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Salford
MANCHESTER

**Archaeological
Investigation Report**

Coral Mill, Shaw Road,
Newhey,
Rochdale

Client: Countryside
Properties (UK) Ltd

Technical Report:
Ian Miller

Report No:
2016/33



Site Location: The study area comprises a brownfield site, situated in Newhey on the southern fringe of Milnrow in the Greater Manchester Borough of Rochdale

NGR: Centred at NGR 393820 411490

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Author: Ian Miller BA FSA

Position: Assistant Director

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Signed:



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Contact: Salford Archaeology, Centre for Applied Archaeology, Peel Building, University of Salford, Salford, M5 4WT

Telephone: 0161 295 4467

Email: i.f.miller@salford.ac.uk

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Summary

Countryside Properties (UK) Ltd, in partnership with Grasscroft Homes & Property Ltd and Begbies Traynor (Central) LLP, has obtained planning permission (Planning Ref 16/00232/FUL) to redevelop a former industrial site of 1.295 hectares in Newhey, a small settlement situated to the south-east of Milnrow in the Metropolitan Borough of Rochdale (centred on NGR 393820 411490). The development proposals allow for a new residential scheme that consists of 69 units, comprising 45 houses and 24 two bedroom apartments.

The site was occupied previously by a series of textile mills, the archaeological interest of which was highlighted in a desk-based study of the site that was carried out during the design process for the proposed development. In order to secure archaeological interests, Rochdale Council attached a condition to planning consent that required an appropriate level of intrusive site investigation of these historic mills in advance of development. Following consultation with the Greater Manchester Archaeological Advisory Service, in their capacity as archaeological advisors to Rochdale Council, it was recommended that an area in the central part of the proposed development area, corresponding with the footprint of the first textile mill to have occupied the site, together with the probable location of the steam-power plant for a second mid-nineteenth-century textile mill, was investigated in conjunction with the proposed remediation works for the site.

Initial archaeological monitoring of ground-breaking works by the remediation contractor revealed that physical remains of the mid-nineteenth-century steam-powered mill had been removed almost entirely during later nineteenth and twentieth-century redevelopment, although the remains of the first textile mill to have occupied the site were identified. Further excavation of this part of the site identified the fragmentary remains of a small waterwheel pit, confirming that this early mill had been water powered. The exact date at which the mill was established remains uncertain, although it was probably during the 1830s. The application of water power to new textile mills had been largely superseded across Lancashire by steam power by this period, and Salt Pye Mill provides an unusual example of the continued use of a traditional water-power system.

1. Introduction

1.1 Circumstances of the Project

Countryside Properties (UK) Ltd, in partnership with Grasscroft Homes & Property Ltd and Begbies Traynor (Central) LLP, has obtained planning permission (Planning Ref 16/00232/FUL) to redevelop a former industrial site of 1.295 hectares in Newhey, a small settlement situated to the south-east of Milnrow, Greater Manchester. The development proposals allow for a new residential scheme that consists of 69 units, comprising 45 houses and 24 two bedroom apartments.

The archaeological interest in the site was highlighted in a desk-based assessment that was carried out by Salford Archaeology in 2016. This comprehensive study concluded that proposed development area had some potential to retain buried archaeological remains of local significance, which would merit recording should they be damaged or destroyed by the construction works. These comprised potential remains of a series of nineteenth-century textile mills, although emphasis was placed on the earliest of these mills which documentary sources indicated tentatively may have been water-powered.

In the light of the conclusions drawn by the desk-based assessment, the Greater Manchester Archaeological Advisory Service (GMAAS), which provides archaeological advice to Rochdale Borough Council, recommended that an archaeological investigation should be carried out in advance of the construction work for the proposed development. This was intended to preserve by record any buried archaeological remains that survive, in line with the National Planning Policy Framework, Paragraph 128.

Salford Archaeology was commissioned subsequently by Countryside Properties (UK) Ltd to undertake the required scheme of archaeological investigation. This work was carried out between April and June 2016, and comprised close archaeological monitoring during ground-breaking works in the areas of archaeological interest, followed by further investigation of buried remains where they were found to survive *in-situ*.

1.2 Site Location

Milnrow lies in the north-eastern part of the modern county of Greater Manchester, within the Metropolitan Borough of Rochdale. It lies on the southern side of the Rossendale uplands and within the River Roch valley, which includes the industrial towns of Heywood, Littleborough, Middleton, Milnrow and Wardle. The site of Coral Mill (centred on NGR 393820 411490) lies approximately 1.5km to the south-east of Milnrow, within the small settlement of Newhey (Fig 1).

The site is bounded to the south-west by Shaw Road and Stewart Street, to the south-west by the Piethorne Brook, and to the north by modern industrial buildings (Plate 1).



Plate 1: Recent aerial view across Newhey, showing the study area boundary

Geology: the British Geological Survey (BGS) maps indicate that the solid geological sequence in the vicinity of the Site Area comprises the Pennine Lower Coal Measures Formation, which includes mudstone, siltstone and sandstone sedimentary bedrock that was formed approximately 314 to 316 million years ago in the Carboniferous Period. The local environment was previously dominated by swamps, estuaries and deltas. These rocks were formed in marginal coastal plains with lakes and swamps periodically inundated by the sea; or estuaries and deltas, and shallow seas (www.bgs.ac.uk/geologyviewer).

2. Historical Background

2.1 Contextual Background

A series of significant changes to the form and use of the landscape across the borough of Rochdale occurred during the eighteenth century. More generally, this period brought progressive agricultural expansion that led to the complete enclosure of the landscape and the establishment of further rural dwellings, farm buildings, and associated route ways. The domestic-based textile industry also developed during this period, leading to the emergence of specialised weavers' cottages. These represented specially designed semi-domestic workshops, often attached to earlier farmhouses that contained both a dwelling and loomshop, which were often rented by the weavers (*cf* Timmins 1977).

Textile manufacturing and finishing became allied with the factory-based system during the late eighteenth and early nineteenth century. This was characterised by the appearance of purpose-built textile mills and also fulling mills and dye works, which initially were focused on the fast-flowing watercourses on the hills around Rochdale.

An indication of the form of the wider study area during the late eighteenth and early nineteenth centuries can be gleaned from the cartographic sources. The earliest accurate survey of the area, produced by William Yates in 1786, provides no indication of any settlement in modern-day Newhey, and implies that the study area was entirely undeveloped. The next available survey is Greenwood's map of 1818, which similarly shows the site as undeveloped, although a few cottages are shown to the south-west, perhaps denoting the earliest buildings in Newhey.

It is clear from a comparison of these two early cartographic sources that the local road network had been improved. In particular, the new Huddersfield Road had been built immediately to the north of the study area by 1818, and Shaw Road had been reconstructed as part of a major new route between Littleborough and Werneth, near Oldham. Newhey was strategically located at a junction of these two roads, although was described in the later 1820s as consisting only of 'several ranges of cottages and two public houses', with no mention of any mills or manufacturing premises (Butterworth 1828, 113).

The next available survey of the area is provided by Hennet's map of Lancashire, which was produced in 1830. Newhey is marked as a settlement, although evidently still no larger than a hamlet, with the Site Area being again shown as undeveloped. Butterworth, writing in 1828, noted that the area above Newhey had 'many woollen mills, supplied with numerous streams of water', but makes no reference to a mill close to the confluence of the Piethorne Brook with the River Beal (*ibid*). Similarly, Hennet annotated the location of water-powered mills on his map, and whilst several are marked along the Piethorne Brook and its tributaries to the east, nothing is shown in the vicinity of the present study area.

2.2 Development of the Study Area

The first available detailed map to show the Site Area is the Ordnance Survey first edition 1:10,560 map of Lancashire, which was surveyed in 1844-7 and published in 1851 (Plate 2). This shows several building ranges and cottages clustered around the junction of Shaw Road and Huddersfield Road, forming the emerging centre of Newhey. The study area had also been developed for manufacturing purposes by the mid-1840s although, unusually for the area, this appears to have been associated with the cotton industry. This development comprised a rectangular block, annotated by the Ordnance Survey as Salt Pye Cotton Mill, together with two small ancillary buildings to the south-west and a large reservoir immediately to the north-east.

The reservoir was supplied from the Piethorne Brook via leat from a weir. A short leat on the south-western side of the reservoir appears to have provided a conduit for water entering the south-eastern end of the mill block. It is quite possible that this was intended as a headrace to a waterwheel placed against the south-eastern internal wall of the mill. It is perhaps also of note that the Ordnance Survey provides no indication for the mill having been steam powered.

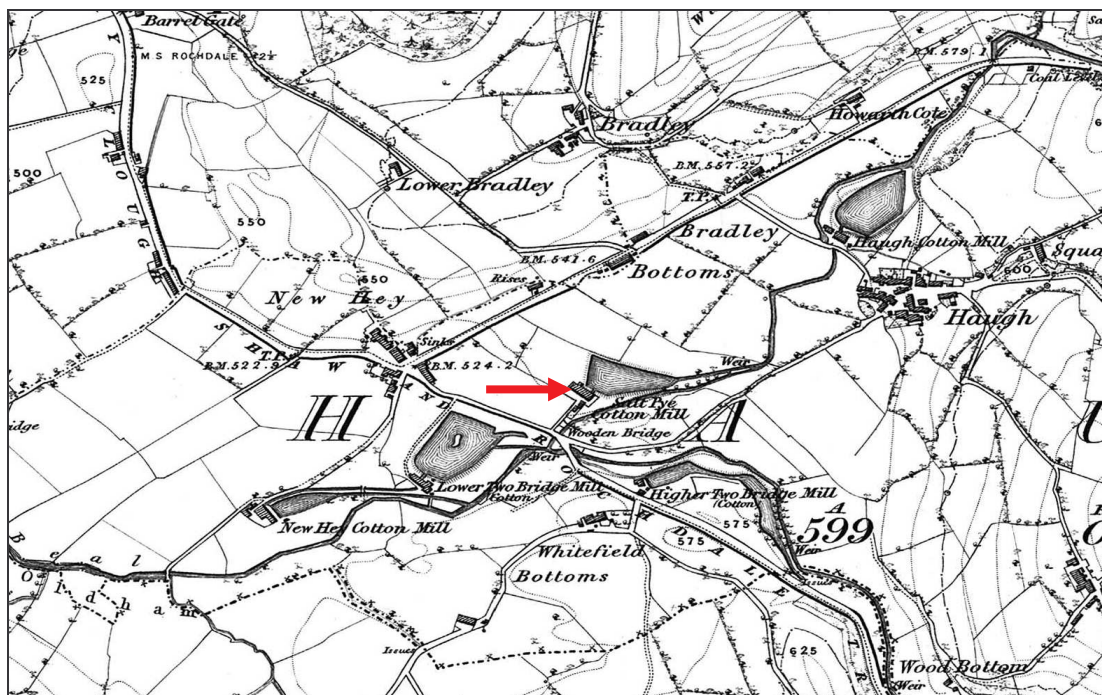


Plate 2: Extract from the Ordnance Survey map of Lancashire of 1851, with arrow marking the original Salt Pye Cotton Mill within the study area

This part of modern-day Greater Manchester is also mapped on the Ordnance Survey first edition 1:10,560 map of Yorkshire, which was published in 1854 (Plate 3). This shows a large, new mill block to have been erected immediately to the north-west of the original building. In contrast to the earlier mill, the new block will almost certainly have been steam powered, and whilst no firm indication of the location of the steam-power plant is provided by the mapping, it may have occupied the south-western corner of the mill.



Plate 3: Extract from the Ordnance Survey map of Yorkshire of 1854, with arrow marking the original Salt Pye Cotton Mill, immediately to the south-east of the larger mill block within the study area

Numerous new textile mills were established in the area during the second half of the nineteenth century (Plate 4), with the production of cotton beginning to outstrip wool as the main textile industry in Milnrow by the 1870s. Amongst the newly established firms were the New Ladyhouse Spinning Co Ltd of Milnrow, and the firm of Richard Barnes' Sons were constituted in 1877 and in 1879 respectively, to be followed by the Haugh Spinning Company Ltd of Newhey in 1881, the Garfield Spinning Company Ltd a year later, and the Newhey Spinning Company Ltd in 1884.

Salt Pye Mill had been remodelled, or perhaps rebuilt, during this period, with an enlarged footprint shown on the Ordnance Survey map of 1893 (Plate 4). In particular, an extension added to the south-eastern side subsumed part of the original mill, which had been demolished by the 1890s. The reservoir had also been infilled or covered over by this date, although the ancillary buildings remained extant.

This map annotates the site as Two Bridges Mill which, in contrast to the surrounding cotton factories, is identified as a woollen mill. This distinguished the mill in the study area from another Two Bridges Mill in Newhey, which was a cotton factory (Plate 4), but caution nevertheless has to be exercised when consulting documentary sources. However, a reference in a trade directory for 1891 to Thomas Heap & Son, woollen manufacturers, is likely to correspond to the Two Bridges Mill in the study area (Worrall 1891, 185). This implies that the mill may have been used for weaving, rather than for spinning woollen yarn.

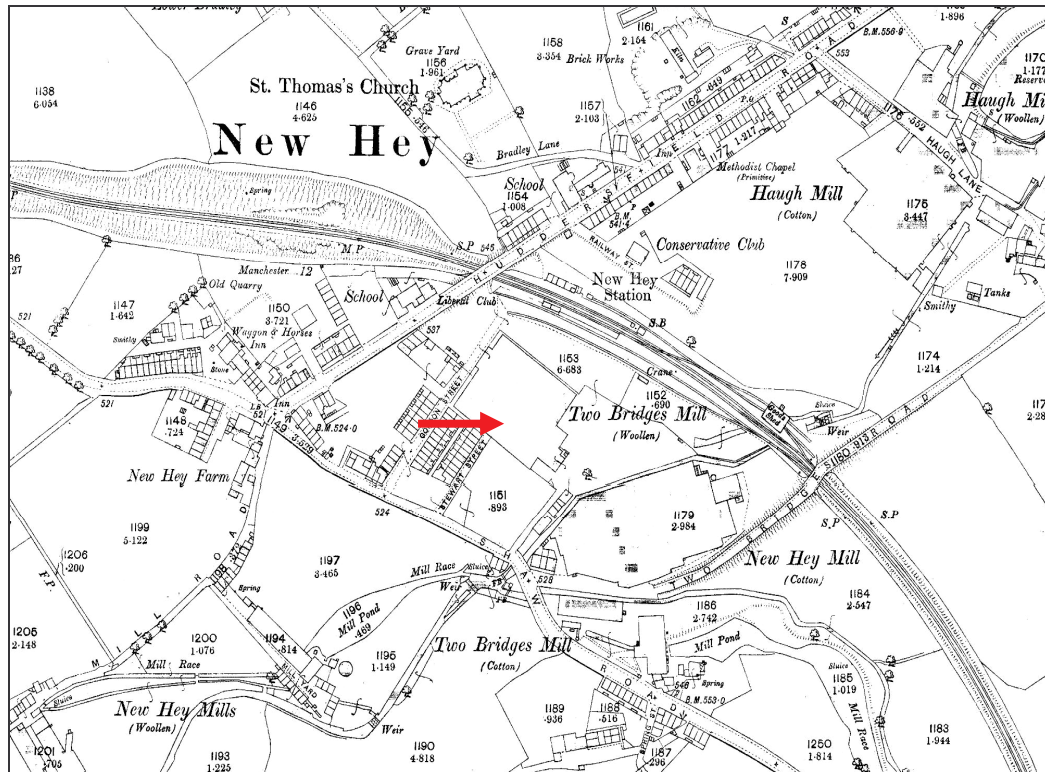


Plate 4: Extract from the Ordnance Survey map of 1893, with arrow marking the Two Bridges Mill

More cotton mills came into operation after the dawn of the century. The Lowfield Spinning Co Ltd at Firgrove was formed in 1900, and the Birch Waste Mills Ltd at Belfield was established in 1903. The Milnrow Spinning Co Ltd was established in 1907, together with the Coral Mill Ltd. The latter firm obtained the Two Bridges Mill in the Site Area, which is annotated 'disused' by the Ordnance Survey in 1907-08 (Fig 3). This map shows the footprint of the mill unaltered since 1893, although the position of the chimney is marked within the south-western part of the building.

It is uncertain whether the new company invested in the mill immediately, or occupied the existing building in the first instance. The Coral Mill Company evidently experienced financial difficulties during the First World War, and went into liquidation in 1919 (*London Gazette*, 28 November 1919). However, a new Coral Mill Company Ltd was established in 1919 (Oldham Archives D-HIAF/F/1/2), and the mill was remodelled or rebuilt as Coral Mill during this period, and the site was converted back to use for cotton spinning. The enlarged footprint is captured on the next edition of Ordnance Survey mapping, revised in 1928, which shows further expansion of the mill block to the south-east (Plate 5). The position of a chimney is also marked, although appears to be in a different location to that shown on the earlier mapping, suggested that a new steam-power plant had been installed.

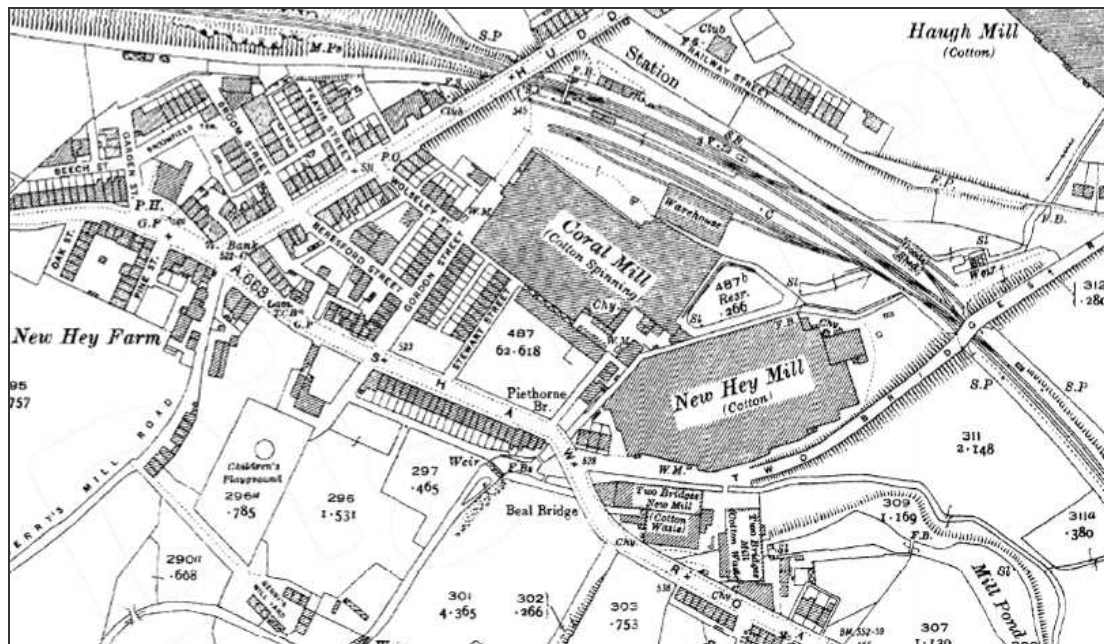


Plate 5: Extract from the Ordnance Survey map of 1936 (revised 1928), annotating Coral Mill

The installation of a new steam engine is corroborated by documentary sources, which record that Coral Mill was powered by an inverted vertical cross-compound steam engine that was manufactured by Buckley & Taylor in 1907 (Graham 2009). This firm was established in 1861 and was producing steam engines for the textile industry before the end of the decade. The engine supplied to Coral Mill was of 1200 hp and powered 20 ropes, indicating that a rope-drive system had been installed, replacing what was almost certainly an upright drive transmission system.

The Ordnance Survey map of 1936 also shows a long, narrow, ancillary range added to the south-western side of the mill complex. A reservoir is shown immediately to the south-east of the main mill block, presumably representing a remodelling of that shown on nineteenth-century mapping. The original ancillary buildings depicted on mid-nineteenth-century mapping appear to have survived extant. One of these is associated with a weighing machine, indicating that it was used as a watch house and office. Other new additions include a warehouse served by private railway sidings, situated immediately beyond the south-eastern boundary of the study area.

In August 1956, a liquidator was appointed to handle the assets of Coral Mill Company Ltd (*London Gazette*, 10 August 1956), although the production of cotton yarn may have continued until 1959. By 1962, the mill had been taken over by Smith & Nephew Textile Ltd (*Edinburgh Gazette*, 7 September 1962).

The mill is captured in an aerial photograph that was taken in 1988 as part of the Greater Manchester Textile Mill Survey (Plate 6). This shows the mill to have been reduced in height to two storeys, and a modern roof fitted; the original height of the mill block has not been ascertained, although it is likely to have been of at least three storeys. The mill chimney is clearly visible, together with a tall rectangular building that was almost certainly an engine house.

However, the size and architectural character of this building is entirely consistent with a late nineteenth-century engine house, and may have been associated with the Two Bridge Woollen Mill rather than the power house for the later Coral Mill.

At the time of the aerial photograph, Coral Mill was occupied Polyfabrik Ltd. However, the site became vacant in the early twenty-first century. In 2007, Fire and Rescue Service in Rochdale attended a spate of fires over a period of weeks that had been started deliberately, leading the Borough Commander to express severe concern over the future safety of the site (*Rochdale Observer*, 12 June 2007).



Plate 6: Aerial view looking west across Coral Mill in 1988 (RCHME/GMAU Archive)

3. Methodology

3.1 Aims and Objectives

The principal aim of the project was to monitor earth-moving works within the targeted area to establish whether any buried remains of the documented historic textile mills survive *in-situ*, and establish whether any further archaeological investigation was merited in advance of development.

3.2 Archaeological Investigation

All work was carried out in accordance with the Written Scheme of Investigation (WSI), and was consistent with the relevant standards and procedures provided by the Chartered Institute for Archaeologists (CIfA), and generally accepted best practice. The WSI allowed for the excavation of a single open-area trench across the proposed development area (*Appendix 1*). The trench was excavated by mechanical excavator, and all archaeological deposits were cleaned manually to define their extent, nature, form and, where possible, date.



Plate 7: General view across the excavation area during the initial stages of the mechanical removal of modern surfacing

3.3 Archive

A full archive of the work has been prepared to a professional standard in accordance with current Historic England guidelines (2006) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The archive will be deposited with the Touchstones in Rochdale on completion of the project. In addition, a copy of the report will be forwarded to the Greater Manchester Historic Environment Record (HER).

4. Results

4.1 Introduction

An initial stage of archaeological monitoring via a watching brief was undertaken during the mechanical excavation of the modern ground surface across the footprint of the mid-nineteenth-century steam-powered mill. This revealed that the demolition of the mill had been comprehensive, and whilst some below-ground structural remains survived *in-situ*, these were fragmentary and an appropriate archaeological record was compiled during the course of the watching brief. The modern ground surface was then removed mechanically from the footprint of the earlier Salt Pye Mill, although the entire footprint could not be excavated initially due to the presence of live service cables. However, some archaeologically significant remains of the mill were revealed, leading to a requirement for further investigation following the disconnection of the live services.

4.2 Watching Brief

The initial phase of archaeological investigation comprised the removal of the concrete slab (**001**) of the twentieth-century Coral Mill from across the footprint of the suspected steam-power plant for the mid-nineteenth-century, and the later Two Bridges Mill (Figs 7 and 8). The footprint of the earlier Salt Pye Mill was also subject to investigation.

Concrete **001** was 250mm thick, and an underlying 350mm thick deposit of levelling/demolition material (**002**). This enabled the fragmentary remains of several *in-situ* foundations to be revealed in the north-western part of the site (Plate 8), representing several stages in the site's development.

Salt Pye Mill: the earliest of the excavated remains pertained to Salt Pye Mill, shown on the Ordnance Survey map of 1851. These included a short section of stone wall that was exposed close to the eastern boundary of the development site, although the remains could not be excavated initially due to the presence of live services. This part of the site was subject to a second phase of excavation, carried out after all services had been disconnected (*Section 4.3 below*).

A stone wall (**007**) that comprised a single course of stone blocks, each measuring 900mm long, 700mm wide and 100mm thick, was revealed across the central part of the excavation area. The wall had been laid directly onto a thick deposit of clay (**003**), which clearly represented the natural geology. The wall was aligned north-west/south-east, occupying a position that corresponded closely to the south-western wall of Salt Pye Mill (Fig 7). Wall **007** seemingly represented the foot of the foundations, and was almost certainly below the floor level of the mill; nothing survived of the original floor of Salt Pye Mill.

Steam-Powered Mill c 1854: the remains of another stone wall (**014**) were identified in the north-western part of the excavation area. The fabric of this wall comprised coursed stone blocks of various sizes, with the north face of each stone dressed. The wall measured 700mm wide, and survived to a length of 10.5m long and a height of 500mm. The position of this wall corresponded broadly with the south-eastern wall of the c 1854 mill, but was beyond the footprint of Salt Pye Mill (Fig 7). None of the other excavated remains could be firmly identified as part of the c 1854 mill, and the site of its steam plant had evidently been redeveloped completely during the later nineteenth and twentieth centuries.

Two Bridges Mill: few of the excavated remains could be identified firmly as being part of the late nineteenth-century Two Bridges Mill. However, a large stone block that measured 2.8m long and 1.3m wide, almost certainly representing a foundation bed for a sizeable machine (Plate 9), was exposed to the east of wall **014**, and immediately outside the footprint of the mid-nineteenth-century mill. A series of seven holding-down bolts survived on top of the stone block, each measuring 25mm in diameter and had 1” Whitworth thread for the first 60mm. These implied that stone block had probably formed part of the foundation bed for a steam engine within Two Bridges Mill, whilst its position corresponds with a building thought to have contained the steam-power plant.

Coral Mill, 1919: the remnants of a flagstone floor (**004**), comprising flagstones of various sizes but typically 1.36m long, 900mm wide and 70mm thick, was revealed in the central part of the excavation area. The flagstones had been laid on a 30mm thick bedding layer of ash and clinker. The floor measured 6.1m north-west/south-east and 4.3m north-east/south-west, but had been partially removed by modern activity (**005**). Floor **004** almost certainly represented an internal surface, although it extended beyond the footprint of Two Bridges Mill as shown on the Ordnance Survey map of 1893, and is thus likely to have been a surface within the later Coral Mill. Removal of the flagstones revealed no physical remains of earlier foundations.

A machine bed (**006**) measuring 1.35m long, 1m wide and was 80mm high had been laid on top of flagstone floor **004** (Plate 8). This comprised a brick plinth, which had been constructed from modern common brick and bonded using cement mortar, with a concrete block forming the capping. Four metal bolts set into the upper surface of the block, with a thread of an M18 bolt, were intended to firmly secure an item of machinery to the foundation bed. This clearly represented a late stage in the development of the mill complex, and was of limited archaeological interest.

A 6.4m long section of a brick wall (**010**) was exposed to the north-west of floor **004**. Wall **010** was 420mm wide and comprised machine-made, double-frogged brick, each measuring 240mm x 110mm x 80mm and bonded using with hard black ash mortar, indicative of a late nineteenth- or, more probably, a twentieth-century construction date. This wall was aligned north-east/south-west with a return at the north-eastern end, and had probably formed a partition inside Coral Mill, but no further interpretation can be offered.



Plate 8: Flagstone floor 004 and machine bed 006 at the northern end of the study area

The vestiges of other walls representing internal elements of Coral Mill included wall 015. The fabric of this wall similarly comprised machine-made double-frogged bricks that were bonded with black ash mortar. The wall seemed to be a repair of stone wall 014, as the black ash mortar was used to bond the bricks to the stone work.

Upon the removal of the modern hard standing at the southern end of the trench, a second concrete floor was found. This floor (021) was of late twentieth-century date, as plastic sheeting had been found at the base of the 300mm thick slab (Plate 9). Two test pits were excavated through this floor to ascertain if any further archaeological remains survived *in-situ*. Both test pits were excavated to a depth of 1.6m where the stratigraphy showed that the concrete floor was laid upon a mixed demolition deposit (022) of 1.4m thick, which directly overlay the natural geology (003).

Excavation close to the south-eastern boundary of the development area revealed a well-built, L-shaped wall (023). The fabric of the wall comprised machine-made double-frogged bricks that were again bonded with black ash mortar (Plate 10). This wall almost certainly represented the foundations of a building adjacent to a small rectangular structure marked on the Ordnance Survey map of 1931 as 'WM', denoting a weighing machine (Fig 6). A large, rectangular brick-built base (024) was revealed immediately to the north-west, and this will have formed a foundation for the weighing-machine mechanism.



Plate 9: Plastic and other modern material exposed at depth beneath floor surfacing



Plate 10: The remains of the weigh house

4.3 Excavation

The final phase of archaeological investigation comprised the excavation of a trench that measured approximately 20 x 12m, and placed across the south-eastern end of Salt Pye Mill as depicted on the Ordnance Survey maps of 1851 and 1854 (Fig 7). This area was not investigated previously due to the presence of live services (a water pipe and electric cable), but was of particular archaeological interest as it was considered to have been the location of a putative waterwheel associated with the mill. This was confirmed by the discovery of a waterwheel pit during the excavation that followed the disconnection of the live services. The original installation of the services, however, had evidently caused significant disturbance to the waterwheel pit, whilst the south-western end had been destroyed by the foundations (024) for the twentieth-century weighing machine mechanism (Plate 11).



Plate 11: The truncated foundations of the waterwheel pit that had powered Salt Pye Mill, showing the brick-built wall of the twentieth-century weigh house

The waterwheel pit was aligned north-east/south-west, across the south-eastern part of the mill footprint shown on the Ordnance Survey map of 1854, and broadly in line with an apparent channel between the mill and a reservoir immediately to the north-east (Fig 7). The structure of the wheel pit comprised two parallel walls, set 1.1m apart and cut into the natural clay geology, and a more substantial wall that had formed the north-eastern end of the wheel pit. The fabric of the two side walls of the wheel pit survived to a maximum height of two courses, and comprised a single row of long, but relatively thin, stone blocks.

The base of the wheel pit was composed of flagstones, set onto the natural clay, although some of these had been removed, probably when the modern service trenches were excavated (Plate 12). The flagstones that did survive *in-situ*, were sealed beneath a 0.4m thick deposit of waterlogged organic silt, deriving from the use and abandonment of the waterwheel.



Plate 12: Section excavated across the base of the waterwheel pit, showing the flagstone base

The wall forming the north-eastern end of the wheel pit comprised large stone blocks of random, but coursed, sizes (Plate 13). It survived to a maximum height of four courses, which had been cut into the clay geology, with no physical evidence for a headrace. There was similarly no indication for the end wall having been of a curved construction, mirroring the shape of the waterwheel, which is typically seen in waterwheel pits that housed a breast-shot waterwheel.

Whilst the southern part of the wheel pit had been removed by the foundations for the weighing machine mechanism, fragmentary elements of the tail race were identified in the south-western edge of the excavation area, as a depth of 2.5m below the modern ground surface (Plate 14). This comprised part of the stone-built side wall of the tail race, with a flat stone capping. The tail race channel was filled with organic black silt, which contained fragments of the waterwheel (*Section 4.4 below*).



Plate 13: The stone-built north-eastern wall of the wheel pit



Plate 14: Fragmentary remains of the stone-built tail race, comprising a stone-built side wall (marked by the arrow) and a flat stone capping

4.4 The Finds

A small assemblage of artefacts was recovered from the archaeological investigation, comprising a flat iron object, two fragments of worked wood, and a single fragment of nineteenth-century stoneware pottery that was of little archaeological interest. The iron object, however, is of interest, almost certainly having formed part of one of the paddles fixed to the waterwheel. It was 400mm long, and contained two complete and one partial rivet holes at one end (Plates 15-16).



Plate 15: Part of an iron paddle from the waterwheel (face)



Plate 16: Part of an iron paddle from the waterwheel (reverse)



Plate 17: Timber element of the waterwheel

A curved oak timber, 840mm long (Plate 17), was also recovered from the organic silt fill of the tail race. This is likely to have formed one of the waterwheel spars, whilst a smaller but thicker fragment of wood with a rivet hole may have been part of the wheel frame (Plate 18), upon which were riveted the iron paddles.



Plate 18: Timber element of the waterwheel

5. Conclusion

5.1 Introduction

The archaeological investigation has provided a valuable opportunity to examine a site that was occupied by a series of mills for textile manufacturing from the second quarter of the nineteenth century through to the mid-twentieth century. The date at which the earliest of the mills, Salt Pye Mill, was established is uncertain, although it is likely to have been during the 1830s. This was accompanied in *c* 1854 by a larger mill that was almost certainly steam powered, and it seems that the two mills were operated in tandem as part of the same complex until the later nineteenth century, when they were superseded by Two Bridges Mill. This mill fell into disuse during the Edwardian era, and was eventually replaced after the First World War by the large Coral Mill.

The excavation yielded little physical evidence for the *c* 1854 mill, and nothing that could be attributed to the mill's steam-power plant. Conversely, important albeit fragmentary remains of the earlier Salt Pye Mill were discovered. Of particular interest was the discovery of a waterwheel pit within the footprint of the mill, and whilst this structure had been reduced to its foundation courses, it nevertheless provided firm evidence for mill having been water powered.

The excavation also revealed that the demolition of the twentieth-century Coral Mill had been comprehensive, and surprisingly few structural remains survived *in-situ*. The buried remains that were revealed included part of a flagstone floor within the main spinning block, together with short sections of brick-built walls that had formed internal partitions. The foundations for the weighbridge mechanism were also exposed to the south-east of the spinning block, and the twentieth-century construction of the weighbridge was seen to have removed the south-western part of the waterwheel pit for Salt Pye Mill.

5.2 Salt Pye Mill

Very little is known about the development and operation of Salt Pye Mill in the second quarter of the nineteenth century, reflecting a paucity of available documentary evidence. Historical mapping, and particularly the Ordnance Survey maps of 1851 and 1854, appears to depict a comparatively small, rectangular-shaped manufacturing block situated adjacent to a large reservoir, with a short range of ancillary buildings placed at a right angle to the south-west. Desk-based research concluded that a short channel shown on historical mapping between the reservoir and manufacturing block represented a headrace to a waterwheel (Salford Archaeology 2016), an interpretation that has been corroborated by intrusive investigation of the site. Whilst the physical remains of the mill were fragmentary, having been reduced in some cases to just a single foundation course, the surviving elements were sufficient to demonstrate that the mill had indeed been water powered.

The majority of textile mills built in the late eighteenth century were powered by a waterwheel, and this technology continued to be used in established mills well into the nineteenth century. Water power is derived from either the velocity of the flowing water (harnessed by a 'velocity waterwheel'), or from the weight of water carried in troughs or buckets mounted on the wheel (a 'weight waterwheel').

The principal type of velocity wheel was the undershot waterwheels, powered by the velocity of water, and generally incorporated a series of flat wooden paddles, or curved iron blades, mounted around the circumference of the wheel and struck by the flow of water beneath (Plate 19). This type of wheel was most suitable where there was not a high head of water. Undershot wheels were normally narrow and required the channel walls to be set very close to the sides of the wheel to maximise the flow, but even then they had a relatively low power output.

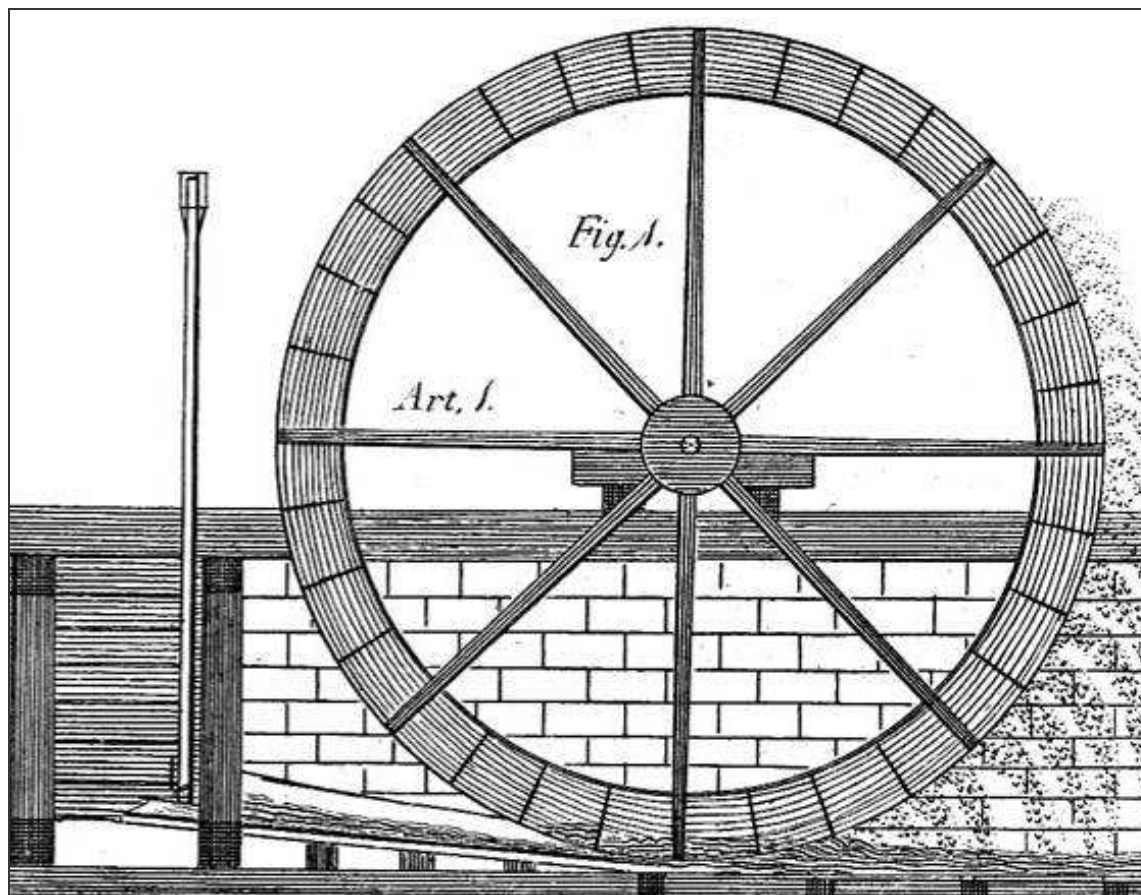


Plate 19: Illustration of an undershot wheel (reproduced from Evans 1795)

The weight waterwheels occurred as two basic types: the breast-shot; and the overshot. These two types of waterwheels were more efficient than velocity wheels, and were of particular value where there was a limited but constant source of water, making use of its weight rather than relying entirely on flow. The overshot wheel harnessed the force of gravity acting vertically on the water as it travelled from the top to the bottom of the wheel. This type of wheel required a high head, or fall, of water and, for this reason, was probably unsuitable for installation at Salt Pye Mill.

When the head of water was not sufficient for a large diameter overshot wheel, the breast-shot wheel often was used. The design of this type was halfway between the overshot and undershot wheels. Water strikes the buckets of the breast-shot wheel about midway between top and bottom, using the weight of the water for a 90 degree segment of arc (Plate 20). While more efficient than the undershot, their efficiency is far less than the overshot, which uses the weight of the water for a full 180 degrees.

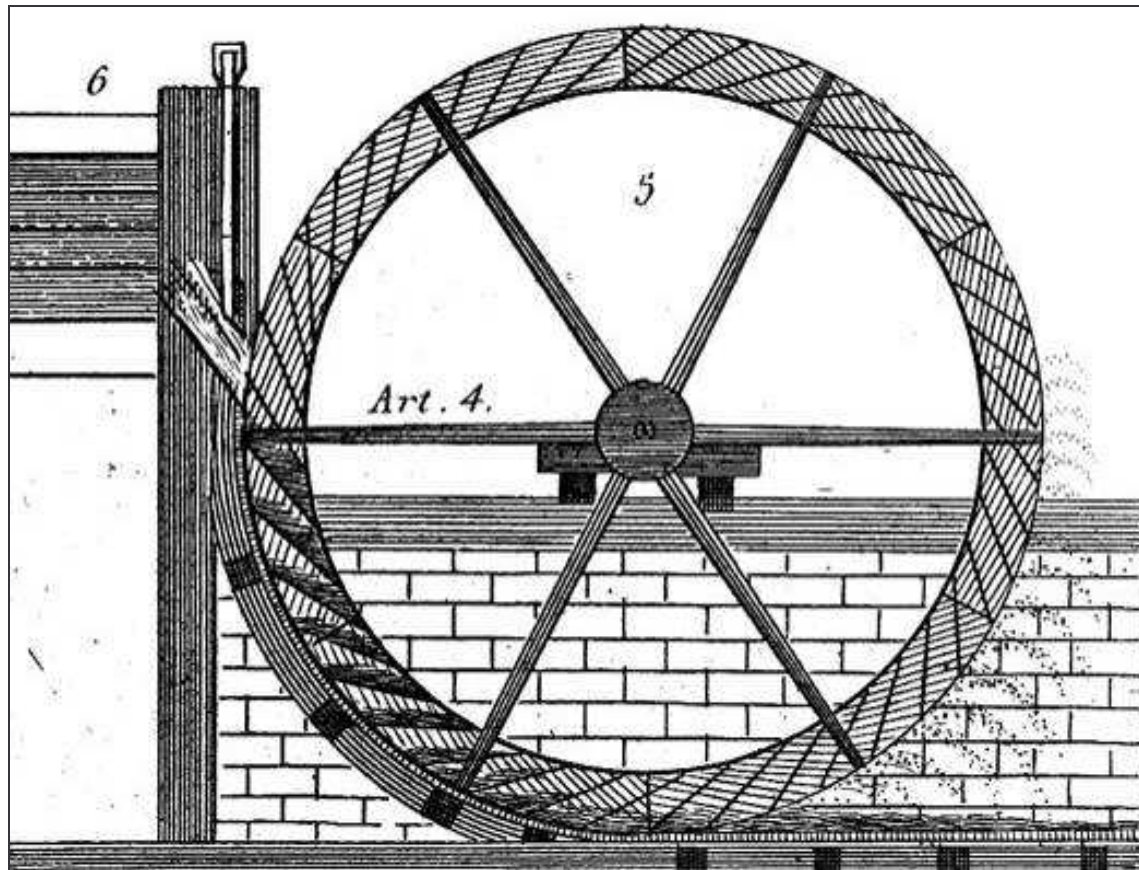


Plate 20: Illustration of a breast-shot wheel (reproduced from Evans 1795)

Based on the limited evidence available, it is suggested that the waterwheel fitted to Salt Pye Mill was of the breast-shot type, with water perhaps being supplied to the wheel from the reservoir via a timber launder. The size of the excavated wheel pit, however, indicates that the waterwheel was of a narrow width, and would not have been capable of producing a vast amount of power. It is thus unlikely that Salt Pye Mill contained a large number of machines.

Eighteenth-century waterwheels were built largely of timber, with fastenings and other iron fittings provided by blacksmiths. The early use of cast iron for gearing and shafting in millwork is generally attributed to John Smeaton, who introduced iron gears at the Carron Ironworks in Scotland in 1754. In 1770, Smeaton used cast iron for the rings of waterwheels at the Carron Ironworks, intending that they would act as fly wheels and provided increased momentum. By 1800, waterwheels built entirely of iron were in use, although many millwrights continued to work in timber, reflecting the cost of iron castings and their transport (Watts 2000, 70).

The discovery of fragments of the waterwheel during the excavation indicated that it had probably been of composite construction, comprising a timber-built wheel fitted with iron paddles. In contrast to the more advanced and powerful types of breast-shot waterwheels, that installed in Salt Pye Mill had flat paddles, as opposed to the more efficient curved paddles or buckets. The lack of any curvature in the design of the head wall of the wheel pit similarly implies that financial investment in the water-power system had been kept to a minimum, perhaps reflecting a firm intention to ultimately establish a steam-powered mill on the site.

The excavation provided no evidence for the means by which power was transmitted from the waterwheel to the machinery in the mill, as all physical remains had been removed during nineteenth- and twentieth-century redevelopment. The waterwheel axle will have been at least 2m above the surface of the excavated remains, and this perhaps extended through the waterwheel to a smaller pit wheel, which will have powered the shafting in the mill via a series of bevel gears.

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Archive and Acknowledgements

Archive

The archive is currently held by Salford Archaeology, but will be deposited ultimately with Touchstones in Rochdale. The paper and digital archive consists of annotated survey drawings, digital photographs, historic and modern mapping and electronic data; no artefacts were recovered from the archaeological works.

A copy of this report will be forwarded to the client, and a further copy (in paper and digital formats) will be deposited with the Greater Manchester Historic Environment Record (HER).

As part of the archiving process, the on-line OASIS (On-line Access to Index of Archaeological Investigations) form has been completed. In addition, a short summary has been prepared for inclusion in the 'Summary of Fieldwork for 2016' in *Post-Medieval Archaeology*.

Acknowledgements

Salford Archaeology would like to thank Peter Heyes of Countryside Properties for commissioning and supporting the archaeological works. Salford Archaeology is also grateful to Dr Andrew Myers, Senior Planning Archaeologist with the Greater Manchester Archaeological Advisory Service for his advice and guidance.

The archaeological monitoring was undertaken by Lewis Stitt and Ian Miller, and Graham Mottershead fulfilled the survey requirements on site. The report was compiled by Ian Miller, who was also responsible for the historic research and project management.

Appendix 1: Written Scheme of Investigation

Salford Archaeology

Centre for Applied Archaeology

University of Salford

Coral Mill, Shaw Road, Newhey, Rochdale

A Written Scheme of Investigation for an Archaeological
Investigation

Version: 1.0

Client: Countryside Properties (UK) Ltd

Site Location: Coral Mill, Shaw Road, Newhey, Rochdale

NGR: 393820 411490

Planning Ref: 16/00232/FUL

Prepared for: Countryside Properties (UK) Ltd

Doc Title: Coral Mill, Shaw Road, Newhey, Rochdale: A Written Scheme of Investigation for an Archaeological Investigation

Doc Type: Written Scheme of Investigation

Version: Version 1.0

Author: Ian Miller BA Hons, FSA

Position: Assistant Director

Date: April 2016

Copyright: Copyright for this document remains with the Centre for Applied Archaeology, University of Salford.

Contact: Salford Archaeology, University of Salford, Peel Building, Salford, Greater Manchester, M5 4DW

Telephone: 0161 295 4467

Email: i.f.miller@salford.ac.uk

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1. Introduction

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Countryside Properties (UK) Ltd, in partnership with Grasscroft Homes & Property Ltd and Begbies Traynor (Central) LLP, has submitted a planning application for the redevelopment of a brownfield site off Shaw Road in Newhey, near Rochdale in Greater Manchester (centred on NGR 393820 411490). The development proposals allow for a new residential scheme that consists of 69 units, comprising 45 houses and 24 two-bedroom apartments.
- 1.1.2 The archaeological interest in the site has been highlighted in a desk-based assessment that was carried out by Salford Archaeology in 2016. This comprehensive study concluded that proposed development area has some potential to retain buried archaeological remains of local significance, which would merit recording should they be damaged or destroyed by the construction works. These comprise potential remains of a series of textile mills that were erected in the second half of the nineteenth century.
- 1.1.3 The proposed development necessitates considerable earth-moving works that have potential to impact on any below-ground remains of archaeological value. In order to secure archaeological interests, the Greater Manchester Archaeological Advisory Service (GMAAS), in their capacity as archaeological advisors to Rochdale Borough Council, has recommended that an appropriate programme of archaeological works to be undertaken in advance of development.
- 1.1.4 In the first instance, it is recommended that an area in the central part of the proposed development site, corresponding with the footprint of the first textile mill to have occupied the site, together with the probable location of the steam-power plant for a second mid-nineteenth-century textile mill, is investigated. It is proposed that this is carried out in conjunction with the proposed remediation works for the site, and that the area of archaeological interest is stripped of demolition rubble and overburden by the remediation contractor operating under close archaeological supervision. This work is intended to establish the presence or absence of buried archaeological remains and, if present, establish their extent, nature and significance.
- 1.1.5 This Written Scheme of Investigation (WSI) has been prepared by Ian Miller, Assistant Director of Salford Archaeology at the Centre for Applied Archaeology (CfAA) on behalf of Countryside Properties (UK) Ltd. The document has been prepared in consultation with GMAAS, and allows for the stripping of modern overburden and demolition material under close archaeological supervision in a targeted area (Fig 1). In the event of significant remains being exposed, it is anticipated that a further stage of more detailed archaeological investigation will be required in advance of development.



Area of Archaeological Interest

Figure 1: Area of archaeological interest to be stripped of overburden/demolition rubble under close archaeological supervision

1.2 PURPOSE OF THE DOCUMENT

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

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

- 1: Any investigation, including recording and sampling, is carried out to professional standards and to an appropriate level of detail proportionate to the assets likely significance, by an organisation or individual with appropriate expertise;
2. The resultant records, artefacts and samples are analysed and where necessary conserved;
- 3: The understanding gained is made publically available;
- 4: An archive is created, and deposited for future research.

The steps to be taken by the developer to achieve these aims can be controlled through a Written Scheme of Investigation (WSI), usually drafted by the applicant. The local planning authority can advise as to what the scheme should cover. Conditions can then be applied to the consent to secure the implementation of the written scheme of investigation.

- 1.2.2 The WSI is intended to provide methodological approaches to the programme of archaeological works. Due to the unexpected nature of the archaeological resource it remains a possibility that the WSI will need to be updated to take into account the ongoing understanding of the archaeological resource. Mitigation for the archaeological programme of works will be provided by the Greater Manchester Archaeological Advisory Service.
- 1.2.3 Should extensive archaeological remains be identified during the initial stage of the archaeological excavation, a final stage of more detailed excavation will be required. This will be targeted on those remains exposed in the initial stripping of the site that are considered to be of particular archaeological interest. Any additional change to this WSI would be discussed and agreed between all parties (Salford Archaeology, the Client and the Greater Manchester Archaeological Advisory Service) at the earliest possible opportunity.

2. Aims and Objectives

2.1 ACADEMIC AIMS

- 2.1.1 The principal aim of the project is to monitor earth-moving works within the targeted area to establish whether any buried remains of the documented historic textile mills survive in-situ, and establish whether any further archaeological investigation is merited in advance of development.

2.2 OBJECTIVES

- 2.2.1 The following programme has been designed to preserve by record any archaeological deposits or features that may be present that will be impacted on by the proposed development. The information will be finally disseminated through the deposition of the archive at Touchstones in Rochdale, and a final report at the Greater Manchester Historic Environment Record. The work will be carried out in line with current ClfA guidelines, and in line with the ClfA Code of Conduct. The principal objectives of the project may be achieved via the following stages:

- **Archaeological Monitoring:** the stripping of modern overburden and demolition rubble within the targeted area will be monitored by close archaeological supervision to determine the presence or absence of any buried remains pertaining to demolished elements of Salt Pye Mill, and specifically evidence for the water- and steam-power systems;
- to provide sufficient information to enable an informed decision to be made about the need for any additional archaeological mitigation;
- **Post-excavation and Report Production:** the site records, finds and any samples from the excavation programme outlined below will form a checked and ordered site archive as outlined in the English Heritage guideline document *Management of Archaeological Projects* (2nd edition, 1991). Following compilation of the project archive a report will be produced;
- **Archive Deposition:** the results of the excavation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project.

3. Method Statement

3.1 THE PROPOSED ARCHAEOLOGICAL PROGRAMME

- 3.1.1 The archaeological impact of the proposed construction works will be mitigated by a flexible response that will be appropriate to the nature of the archaeological resource. The programme of archaeological works will be targeted primarily on the footprint of the early nineteenth-century Salt Pye Mill, and the steam-power plant of its mid-nineteenth-century successor (Fig 1).

3.2 FIELDWORK

- 3.2.1 Excavation of the uppermost levels of modern overburden/demolition material will be undertaken by a machine fitted with a toothless ditching bucket to the top of the first significant archaeological level. The machine will be operated by the appointed remediation contractor, but will operate under close archaeological supervision. Spoil from the excavation will stockpiled at a safe distance from the excavation areas.
- 3.2.2 Machine excavation will then be used to define carefully the extent of any surviving structures and other remains. Thereafter, structural remains will be cleaned manually to define their extent, nature, form and function.
- 3.2.3 Once the area selected for investigation has been stripped of overburden and the surfaces of the exposed remains have been cleaned manually, a site meeting with GMAAS will be held to establish whether t a final stage of further excavation is merited.
- 3.2.4 **Recording Strategy:** all recording of below ground archaeological works will be produced in line with the Chartered Institute for Archaeologists: *Standard and guidance for Archaeological Excavation*, Published September 1995, revised October 2008. All information identified in the course of the site works will be recorded stratigraphically, utilising *pro-forma* context sheets, and will be accompanied with sufficient pictorial record (plans, sections and digital photographs) to identify and illustrate individual features.
- 3.2.5 *Context Recording:* all contexts will be recorded using *pro-forma* sheets, and details will be incorporated into a Harris matrix. All written recording of survey data, contexts, photographs, artefacts and ecofacts will be cross-referenced from record sheets using sequential numbering.
- 3.2.6 *Photography:* a full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the excavation will be generated. Photography will be undertaken using high-resolution digital cameras. All frames will include a visible, graduated metric scale. Photographs records will be maintained on special photographic *pro-forma* sheets.

- 3.2.7 *Planning*: the precise location of all archaeological structures encountered will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process will generate scaled plans within AutoCAD, which will then be subject to manual survey enhancement. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required. Sections will be manually drafted as appropriate at a scale of 1:10. All information will be tied in to Ordnance Datum.
- 3.2.8 *Human remains*: human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ* covered and protected. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately. 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 at an appropriate site. Any grave goods or coffin furniture will be retained for further assessment.
- 3.2.9 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, ClfA Technical Paper 13 (1993) and Historic England guidance (2005).
- 3.2.10 *Finds policy*: finds recovery and sampling programmes will be in accordance with best practice (following current Chartered Institute for Archaeologists' guidelines) and subject to expert advice in order to minimise deterioration. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Samples will also be collected for technological, pedological and chronological analysis as appropriate.
- 3.2.11 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

3.3 HEALTH AND SAFETY

- 3.3.1 Full regard will be given to all constraints during the course of the project. The University of Salford provides a Health and Safety Statement for all projects and maintains a Safety Policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers.
- The Health and Safety at Work Act (1974);
 - Management of Health and Safety at Work Regulations (1999);
 - The Construction (Design and Management) Regulations (2015);
 - The Control of Asbestos Regulations (2006);

- The Workplace (Health, Safety and Welfare) Regulations (1992);
- Construction (Health, Safety and Welfare) Regulations (1996);
- The Health and Safety (Miscellaneous Amendments) Regulations (2002);
- The Work at Height Regulations (2005);
- The Control of Substances Hazardous to Health Regulations (2002);
- The Health and Safety (First-Aid) Regulations (1981);
- The Regulatory Reform (Fire Safety) Order (2005);
- The Provision and Use of Work Equipment Regulations (1998);
- Lifting Operations and Lifting Equipment Regulations (1998).

3.3.2 Salford Archaeology undertakes to safeguard, so far as is reasonably practicable, the health, safety and welfare of its staff and of others who may be affected by our work. This applies in particular to providing and maintaining suitable premises, and providing all reasonable safeguards and precautions against accidents.

3.3.3 **Contamination:** the presence of any contaminated material on the site is currently uncertain. In the event of encountered any contaminated material, excavation will cease immediately, the Client will be informed.

3.3.4 **Insurance:** the University of Salford has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.

3.4 OTHER MATTERS

3.4.1 **Project Monitoring:** the aims of monitoring are to ensure that the archaeological works are undertaken within the limits set by the Written Scheme of Investigation, and to the satisfaction of the curatorial archaeologist at the Greater Manchester Archaeological Advisory Service (GMAAS). The curatorial archaeologist will be given at least five days' notice of when work is due to commence.

3.4.2 **Working Hours:** normal working hours are between 8.00 am and 4.00 pm, Monday to Friday, though adjustments to hours may be made to maximise daylight working time in winter and to meet travel requirements. It is not normal practice for the University of Salford staff to be asked to work weekends or bank holidays, and should the Client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.

3.5 POST-EXCAVATION AND REPORT PRODUCTION

- 3.5.1 **Report:** a report will be produced within six working weeks of the completion of the fieldwork. This will present the results obtained from the excavation, and will include:
- a summary statement of the findings;
 - the background to the archaeological investigation, including location details;
 - an outline of the methodology of the archaeological works;
 - a description of the site's setting, including topography and geology;
 - an account of the documented historical background to the site;
 - a summary, assessment, and interpretation of the results of the excavation;
 - an assessment of any finds and samples recovered from the investigated area;
 - a description of the significance of the site in its local and regional context;
 - a catalogue of archive items, including a list of photographs, and details of the final deposition of the project archive.
- 3.5.2 **Archive:** the results of the archaeological investigation will form the basis of a full archive to professional standards, in accordance with current Historic England guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*), the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990), and current ClfA standards and guidance for the creation, compilation, transportation and deposition of archaeological archive (published October 2009). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the ClfA in that organisation's code of conduct. As part of the archiving process, the on-line OASIS (On-line Access to Index of Archaeological Investigations) form will be completed.
- 3.5.3 The initial result of the fieldwork stage will be the site archive, which will be prepared in accordance with the '*Management of Archaeological Projects*' (English Heritage 1991). The site archive will be so organised as to be compatible with the other archaeological archives produced in the Greater Manchester area. All drawn records to be transferred to and stored in digital format, in systems which are easily accessible.
- 3.5.4 The integrity of the site archive will be maintained upon completion of the archaeological works with the aim of the archive ultimately being deposited to the Local Authority Museum (subject to their approval).
- 3.5.5 The minimum acceptable standard for the site archive is defined in the '*Management of Archaeological Projects 5.4*' and '*Appendix 3*' as well as '*The Management of Research Projects in the Historic Environment*' (MoRPHE; English Heritage 2006).

3.5.6 The archaeological archive will consist of the following:

- The project specification or research design;
- The schedule of works or similar documents;
- All original written records created throughout the course of the project;
- All original drawings, whether created during fieldwork, in analysis or for publication;
- Indexes to the drawings;
- Indexes to the photographic archive;
- All born digital material;
- Digital material created from written, drawn or photographed original records;
- Documentation accompanying the digital archive, either in digital or written form;
- All finds and other archaeological materials selected for retention, and associated documentation;
- All scientific samples suitable for curation, and associated documentation;
- All original x-radiographs;
- All specialist reports;
- The final project report;
- Other work published during the life of the project;
- An index to the archive;
- A list of contents of the archive.

3.5.7 The Centre for Applied Archaeology will retain digital copies of the archive.

4. Work Timetable

- 4.1 The duration of the archaeological monitoring will be dictated by the remediation contractor's timetable, although it is anticipated that a five-day period will be required to fulfil this element. The duration of any further detailed excavation, if required, cannot be determined precisely until the first stage has been completed.
- 4.2 A report will be submitted within six weeks of the completion of the fieldwork.

Appendix 2: Illustrations

Figure 1: Site location

Figure 2: Site Area boundary superimposed on the Ordnance Survey 6": 1 mile map of Lancashire, 1851

Figure 3: Site Area boundary superimposed on the Ordnance Survey 6": 1 mile map of Yorkshire, 1854

Figure 4: Site Area boundary superimposed on the Ordnance Survey 25": 1 mile map of 1893

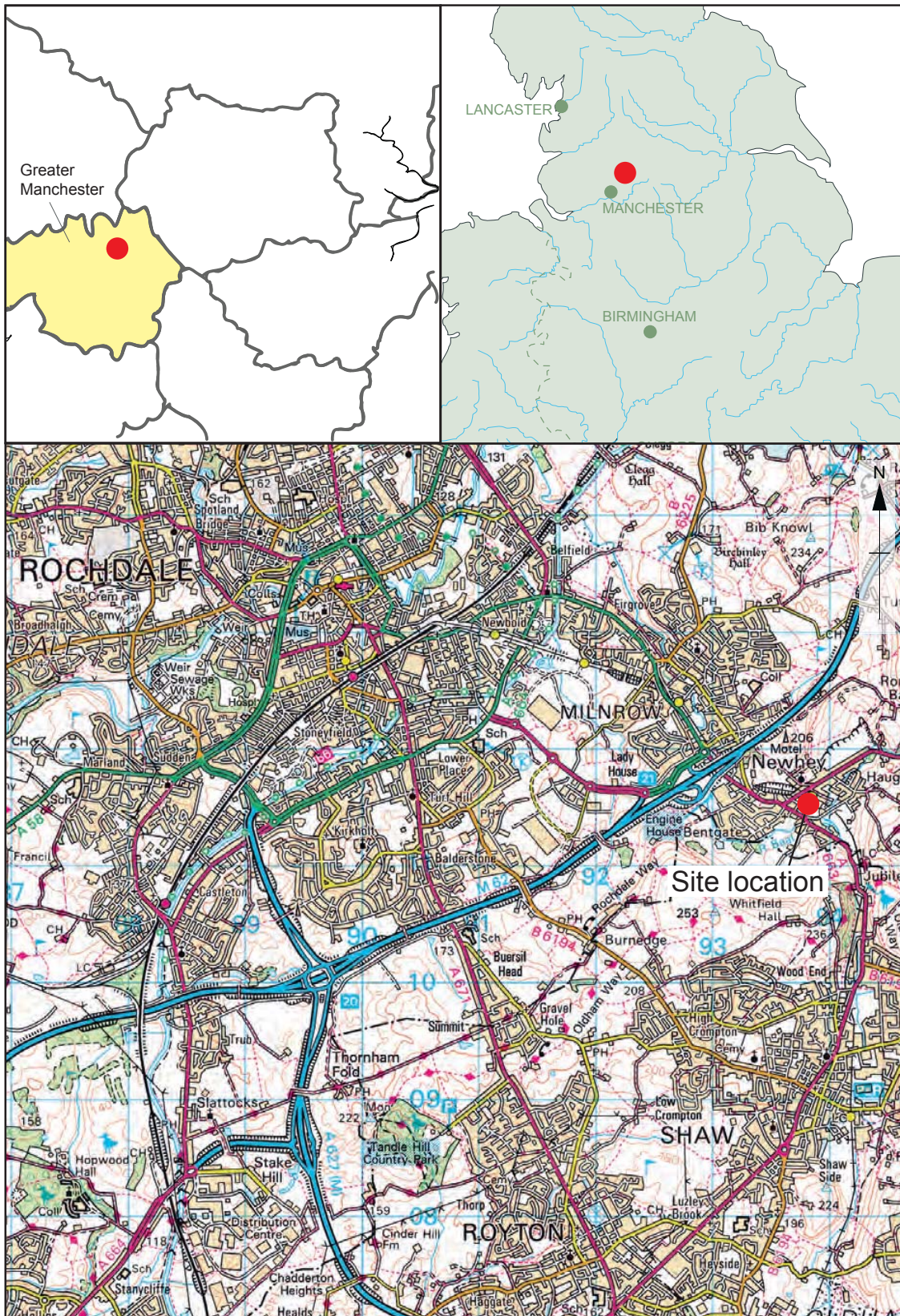
Figure 5: Site Area boundary superimposed on the Ordnance Survey 25": 1 mile map of 1910

Figure 6: Site Area boundary superimposed on the Ordnance Survey 1:1250 map of 1936

Figure 7: Plan of the excavated remains superimposed on the Ordnance Survey map of 1854

Figure 8: Plan of the excavated remains superimposed on the Ordnance Survey map of 1893

Figure 9: Excavation site plan



Scale 1:50,000

Reproduced from the Landranger 1:50,000 scale by permission of the Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office
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Figure 1: Site location



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MANCHESTER

Salford
Archaeology

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Scale at A4 1:1250



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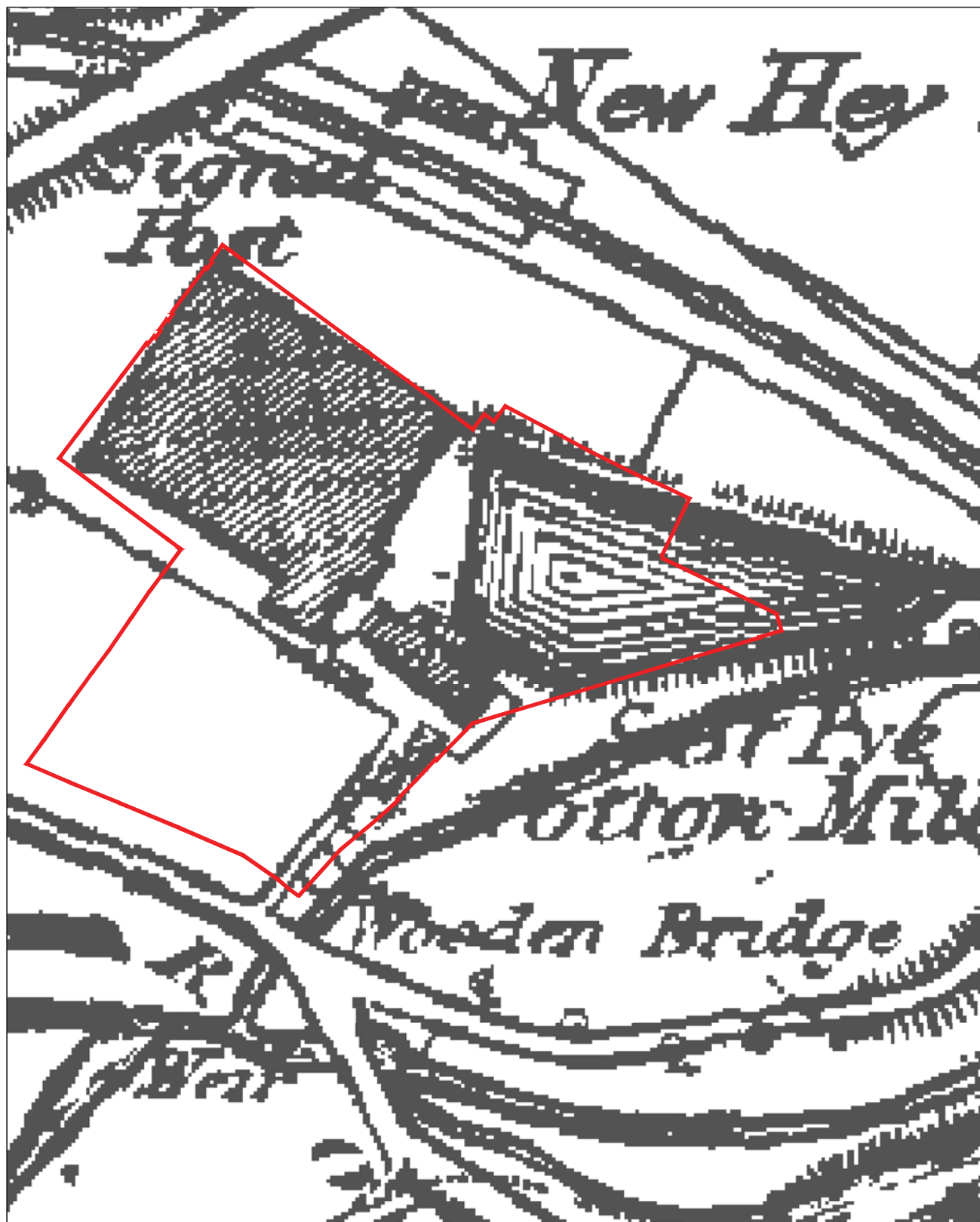
Site Area boundary

The Centre for
Applied
Archaeology

Centre for Applied Archaeology
Peel Building
University of Salford
Salford
M5 4WT

Title:

Site Area boundary superimposed on the Ordnance Survey 6": 1 mile
map of Lancashire, 1851



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Archaeology

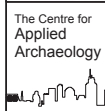
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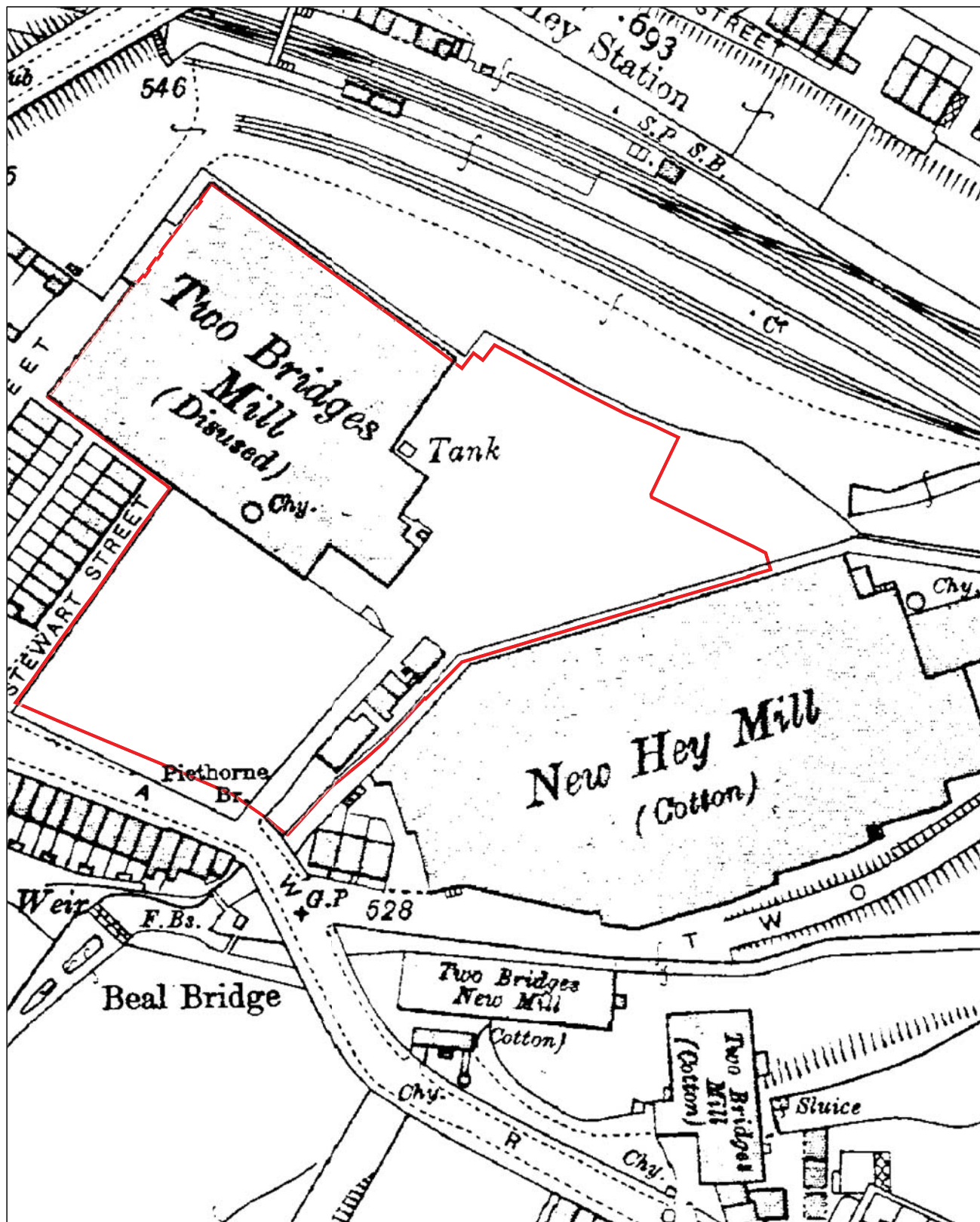
Site Area boundary



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Salford
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Title:

Site Area boundary superimposed on the Ordnance Survey 6": 1 mile
map of Yorkshire, 1854



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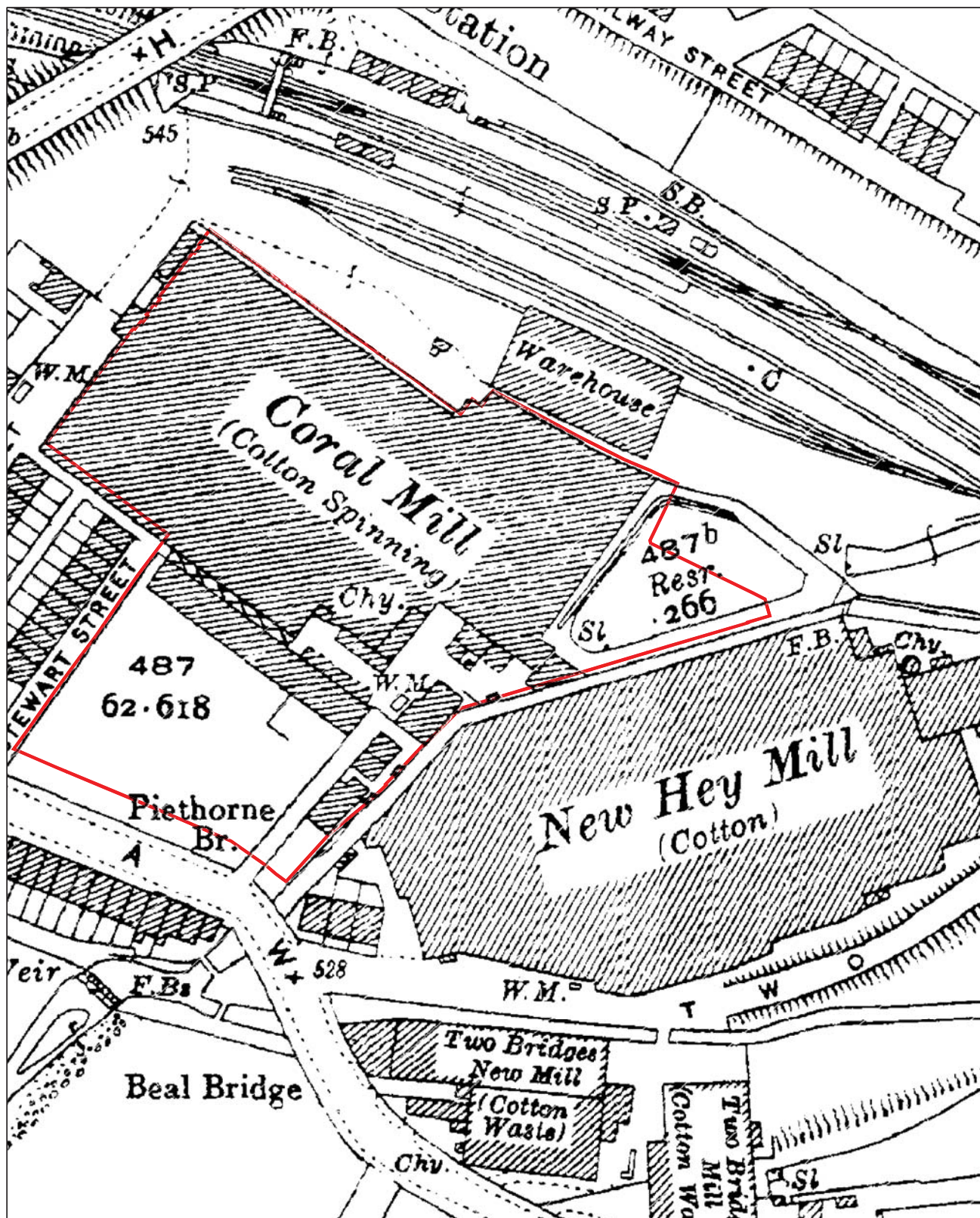
Site Area boundary

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Title:

Site Area boundary superimposed on the Ordnance Survey 25" 1 mile map of 1910



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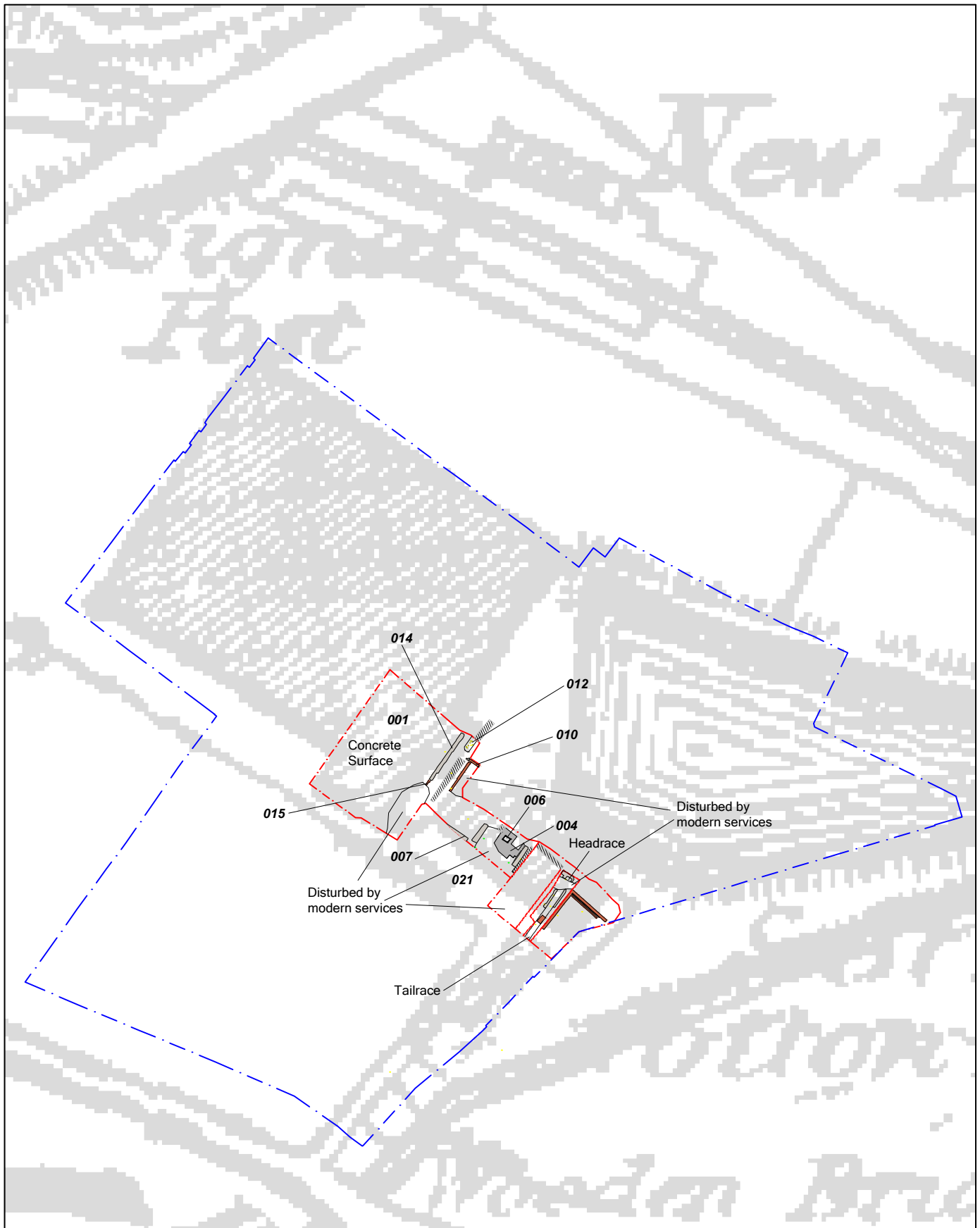
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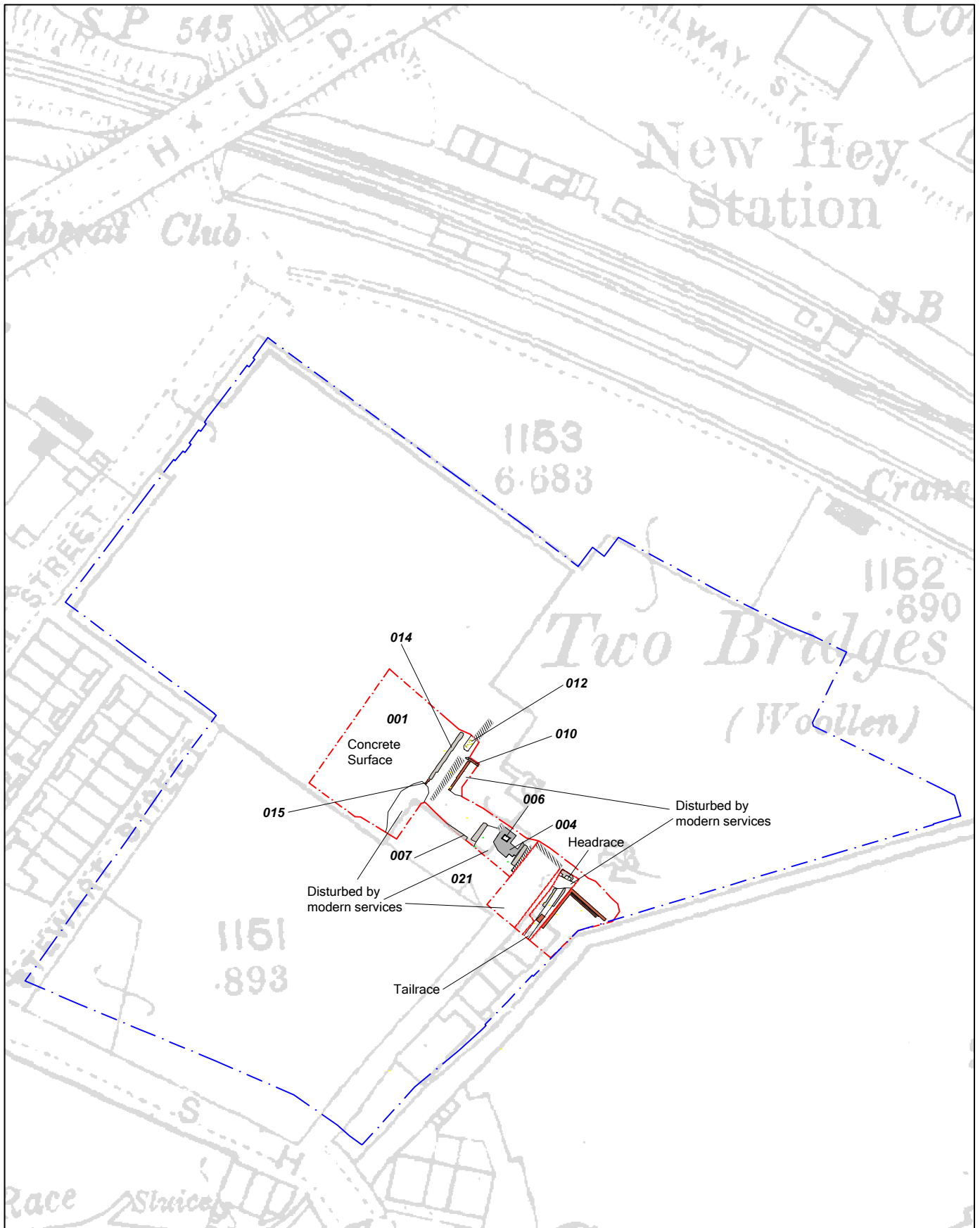
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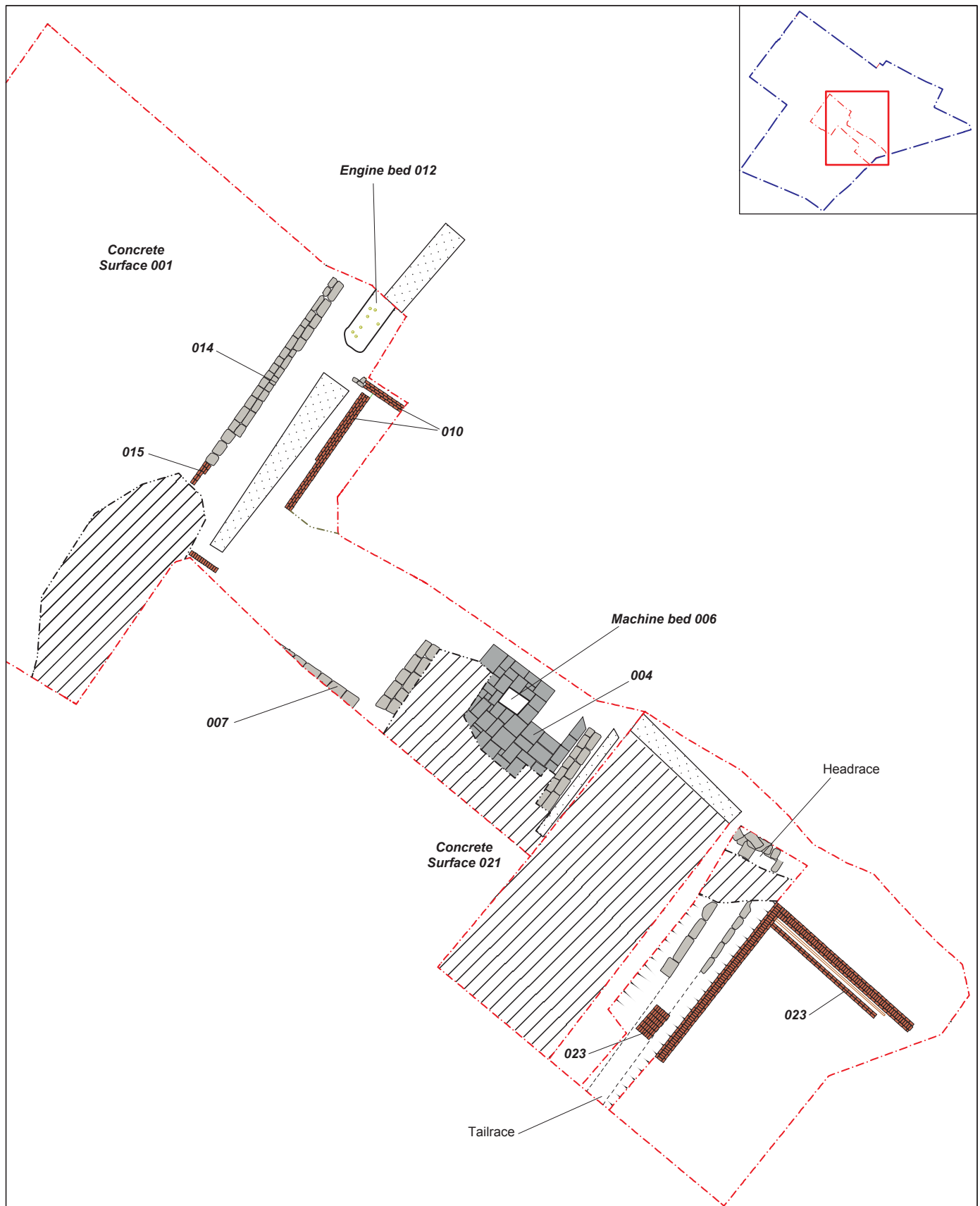
Site Area boundary superimposed on the Ordnance Survey 1:1250 map of 1936



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| <p>University of Salford MANCHESTER</p> | <p>Salford Archaeology</p> | <p>0 50 m</p> <p>Scale at A4 1:1000</p> <p>N</p> | <p>Key:</p> <ul style="list-style-type: none"> Bricks / Brickwall Flagstones Stones / Stonewall Limit of Excavation Site Boundary Concrete |
| <p>The Centre for Applied Archaeology</p> | <p>Centre for Applied Archaeology Peel Building University of Salford Salford M5 4WT</p> | <p>Title:</p> <p>Figure 7. Plan of the excavated remains superimposed on the Ordnance Survey 6": 1 mile map of Yorkshire 1854</p> | |



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| <p>University of Salford MANCHESTER</p> | <p>Salford Archaeology</p> | <p>0 50 m</p> <p>Scale at A4 1:1000</p> <p>N</p> | <p>Key:</p> <ul style="list-style-type: none"> Bricks / Brickwall Flagstones Stones / Stonewall Limit of Excavation Site Boundary Concrete |
| <p>The Centre for Applied Archaeology</p> | <p>Centre for Applied Archaeology Peel Building University of Salford Salford M5 4WT</p> | <p>Title:</p> <p>Figure 8. Plan of the excavated remains superimposed on the Ordnance Survey 25": 1 mile map of 1893</p> | |



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| <p>University of Salford MANCHESTER</p> | <p>Salford Archaeology</p> | <p>0 10 m 1:250</p> <p>N</p> | <p>Key:</p> <ul style="list-style-type: none"> Bricks / Brickwall Flagstones 004 Stones Modern Services Concrete Limit of Excavation |
| <p>The Centre for Applied Archaeology</p> | <p>Centre for Applied Archaeology Peel Building University of Salford Salford M5 4WT</p> | <p>Title:</p> <p>Figure 9. Coral Mill excavation site plan</p> | |