derby Museum have been contacted and an accession number requested. This will be passed on to the Development Control Archaeologist Prior to fieldwork commencing.

11.5 On completion of the fieldwork the Development Control Archaeologist and museum curator will be notified in writing and a proposed timetable for deposition of the archive will be provided.

11.6 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest.

Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

11.7 Upon completion of the project an OASIS form will be completed at http://ads.ahds.ac.uk/project/oasis/.

12 POST EXCAVATION ANALYSIS & PUBLICATION

12.1 The information contained in the evaluation report will enable decisions to be taken regarding the future treatment of the archaeology of the development site and any material recovered during the evaluation.

12.2 If further archaeological investigations (mitigation) take place, any further analyses (as recommended by the specialists, and following agreement with Steve Baker) may be incorporated into the post-excavation stage of the mitigation programme unless such analysis are required to provide information to enable a suitable mitigation strategy to be devised. Such analysis will form a new piece of work to be commissioned.

12.3 In the event that no further fieldwork takes place on the site, a full programme of post excavation analysis and publication of artefactual and scientific material from the evaluation may be required by Steve Baker. Where this is required, this work will be a new piece of work to be commissioned.

12.4 If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the evaluation and of the location and material held within the site archive.

12.5 The results of the work will be publicised locally e.g. by presenting a paper at the Derbyshire Archaeology Day and talking to local societies, as appropriate.

12.6 A summary report will be presented in digital format for publication in the appropriate volume of *Derbyshire Archaeological Journal*.

13 HEALTH AND SAFETY

13.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

13.2 A Risk Assessment will be prepared prior to the start of site works.

14 PRE-START REQUIREMENTS

14.1 The client will be responsible for ensuring site access has been secured prior to the commencement of site works, and that the perimeter of the site is secure.

14.2 The client will provide ArcHeritage with up to date service plans and will be responsible for ensuring services have been disconnected, where appropriate.

14.3 The client will be responsible for ensuring that any existing reports (e.g. ground investigation, borehole logs, contamination reports) are made available to ArcHeritage prior to the commencement of work on site.

15 REINSTATEMENT

15.1 Following excavation and recording the spoil from the trenches will be backfilled unless requested otherwise. The backfill material will be levelled and compressed as far as possible with the mechanical excavator bucket, but will not be compressed to a specification. ArcHeritage are not responsible for reinstating any surfaces, including reseeding, unless specifically commissioned by the client who will provide a suitable specification for the work.

16 TIMETABLE & STAFFING

16.1 Photographic recording and archive research can be completed within one week. The site evaluation works are also scheduled to be completed in one week, to run concurrently with the photographic work if possible.

16.2 Specialist staff available for this work are as follows:

- Head of Artefact Research - Dr Ailsa Mainman
- Human Remains - Malin Holst (York Osteoarchaeology Ltd) & Rebecca Storm (University of Bradford)
- Palaeoenvironmental remains - Palaeoecology Research Services Ltd
- Head of Curatorial Services - Christine McDonnell
- Finds Researcher - Nicky Rogers
- Post-medieval Pottery – Dr David Barker
- Medieval Pottery Researcher - Anne Jenner
- Finds Officers - Geoffrey Krause & Rachel Cubitt
- Archaeometallurgy & Industrial Residues - Dr Rod Mackenzie & Dr Roger Doonan
- Conservation - Ian Panter

17 MONITORING OF ARCHAEOLOGICAL FIELDWORK

17.1 As a minimum requirement, Steve Baker will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed and to discuss the requirement any further phases of archaeological work. ArcHeritage will notify Steve Baker of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with Steve Baker.

18 Copyright

19 KEY REFERENCES

Department for Communities and Local Government 2010 *Planning Policy Statement 5: planning for the Historic Environment.*

English Heritage. 2001. *Archaeometallurgy*. Centre for Archaeology Guidelines.

English Heritage. 2002. *Environmental Archaeology. A guide to the theory and practice of methods from sampling and recovery to post-excavation.*
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English Heritage. 2003. *Where on Earth are We? The Global Positioning System (GPS) in archaeological field survey.*
English Heritgae. 2004. *Geoarchaeology: using earth sciences to understand the archaeological record.*
English Heritage. 2005 *Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England.*
English Heritage. 2006. *Guidelines on the x-radiography of archaeological metalwork.*
English Heritage. 2006b. *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide.*
English Heritage. 2007. *Understanding the Archaeology of Landscape – a guide to good recording practice*
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Institute for Archaeologists. 1993. Technical paper No 13 by McKinley, J. I., and C. Roberts. *Excavation and post-excavation treatment of cremated and inhumed human remains*.
Institute for Archaeologists. 2007. *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* by D.H. Brown.
Institute for Archaeologists. 2008. *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.*
Institute for Archaeologists. 2008. *Standard and Guidance for Archaeological Field Evaluation*
Museum and Galleries Commission. 1992. *Standards in the museum care of archaeological collections*.
RCHMS. 1999. *'Recording Archaeological Field Monuments – a descriptive specification.*
Standing Conference of Archaeological Unit Managers (SCAUM). 2007. *Health and Safety in Field Archaeology*
Neal, V., and D. Watkinson (eds). 1998. *First Aid for Finds: practical guide for archaeologists.* United Kingdom Institute for Conservation of Historic & Artistic Works, Archaeology Section; 3rd Revised Edition.

See also the **HELM** website for a full list of English Heritage Guidance documents.
http://www.helm.org.uk/server/show/nav.19701

Any queries relating to this WSI should be addressed to Anna Badcock, ArcHeritage, Campo House, 54 Campo Lane, Sheffield S1 2EG (Tel: 0114 3279793, email: abadcock@yorkat.co.uk)

Illustration 1 Proposed trench locations (note trenches not to scale)