

University of Salford MANCHESTER

Archaeological Excavation

NOMA Plots 2 and 3, Angel Street, Manchester

Client:
NOMA GP Ltd

Planning Ref:
124973/FO/2019

Technical Report:
Graham Mottershead

Report No:
SA/2021/72

The Centre for Applied Archaeology

Registered CIfA Organisation

Site Location:	NOMA Plots 2 and 3, Angel Street, Manchester
NGR:	Centred at NGR 384390 398980
Internal Ref:	SA/2021/72
Planning Ref:	124973/FO/2019
Prepared for:	NOMA GP Ltd
Document Title:	NOMA Plots 2 and 3, Angel Street, Manchester
Document Type:	Archaeological Excavation Report
Version:	Version 1.0
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Date:	October 2021
Signed:	[redacted]

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Contents

Summary ----------1

1. Introduction ----------2

2. Historical Background----------5

3. Methodology----------16

4. Excavation Results----------18

5. Discussion----------22

6. Recommendations----------23

7. Archive----------24

Sources ----------25

Acknowledgments----------28

Appendix 1: Illustrations----------29

Summary

NOMA GP Ltd is progressing works for the redevelopment of a site within Manchester city centre, bounded by Angel Street to the northeast, Angel Gardens to the southeast, Miller Street to the southwest and Angel Square to the northwest (NGR 384390 398980; Figure 1; Plate 1; Planning Ref: 124973/FO/2019).

The site lies within an area of historic interest that was occupied in the late 18th century by Manchester's first steam-powered cotton mill, established by Richard Arkwright in 1780-83, and whilst the site is of immense historical importance, all physical remains were removed as part of a controlled and comprehensive archaeological excavation in 2015. However, the assessment has concluded that other parts of the proposed development area hold some potential to contain buried remains of archaeological interest, albeit in a fragmentary condition. These include the footprint of another cotton mill that had been added to Arkwright's Shudehill Mill complex by 1786, and was the first to be powered by a Boulton & Watt steam engine.

In light of the potential for archaeologically significant remains, and following consultation with Greater Manchester Archaeological Advisory Service (GMAAS) in their role as advisors to the Local Planning Authority, Manchester City Council attached conditions to the planning consent that require an appropriate scheme of archaeological investigation to be carried out.

In May 2021, Salford Archaeology carried out the archaeological evaluation, consisting of seven trenches. During the evaluation remains were encountered below the former right-hand carriageway of Miller Street that had the potential to be part of the 18th-century mill, later known as Mottershead's Mill. Due to this, GMAAS recommended an excavation be carried out within this area to ascertain the nature of the remains and record any remnants of the early mill.

A 41m by 6m trench was excavated which uncovered the remains of floors and walls associated with the late 19th-century warehousing erected on the site as part of Baxendale's Ironworks complex. No elements of the early mill had survived within the excavation area.

1. Introduction

1.1 Introduction

NOMA GP Ltd is progressing works for the redevelopment of a site within Manchester city centre, bounded by Angel Street to the northeast, Angel Gardens to the southeast, Miller Street to the southwest and Angel Square to the northwest (NGR 384390 398980; Figure 1, Plate 1). The proposal initially allowed for the erection of an 11-storey building and a 12-storey building with plant rooms above to form a mixed use development comprising 39,184 sq.m (NIA) of Class B1a office use and commercial units of 1,286 sqm (NIA) (Use Classes A1, A2, A3, A4, B1a and D1) along with associated lower ground level car parking, hard and soft landscaping and associated works, including the creation of a new pedestrian route between Angel Street and Miller Street. (Planning Ref: 124973/FO/2019).

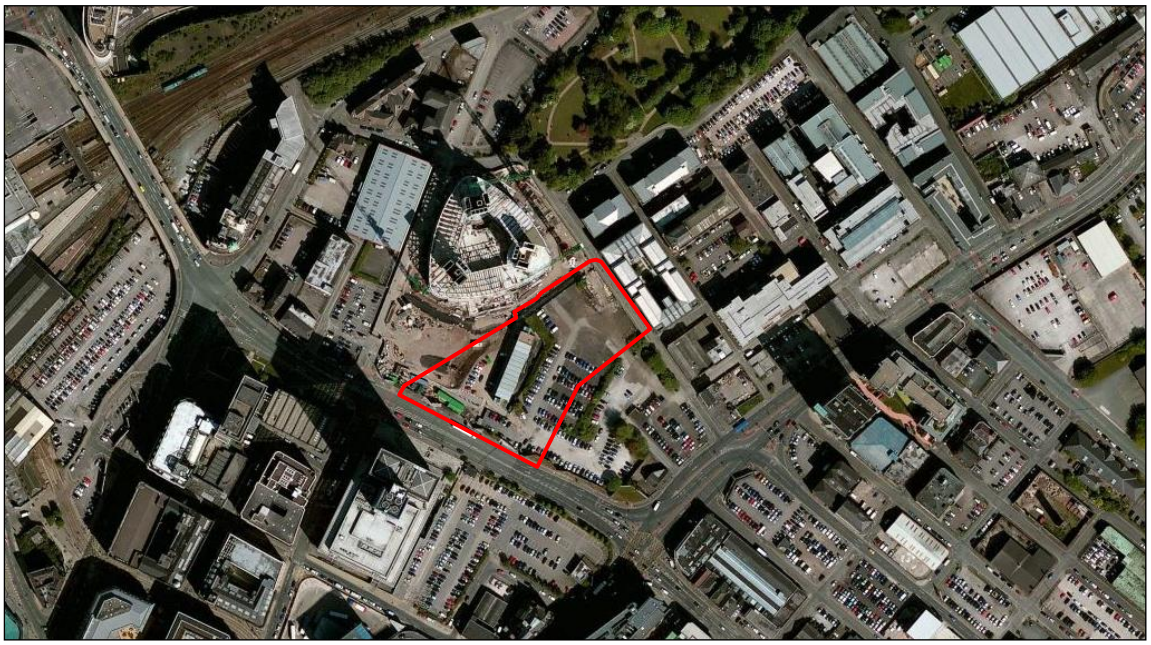


Plate 1: Recent aerial view across the development site (bounded in red)

Delivery of the development proposals will entail considerable earth-moving works that may impact on any below-ground archaeological remains that survive *in-situ*.

The site lies within an area of historic interest that was occupied in the late 18th century by Manchester's first steam-powered cotton mill, established by Richard Arkwright in 1780-83, and whilst the site is of immense historical importance, all physical remains were removed as part of a controlled and comprehensive archaeological excavation in 2015. However, the assessment has concluded that other parts of the proposed development area hold some potential to contain buried remains of archaeological interest, albeit in a fragmentary condition. These include the footprint of another cotton mill that had been added to Arkwright's Shudehill Mill complex by 1786, and was the first to be powered by a Boulton & Watt steam engine. The site of this mill was subject to redevelopment in the 19th and 20th centuries, and limited archaeological investigation carried out in 2013 did not reveal any physical remains of the building.

Similarly, an evaluation trench placed across the centre of a large reservoir that served the mill complex did not expose any 18th-century fabric. It was nevertheless felt possible that fragmentary remains of the late 18th-century mill and reservoir survived below ground, and any such remains would merit recording archaeologically.

Condition 36 attached to planning consent (Planning Ref: 124973/FO/2019) states:

'*No development or development groundworks of any phase shall take place until the applicant or their agents or successors in title has secured the implementation of a programme of archaeological works. The works are to be undertaken in accordance with a Written Scheme of Investigation (WSI) submitted to and approved in writing by Manchester Planning Authority. The WSI shall cover the following:*

1. A phased programme and methodology of investigation and recording to include:

- archaeological evaluation trenching

- archaeological watching brief

- informed by either of the above, targeted open area excavation

2. A programme for post investigation assessment to include:

- analysis of the site investigation records and finds

- production of a final report on the results of the investigations, their historical interest and significance.

3. Contributions towards an academic publication in the form of a monograph.

4. Deposition of the final report with the Greater Manchester Historic Environment Record.

5. Provision for archive deposition of the report and records of the site investigation.

6. Nomination of a competent person or persons/organisation to undertake the works set out within the approved WSI.

Reason: In accordance with NPPF Section 12, Paragraph 141 - To record and advance understanding of heritage assets impacted on by the development and to make information about the archaeological heritage interest publicly accessible and pursuant to saved UDP policy DC20.1. '

An archaeological evaluation was undertaken by Salford Archaeology during May 2021 in order to assess the areas around the mills that had not yet been investigated. A trench excavated at the southern side of the site, within the area to be occupied by the show apartment, revealed possible remains, at depth, that may have been related to the earliest mill. Due to the potential importance of the mill, it was recommended by GMAAS that the excavation of a single 40m long was merited in order to record any possible remains of the 18th-century mill prior to its removal.

The excavation was carried out by Salford Archaeology in September 2021 and this report presents the results of that excavation.

1.2 Setting

The site (centred on NGR 384390 398980) is situated on the northern fringe of the city centre (Fig 1), lying on the north-eastern side of Miller Street, and to the south of the Co-operative Group's Headquarters Building (Plate 1). The majority of the site was cleared of buildings in the later 20th and early 21st century and is currently for car-parking purposes. The excavation site comprises the former right-hand carriageway of the original alignment of Miller Street. It is blocked from access on three side by wooden fencing. The southeast side of the area is open but has temporary Rhino barriers across it..

The underlying solid geology of the site comprises Carboniferous sedimentary material and a series of Permo-Triassic rocks, consisting mainly of New Red Sandstone. The overlying drift incorporates Pleistocene boulder clays of glacial origin, and sands, gravels, and clays of fluviatile/lacustrine origin (Hall *et al* 1995, 8).

Topographically, the Manchester Conurbation as a region lies within an undulating lowland basin, which is bounded by the Pennine uplands to the east and to the north. The region as a whole comprises the Mersey river valley; whilst the rivers Irwell, Medlock, and Irk represent the principal watercourses in Manchester (Countryside Commission 1998, 125). The site lies on the east side of the valley of the River Irk; across the area ground levels fall from east to west towards the river.

2. Historical Background

2.1 Prehistoric

The current understanding of human activity in the Manchester region during the prehistoric period is poor, although it is reasonable to suggest that the Castlefield area of the city may have been conducive for late prehistoric settlement on account of the natural topography, underlying geology and its location close to the confluence of the rivers Medlock and Irwell. Similarly, the area around Manchester Cathedral, close to the confluence of the rivers Irk and Irwell, provides a location which would have been favourable for early activity. However, the only known physical evidence for prehistoric activity in the vicinity of the site is provided by the chance find of a Bronze Age stone implement (HER 408.1.0) reported to have been discovered at the junction of Todd Street and Corporation Street.

2.2 Roman

The first military occupation of Manchester is generally held to have been established during the governorship of Agricola (AD 77-84), although evidence from more recent excavations in the city suggest that it may have been established earlier, and commenced with a five-acre wooden fort, known as *Mamucium* (Bruton 1909), located in the Castlefield area of Manchester, 1.9km south-west of the site. During the 2nd century, the fort was developed in association with a substantial extramural settlement, or *vicus*, which expanded in both a northerly and easterly direction, and along the line of Chester Road to the south (Jones and Grealey 1974, 11). Roads from the fort linked Manchester with Ribchester to the north, Castleshaw and York to the north-east, Wigan to the north-west, Chester to the south and Buxton to the south-east (Gregory 2007). However, evidence for Roman activity in the vicinity of the site is limited. Roman coins were discovered along the River Irk in 1899-1901 (HER 1393.1.0), when the river between Ducie Bridge and Scotland Bridge was diverted for the railway. 150m to the east of the site a coin of Constantine I (AD 306-37) was discovered in Angel Street, together with a circular quernstone, believed to be Roman, in St Michael's Square, in 1904 (HER 1253.1.0).

2.3 Early Medieval

There is scant archaeological evidence in the region as a whole that represents the period between the end of the Roman occupation and the Norman Conquest, although the area around Manchester is known to have come under the control of several kingdoms during this period. In AD 620, Edwin conquered and occupied Manchester, and it may have been at this time that settlement in the town was established around the cathedral (Farrer and Brownbill 1911).

In AD 919, the Anglo-Saxon king Edward the Elder established a fortified base, or burh, at Manchester, which was then part of Viking Northumbria. It has been suggested that the burh lay within the area around the cathedral, which had certainly become a new focus for settlement by the late 11th century, and the area occupied presently by Chetham's School is thought to have been the site of a castle founded by Manchester's Norman barons. This early settlement at the confluence of the Rivers Irwell and Irk seems to have been bounded on the landward side by Hanging Ditch, whose curving line ran

between the two rivers, taking a line that was followed subsequently by Toad Lane, the forerunner of Todd Street and Corporation Street.

2.4 Medieval and Post-medieval

The site lay on the north-eastern fringe of the medieval settlement, on the east side of Long Millgate. This was one of the town's longest and most populous streets, which extended along the south side of the River Irk to Manchester's manorial corn mill. Millgate is documented from the early 14th century, but the mill is referred to in documents dating to the first half of the 12th century. Long Millgate also led to Scotland Bridge over the River Irk, one of the principal routes into Manchester, and to Ashley Lane, another main route into the town from the north-east. Long Millgate was superseded in the 1850s when Corporation Street was extended from Withy Grove to Ducie Bridge.

Long Millgate is shown on the earliest known plan of Manchester, dating to *c* 1650, which shows a continuous line of properties along the east side of the street (Plate 2). This map also shows several properties along Miller Street and Shudehill. Miller's Lane, the forerunner of Miller Street, is documented from the 1580s, and may have originated as a convenient link between the manorial corn mill and the eastern approach to the town via Shudehill.

In 1621, Edward Mayes of Manchester bequeathed money for the purchase of land to be used for the benefit of the poor of the town. His trustees bought four acres on the south side of Miller's Lane in 1635, which were rented out and the profits distributed to the poor. The charity also owned a row of cottages on the north side of this land in which they housed 20 poor families. These almshouses are shown clearly on a map produced by Casson and Berry in 1741, which also shows the west side of Shudehill lined with buildings as far as the junction with Miller's Lane and buildings of the north side of Miller's Lane. However, most of the site lies beyond the edge of the map, and is likely to have been fields.



Plate 2: Plan of Manchester dating to c 1650, with arrow marking approximate location of the site

In 1731, a scheme was launched to provide Manchester with a new workhouse, and a bill to advance the scheme was submitted to Parliament, but was aborted due to disagreements among the townspeople. However, the lord of the manor had proceeded to erect part of the workhouse on Miller's Lane, which was earliest building of this type in Manchester. The original plan was for a set of buildings arranged around a quadrangle, but only one was actually completed. This measured 34 yards (31m) long, 6 yards (5.5m) wide inside, and was four storeys in height. The workhouse was short-lived, and later mapping annotates the building as more almshouses.

A flavour of the other types of buildings in the vicinity of the site can be gained from an illustrated survey of 1753, which shows the lands bequeathed by William Hulme (Plate 3). This shows several different types of properties in the area, ranging from merchant's houses to tenements that were probably occupied by artisans with attic workshops.



Plate 3: Extract from a survey of the buildings and lands bequeathed by William Hulme, 1753

2.5 Industrial Period

The onset of the rapid industrialisation centred on Manchester from the late 18th century resulted in a massive expansion of the town's population. The development of the site at the end of the 18th century is captured on detailed plans produced by William Green in 1787-94 (Fig 2) and Charles Laurent in 1793. These maps show new streets to have

been laid out across the area, and numerous buildings to have been erected. The new streets included Angel Street, which provided a link between Ashley Lane and Rochdale Road, and also afforded access to the church of St Michael and All Angels.

The church was built in 1788, and was coupled with a new burial ground that was consecrated in 1787. The church was originally planned as a 'carriage church', which wealthy Mancunians could drive to from the city. However, with the purchase of the land by the Overseers of the Poor of Manchester in 1786 for the burial ground, and the absorption of this area into the city, the church instead predominantly served the new working-class population in the area (Miller and Wild 2015). The burial ground comprised a mass burial pit for the poor, which has been estimated to contain 40,000 unmarked inhumations (Marsden 2014). The pit was full by 1816, after which this open area became notorious for activities such as cock-fighting and gambling. In the 1820s and 1830s, some areas of the former burial ground were dug up and sold for fertiliser to local farms. In order to prevent further illegal excavations, the area was flagged over in the 1850s and became known subsequently as St Michaels Flags (Hartwell 2001, 289).

A significant feature of the developing townscape in the late 18th century was Shudehill Mill (HA **01**), which was erected in 1780-3 on the site of a former brick yard by Richard Arkwright and his financial partners, William Brocklehurst and John Whittenbury. Shudehill Mill was one of a number of early cotton factories that were built to house Arkwright's patented machinery for carding and spinning. It was one of the largest of the Arkwright mills, reflecting the importance of Manchester as a centre for textile goods. It was also the first purpose-built mill in Manchester to employ a steam engine and to have a mill chimney. The mill essentially signalled the viability of Manchester as a pre-eminent centre for cotton spinning, based on steam power, and stimulated the development of Shudehill in the late 18th century (Miller and Glithero 2015).

The mill was five storeys high, 9.1m wide and 68m long. As such, it was one of the largest of the Arkwright mills, reflecting the importance of Manchester as a centre of textile manufacture. It was probably the first purpose-built mill in Manchester, and the first in the town to employ a steam engine and to have a mill chimney. The original engine was of the atmospheric type and was used to raise water from a lower to an upper reservoir to supply the mill's waterwheel, which was 8ft (2.4m) wide and 30ft (9.1m) in diameter. It has been suggested that the engine was originally planned to power the mill directly, and that the waterwheel was only added when this proved a failure. However, the position of the mill on sloping ground implies that the upper and lower reservoirs were part of the initial design (HA **02**). This was confirmed during the archaeological excavation of the site in 2015, which demonstrated that the internal waterwheel pit was a primary feature, indicating that the use of water power had been intended from the onset.

William Brocklehurst and John Whittenbury soon withdrew from the partnership and, in January 1784, Arkwright sold the mill to his son, Richard, who immediately formed a partnership with his brothers-in-law John and Samuel Simpson. The new owners invested in the site and, by 1786, another spinning block had been added to the mill complex, which was placed alongside Miller Street (HA **03**). This building was slightly shorter than the original mill, measuring 171ft (52.12m) long, 30ft (9.14m) wide and five-storeys high. There is no evidence to suggest that this new mill was fitted with power immediately, and it seems likely that it may have housed hand-powered spinning

machinery. In October 1786, however, Richard Arkwright Jnr sold his share in the mill for £20,640 15s 4d, leaving Shudehill Mill entirely in the hands of John and Samuel Simpson (Fitton 1989, 63).

In 1789, John and Samuel Simpson purchased from Arkwright the freehold lease of the land occupied by the Shudehill Mill complex, marking the termination of Arkwright's interest in the site. During this period, John and Samuel Simpson, together with the mill manager, John Barton, were in negotiation with Boulton and Watt of Birmingham for a steam engine to power their second mill block (HA **03**). This culminated in September 1790 with the placing of an order for a 6hp double-acting 'sun and planet' engine with 14ins by 6ft cylinder. The engine was erected in January 1791, and signalled the implementation of power from a rotary steam engine at the Shudehill Mill complex. It seems that the Simpsons were also considering a replacement for the steam-assisted waterwheel that powered the original mill block (HA **01**), and had apparently discussed this with Boulton and Watt.

The engine was installed later in 1792, and was apparently an urgent requirement by that date, as in April 1792 Peter Ewart was able to report that 'the old engine is giving way every day'. It is possible, however, that the engine was not put into operation until the following year, as a detailed design drawing of the sun and planet gearing for the engine that survives in the Boulton and Watt Archive is dated June 28 1793 (Miller and Glithero 2016). In 1799, the Simpson's returned to Boulton and Watt and placed an order for a 30hp double-acting engine steam engine. This appears to have been supplied in the same year as a replacement for the Simpson's 6hp engine that powered the second spinning block of 1786.

The main mill was originally almost surrounded by its extensive reservoir system (HA **02**). Its larger reservoir ran across the full length of the western elevation and continued around the north end of the building to the eastern elevation. Laurent's map of 1793 shows that at the other end it joined with a smaller reservoir to the south-east of the mill. This second body of water was probably the higher reservoir which fed the waterwheel. It is absent from Green's survey of 1787-94 which instead shows one of the mill's ancillary buildings on this site. Presumably when the waterwheel went out of use in 1792-3, the upper reservoir was no longer required, while the lower reservoir was retained to supply the boilers and condensers.

The main factory was surrounded by other buildings, details of which are provided by a survey of Manchester's spinning mills produced in *c* 1822 (Plate 4). On its eastern side were an engine house and boilers, with a large square-section chimney lying further from the mill. On the same side of the building were a southern range, used as a mule factory, and a northern L-shaped range, which in *c* 1822 contained a smithy, joiner's shop and lumber rooms. The second factory block (HA **03**) is shown as five-storeys high and *c* 60m long and 9m wide, with an engine house and boiler house to the rear; this became known subsequently as Mottershead's Mill.

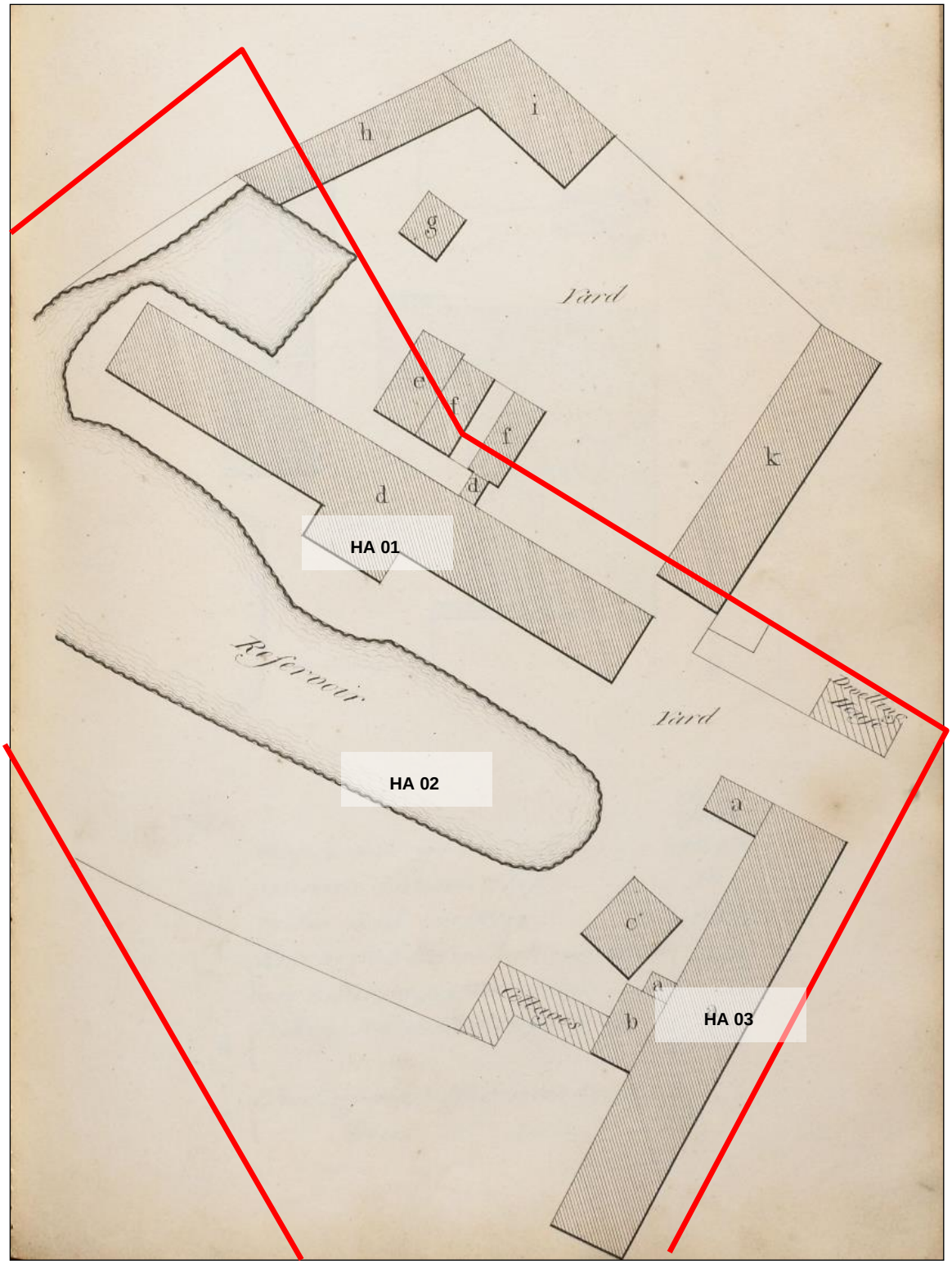


*Plate 4: Site boundary superimposed on an extract from 'Plans of All the Cotton Spinning Mills in Manchester' of c 1822, showing Arkwright's Shudehill Mill (HA 01) and what became Mottershead's Mill (HA **03**) annotated as components a-c. These are described as a five-storey factory with staircase and chimney (a), a two-storey engine house (b) and a single-storey boiler house (c)*

J & R Simpson is listed in a trade directory for 1821-2 as cotton spinners on Miller Street (Pigot and Dean 1821, 146), although the firm advertised their Shudehill Mill for sale in the following year. Interestingly, the sale notice mentioned that the mill contained '18 drums of capital water-frames', each with 96 spindles (*Manchester Chronicle*, July 1822), even those these machines would have been antiquated by that date and superseded by spinning mules or throstles.

Shudehill Mill had been taken over by Richard Clogg and Edward Norris by 1824, when they are identified in a newspaper article describing a lightning strike during a powerful thunderstorm. The event was recorded in a newspaper article: 'the iron rod which surmounts a very large chimney in the centre of the yard of Messrs Clogg and Norris' factory in Miller Street, Shudehill, was struck by the lightning, and the electric fluid ran vividly down the chimney in the direction of the rod, and lost itself in the earth at the foot of the chimney…which is almost in the centre of the area formed by the wings of the immense building' (*Morning Post*, 7 September 1824).

Cotton spinning ceased at Shudehill Mill in the 1830s, and following a short period of use for warehousing, the building was destroyed almost entirely by a fire in 1854. The mill was rebuilt immediately to a slightly wider plan and with an additional storey, and part of the building was returned to cotton spinning in 1884. It remained in textile-related use until the early 20th century, when it was purchased by Baxendale & Co as part of their expanding hardware and ironmongery business (Plate 5).

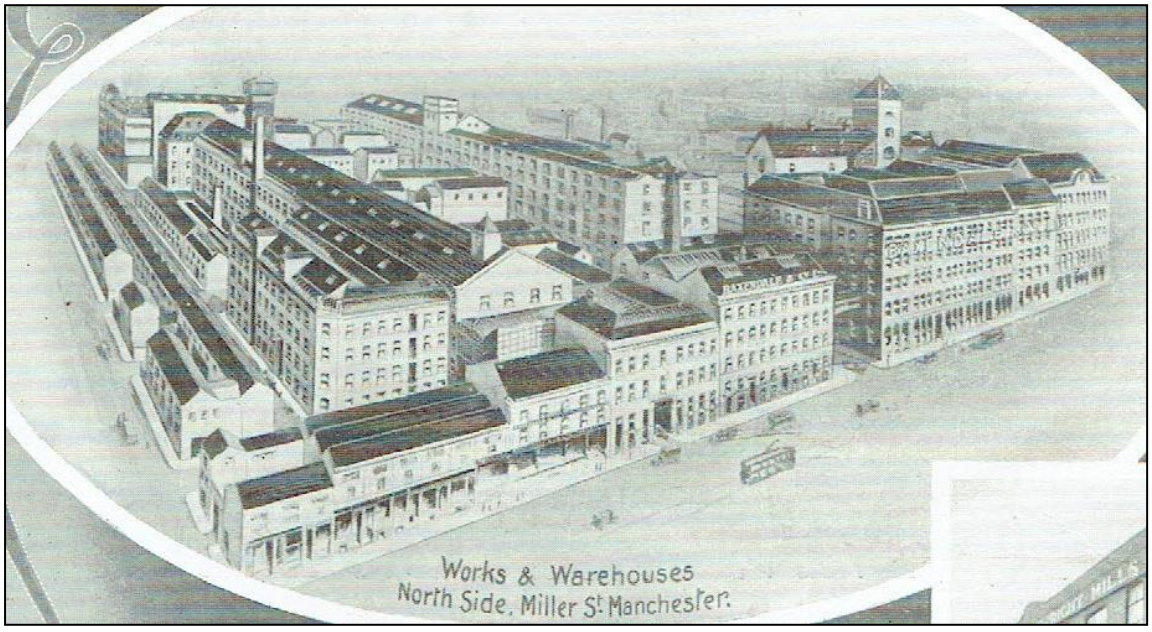


Plate 5: Shudehill Mill in the centre of Baxendale & Co's ironmongery complex, taken from their catalogue of 1910

In December 1940, however, the building sustained a direct hit during an aerial bombardment by the Luftwaffe. The site of the mill was cleared in the aftermath of the 'Manchester Blitz', and remained urban wasteland until it was put to use as a car park in the 1980s.

2.6 Development of the Site

2.6.1 Cartographic Evidence

The development of the study area may be traced reasonably well from the sequence of available historic mapping. The earliest reliable maps that show the site at a reasonable scale are Charles Laurent's *Map of Manchester & Salford*, published in 1793, and William Green's survey published in 1794 (Plate 6; Fig 2). These show development along the south-western side of Angel Street, and properties occupying both sides of Miller Street. The map also shows 'Mr Simpson's Cotton Mill' , which was built in 1780-3 by the renowned inventor and entrepreneur, Richard Arkwright. The principal source of power in the mill was a 9.1m diameter waterwheel, which was supplied with water via a steam-powered pumping engine from an arrangement of reservoirs, which are depicted on Green's map (Fig 2). The footprint of the principal reservoir immediately to the north-west of main factory block, together with a second reservoir at the north-eastern end of the mill, lie within the site.

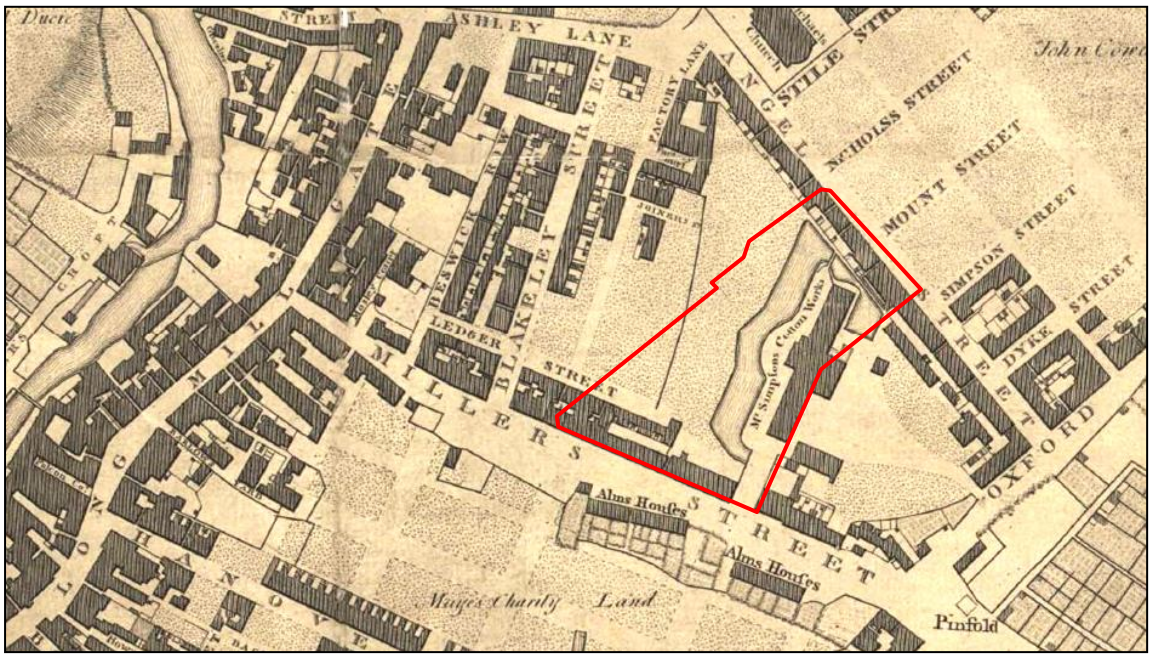


Plate 6: The Site boundary superimposed on an extract from William Green's map of 1794

Green's map depicts a linear range of buildings fronting onto Miller Street, forming the south-western edge of the site. Much of this range comprised the second spinning block that had been added to the mill complex by John and Samuel Simpson by 1786. The north-western end of this range appears to have comprised commercial properties, which probably contained domestic accommodation on the upper floors . Another range of buildings to the rear is also depicted by Green, and whilst it is uncertain whether they were intended as domestic or commercial/industrial premises, it is annotated on later mapping as a brewery.

Several maps of the area were produced during the first decade of the 19th century. Whilst all of these maps were published at a small scale, they show that further development at the corner of Miller Street and Rochdale Road. The footprint of the buildings within the site is largely the same as that depicted by Green in 1794, and whilst the block to the rear of the Miller Street frontage is not marked clearly by Johnson, this is probably a reflection of the survey scale rather than evidence for demolition. This is reinforced by the detail shown on William Swire's plan of 1824, which does show the building. This survey also shows that a rope walk had been established to the west of the reservoir (Fig 3).

Bancks & Co's map of 1831 shows the buildings in more detail (Fig 4). The mill block fronting Miller Street (HA **03**) appears to have been expanded, subsuming some of the properties to the north-west. It is annotated as 'Mottershead's Mill', with a rectangular block to the rear perhaps representing the steam-power plant. The mill reservoir (HA **02**) is shown to have been remodelled and expanded to the north, with a small part within the site having been infilled.

The Ordnance Survey 60": 1 mile map of 1850 shows a similar layout of the extent of development as on Bancks & Co's 1831 map, but provides much more detail of the buildings (Fig 5). Mottershead's Mill appears to have been remodelled, and is annotated as a warehouse. The block to the north-west is shown to have comprised an intermittent row of double-depth properties with out shuts to the rear, whilst the block to the rear is annotated as a brewery. A similar building footprint is depicted on Joseph Adshead's map of 1850 (Plate 7) identifies all of the buildings in the site as commercial premises.

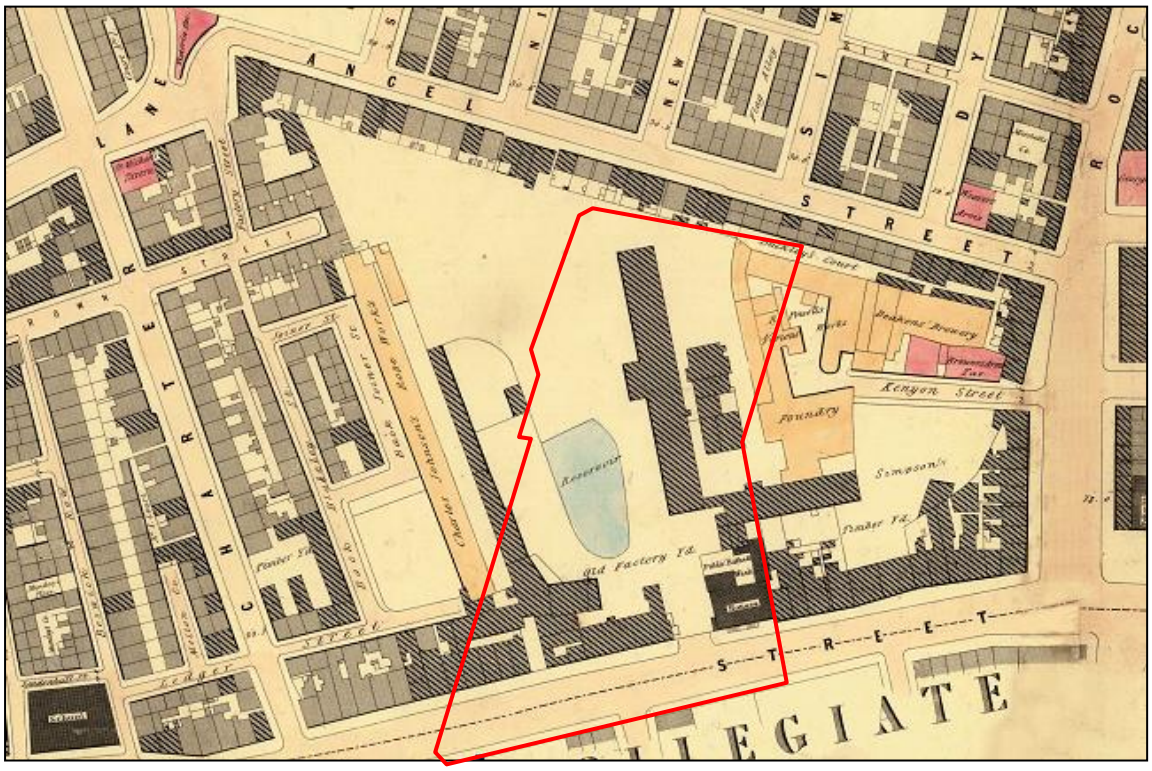


Plate 7: The site boundary superimposed on an extract from Adshead's map of 1850

The next available edition of Ordnance Survey mapping was published at a scale of 1:500 in 1891 (Fig 6). This shows that much of the site had been subject to redevelopment during the second half of the 19th century. In particular, Mottershead's Mill, the brewery, and most of the adjacent commercial properties had been replaced by larger warehouses the detail of which is provided by Goad's insurance plan of 1888. This shows the Albert Buildings, forming the south-western end of the block, to have comprised a four-storey warehouse with a basement. This abutted a three-storey glass warehouse, similarly with a basement, and a three-storey oil and colour warehouse. Elements of two of the 18th-century buildings appear to have remained extant. These were of three storeys along Miller Street, and of two storeys with a basement to the rear, and are shown by Goad to have been in use as stores.

The Ordnance Survey maps also show the reservoir (HA **02**) that had served Arkwright's Mill to have been filled in, and a group of new buildings erected. The detail provided by Goad's insurance plan shows that these were a mixture of one- and two-storey structures, which may have been used for stabling.

Subsequent editions of Ordnance Survey mapping show little change to the layout of the buildings within the site until the mid-20th century. Extensive air raids took place across Manchester on the 22 and 23 December 1940, which were responsible for the destruction of Arkwright's Shudehill Mill. The fire records for 1939-40 (MCL/MI/37) were checked in order to confirm this, although the reports do not give street by street detail of the damage. The records stated that over the course of the December air raids there were over 700 fires in Manchester, which meant that the fire crews worked constantly for two-three days.

The Town and Country Planning Act of 1944 permitted Manchester Town Planning Committee to make compulsory purchases of areas it wished to redevelop. One area comprised '6.61 acres of land bounded by Miller Street, Rochdale Road, Angel Street, and Dantzic Street, of which 4.38 acres have been cleared. In addition, nearly half an acre has been cleared under the Housing Acts and only seven buildings remain on the site. The area has been zoned for general industrial development' (*Manchester Guardian*, 18 September 1946).

Despite this apparent aspiration for redeveloping the study area in the 1940s, it is evident that this did not take place, as the 1951-2 Ordnance Survey map shows the area as almost completely clear of buildings, and the 1966 Ordnance Survey map shows just a few warehouses within the study area, which eventually became a car park in the 1980s. The site has remained in use subsequently as a car park.

2.7 Previous Archaeological Investigation

A considerable amount of archaeological work has been undertaken across the site and its immediate vicinity in recent years. One of the first archaeological investigations was carried in 2005, when Channel 4's Time Team excavated four evaluation trenches of varying dimensions across the footprint of Arkwright's Mill. This uncovered structural remains of the late 18th-century mill (HA **01**), as well as the remains of the rebuilding following a devastating fire in 1854 (Wessex Archaeology 2006). The cellar of a late 18th-century house on Angel Street was also excavated. This had originally contained two rooms, each equipped with a fireplace. The cellar was sub-divided in the 19th century,

providing two single-room dwellings which could therefore have been occupied by two families, and thus provided more rent (Wessex Archaeology 2006, 15-18; Nevell 2008, 143-4).

A large excavation within the immediate vicinity of the present site was undertaken in 2009, beneath the footprint of the new Headquarters Building for the Co-operative Group. The remains of approximately 75 structures were identified, almost exclusively relating to domestic dwellings, with the majority dating from the late 18th and early 19th centuries. Four broad phases of activity were recognised, with the earliest structure appearing to represent the cellar of a mid-18th century town house (Miller and Wild 2015). Other houses mainly comprised two-up-and-two-down type artisans' dwellings, with top floor loomshops, and two-room cellars with independent access, which had probably been used as cellar dwellings. Evidence for the decline of the area was also observed, with various buildings being partitioned to facilitate an expansion of the local population, and also perhaps to maximise rent revenue. These larger dwellings were converted subsequently into notorious lodging houses, whilst the cellars continued to provide accommodation for the poorest families, which were frequently of Irish origin.

In 2012, further excavation was carried out adjacent and parallel to Angel Street in advance of road widening works (OA North 2013). The work complemented the previous large-scale excavation in 2009, with different plan-types identified on the Angel Street frontage, most notably 18th-century dwellings that included back extensions, a variant of the terraced house that only developed on a large scale in the second half of the following century. The remains of back-to-back cellar dwellings were also observed. Whilst their method of construction was similar to the earlier, higher-status buildings, the size and arrangement of the structures provided a fine example of the conditions that led to Angel Meadow gaining its infamous reputation. During this programme of works, a single long evaluation trench was excavated across the centre of the mill reservoir (HA **02**). Whilst no physical remains of the 18th-cntury reservoir were encountered, the foundations of a late 19th-century building were uncovered.

Following the completion of the excavation, an archaeological watching brief was maintained during the road-widening works along the south side of Angel Street, and the west side of Rochdale Road (OA North 2013). Few remains of archaeological interest were exposed during this watching brief, which concluded that the remains of properties along the street frontage had been largely destroyed.

In 2014-15, the entire footprint of Richard Arkwright's Shudehill Mill, including the engine and boiler houses, was subject to archaeological investigation, which culminated in the production of a comprehensive record of this important site (Miller and Glithero 2016).

In May 2021 an evaluation was carried out by Salford Archaeology assessing the area around Arkwright's Mill that had hitherto not been investigated. These investigations revealed fragmentary remains of brickwork at a depth of over 2.5m which may have been associated with Mottershead's Mill.

3. Methodology

3.1 Aims and Objectives

The principal aim of the archaeological excavation was to investigate whether any remains of the 18th century Mottershead's Mill survived below ground and, if so, fully record any remains encountered. This was achieved via the excavation of a single 41m by 6m trench (Figure 1).

3.2 Archaeological Excavation

General Methodology: all archaeological work was conducted following the CIfA Standards and Guidance for archaeological field excavation (*Standards and Guidelines for an Archaeological Excavation* CIfA 2020a). Prior to the commencement of any excavation works, the location of the trench was laid out accurately with respect to the Ordnance Survey national grid. Service plans were inspected, and the area scanned for any live services using a cable avoidance tool. The excavations were regularly scanned as work progressed. Although the trench was originally planned to measured 9m in width, crossing the former pavement as well as the carriageway, the trench was narrowed to 6m in width in order to avoid the dense network of services and drainage below the pavement (Plate 8)



Plate 8: Services and drainage below the pavement

Bulk Excavation: this entailed mechanical excavation using a 360 degree tracked mechanical excavator to remove the overburden, which was undertaken under close archaeological supervision. All material excavated was stockpiled alongside, and a safe distance away from, the trench, and made safe.

Archaeological Excavation: machine excavation was used to carefully define the extent of any surviving remains. Any such remains were cleaned manually, where health and safety conditions allowed, to define their extent, nature, form and, where possible, date. Once the extent of buried archaeological remains was established, key remains were subject to detailed archaeological excavation and recording. Hand excavation was undertaken by trained professional archaeologists. All information identified in the course of the site works was recorded stratigraphically and was accompanied with sufficient pictorial record (plans, sections and photographs) to identify and illustrate individual features. Where health and safety concerns, particularly regarding depth and contamination, prohibited entry to a trench, the remains were cleaned as well as possible using the machine and the remains recorded from outside the trench using a laser instrument.

Machines were operated and provided by trained and certificated operators on hire to Salford Archaeology from Clive Hurt Plant Hire. All trenches were CAT scanned prior to the commencement of works and were then mechanically excavated using a tracked mechanical excavator fitted with a 1.7m wide toothless ditching bucket.

Context Recording: a unique text-number site code (*NOMA2144*) was created prior to the commencement of the programme of works. Separate contexts were recorded individually and annotated onto drawings and sketches.

Photographic Archive: a comprehensive photographic archive was produced utilising a high-resolution digital camera. All frames, excluding general contextual views, incorporate a graduated metric scale, unless prohibited for health and safety reasons. Photograph records were maintained on special photograph *pro-forma* sheets. All photography was carried out following the latest Historic England guidance (*Digital Image Capture and File Storage: Guidelines for Best Practice* HE 2015).

Planning: a 'site location plan' indicating the site north and based on the current Ordnance Survey 1:1250 map (reproduced with the permission of the Controller of HMSO) was prepared. This is supplemented by a trench plan which shows the location of the areas investigated in relation to the investigation area and National Grid.

The precise location of all archaeological remains encountered was surveyed by total station linked to a datalogging pen computer. This process generates scaled plans within AutoCAD, which are then be subject to manual survey enhancement. The drawings were generated at an accuracy appropriate to the final output scale. All level information is tied into the Ordnance Datum, taken from temporary benchmarks set out using GPS. All plan drawings are geo-referenced based on the Ordnance Survey National Grid.

Finds Policy: all finds were collected and handled following the Chartered Institute for Archaeologists' guidelines (*Standards and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* CIfA 2020b). Unstratified material was not kept unless of exceptional intrinsic interest. Material discarded as a consequence of this policy was described and quantified in the field.

4. Excavation Results

4.1 *Introduction*

A single 41m by 6m trench was excavated within the designated area. This was reduced from 9m wide to avoid a dense system of services and drainage below the former pavement.

4.2 *Excavation Trench (Figure 2)*

Natural sand and gravel *110* was encountered in two places, the eastern 15m of the trench and west side of brick wall *105*. At the east end of the trench the gravel was encountered at a depth of 2.6m and in the trench centre, around wall *105*, at a depth of 2.7m (Plate 9).



Plate 9: Natural gravel *110* at the east end of the trench, looking northeast

Cut into the sand and gravel was a brick wall *105* running north to south across the trench. The wall lay 17m from the west end of the trench. It was built from machine made

brick and bonded with hard dark grey cement (Plate 10). It was three brick courses in width with the base of a buttress in its centre, and survived to 0.5m in height.



Plate 10: Wall *105* and floor *106*, looking southwest

Abutting wall *105* on its east side was a concrete floor *106* overlying natural *110*, of which c. 2m was exposed. At the west end of the trench the first 12m contained a concrete floor *104*, identical to *106* and also at a depth of 2.7m This had been truncated before it reached wall *105* by a modern service trench but can be assumed that it originally abutted the wall (Plate 11).



Plate 11: Concrete floor *104* looking northwest

Associated with concrete floor *104* was a concrete wall *103 (Plate 12)*. This comprised 12m of the southern trench edge end returned north at the west end of the trench. It survived to a height of 2.1, its top lying immediately below the bedding for the tarmac. It was truncated at the same point as concrete floor *104* and probably originally met wall *105*.



Plate 12: Concrete wall *103* looking southwest

Above the concrete floors was a 0.4m deep infill deposit of mixed rubble *111*, with a loose brick surface above it. The brick surface *112* comprised randomly laid bricks, both hand-made and machine-made. This was the surface originally observed during the evaluation and thought to possibly be a mill floor. Once more was exposed in the excavation it was clear that this was not a true surface at all and appeared to be a layer of mixed bricks deposited during demolition/infilling. The bonding material observed during the evaluation was, in fact, not bonding material at all but was instead crushed cement and plaster that had deposited between and around the loose bricks. Above this the area had been further infilled with loose demolition rubble.

A 9m wide section of the trench to the east of wall *105* was excavated to a depth of 0.4m, at which point a spread of chrysotile asbestos sheet fragments, and possibly other ACMs was observed with the overburden. This was marked, the client informed, and covered over.

At the east end of the trench was a 0.7m wide reinforced concrete ring beam *109*. This ran east/west along the southern edge of the trench. To the north of it the gravel *110* was observed at 2.6m depth. Above this was 1.4m of mixed rubble and clay *113* which

contained some modern refuse and plastic. Above this was a 0.1m thick layer of stone bedding material *114* with 0.1m of tarmac *115* laid on top of it (Plate 13).



Plate 13: Reinforced concrete ringbeam *109* looking east

Overlying the entire trench was 0.5m of compact yellow MoT *102*, with 0.15m to 0.3m of stone bedding *101* and 0.2m to 0.3m of tarmac *100* above it, forming the road surface for the former carriageway.

5. Discussion

No remains of the 18th-century mill survived intact, and no artefacts were recovered from the excavated trench. The earliest remains to be encountered comprised concrete floors, a concrete wall and machine-made brick walls with a hard grey cement, all suggesting a late 19th- or early 20th-century construction date. When overlaid onto the historic mapping the remains fit within the large industrial structure, part of the Baxendale's Ironworks complex, that appears on mapping from 1891 until 1933 (Figure 3). The area isn't quite covered by mapping showing the 1940s but on the 1951 map the area is shown as a dotted line, suggesting that by this time the former mill was demolished but the outline still visible. This may suggest it was destroyed by fire, as was much of the surrounding area, during the intense 'Christmas Blitz' of 1940. By 1959 an industrial building had been erected on the site, but the remains do not fit with this building at all.

This would all suggest that the 18th-century mill was entirely demolished with none of its components incorporated into the later 19th-century warehouse buildings. The machine-made brick wall was almost certainly an internal basement division. The concrete wall observed in the initial stage of the excavation is likely to have been a brick wall that had been lined internally with concrete. Interestingly the area in which excavation was halted due to the presence of ACMs coincides exactly with a covered passage between two of the warehouse buildings, the roof of which may have been mad from, or lined with, asbestos.

It is unclear which building the reinforced concrete ringbeam was associated with as it does not fit with anything on the mapping. It was however very late in date and had truncated all other remains in the immediate area.

6. Recommendations

Salford Archaeology recommend that no further investigation is required within this area of the site.

7. Archive

7.1 Archive

The results of the archaeological investigation form the basis of a full archive that has been prepared to professional standards, in accordance with current Historic England guidelines, the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990), and current CIfA standards and guidance for the creation, compilation, transportation and deposition of archaeological archive. The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the CIfA in that organisation's code of conduct.

The documentary and digital archive generated from the historic building investigation is currently in the possession of Salford Archaeology. A copy of this report will be submitted to the Greater Manchester Historic Environment Record in digital and hard copy formats. A digital copy of the report will be publicly available on the Archaeological Data Service (ADS) website and will be submitted to OASIS.

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Acknowledgements

Salford Archaeology would like to thank Gardiner & Theobald LLP and NOMA GP Ltd for commissioning the work. Particular thanks go to Steve Baker for their support throughout the evaluation. Salford Archaeology would also like to thank Ian Miller of Greater Manchester Archaeological Advisory Service for his advice during the project.

The archaeological excavation was undertaken by Graham Mottershead and Andy Coutts. The technical report was written and illustrated by Graham Mottershead, who also managed the project.

Appendix 1: Illustrations

Figure 1: Site location plan

Figure 2: Plan of the excavation trench

Figure 3: Excavation trench superimposed onto the Ordnance Survey 1:500 Town Plan of 1891



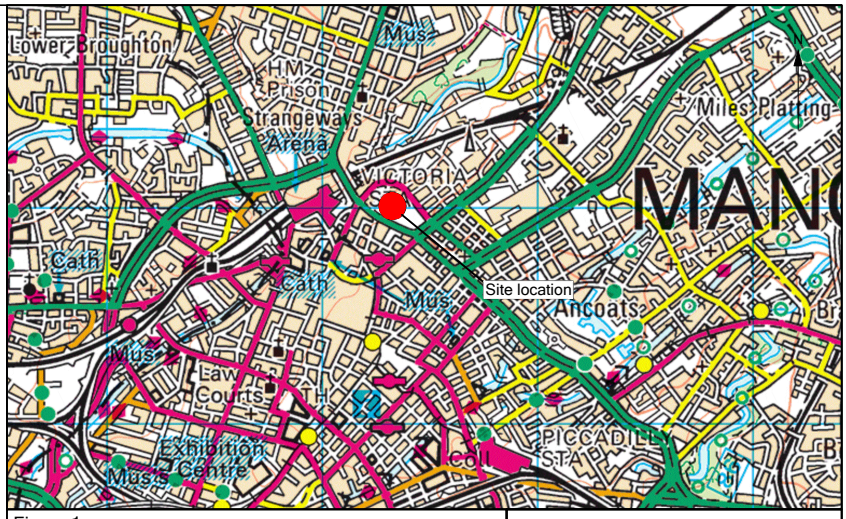


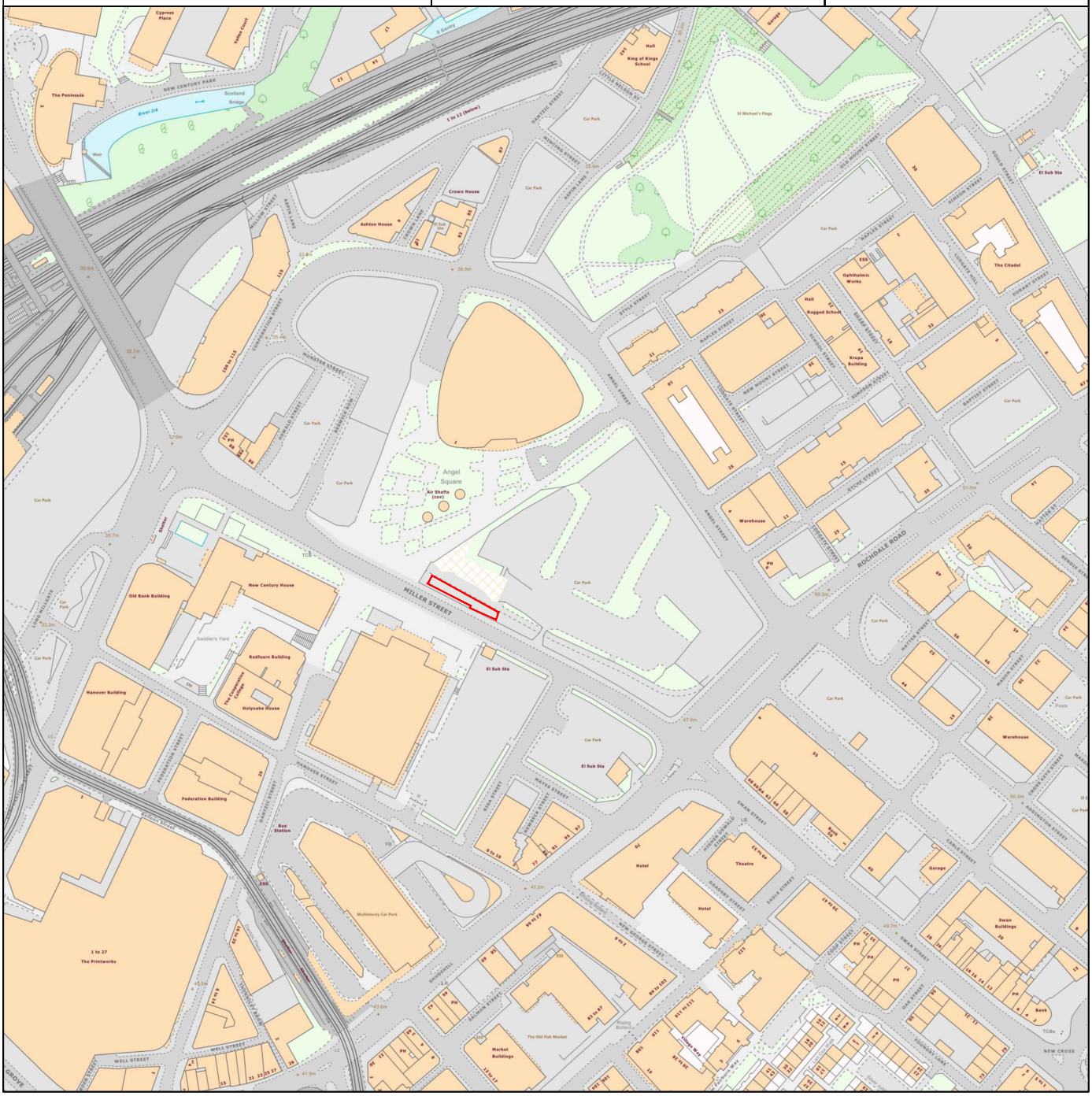
Figure 1:

Site location

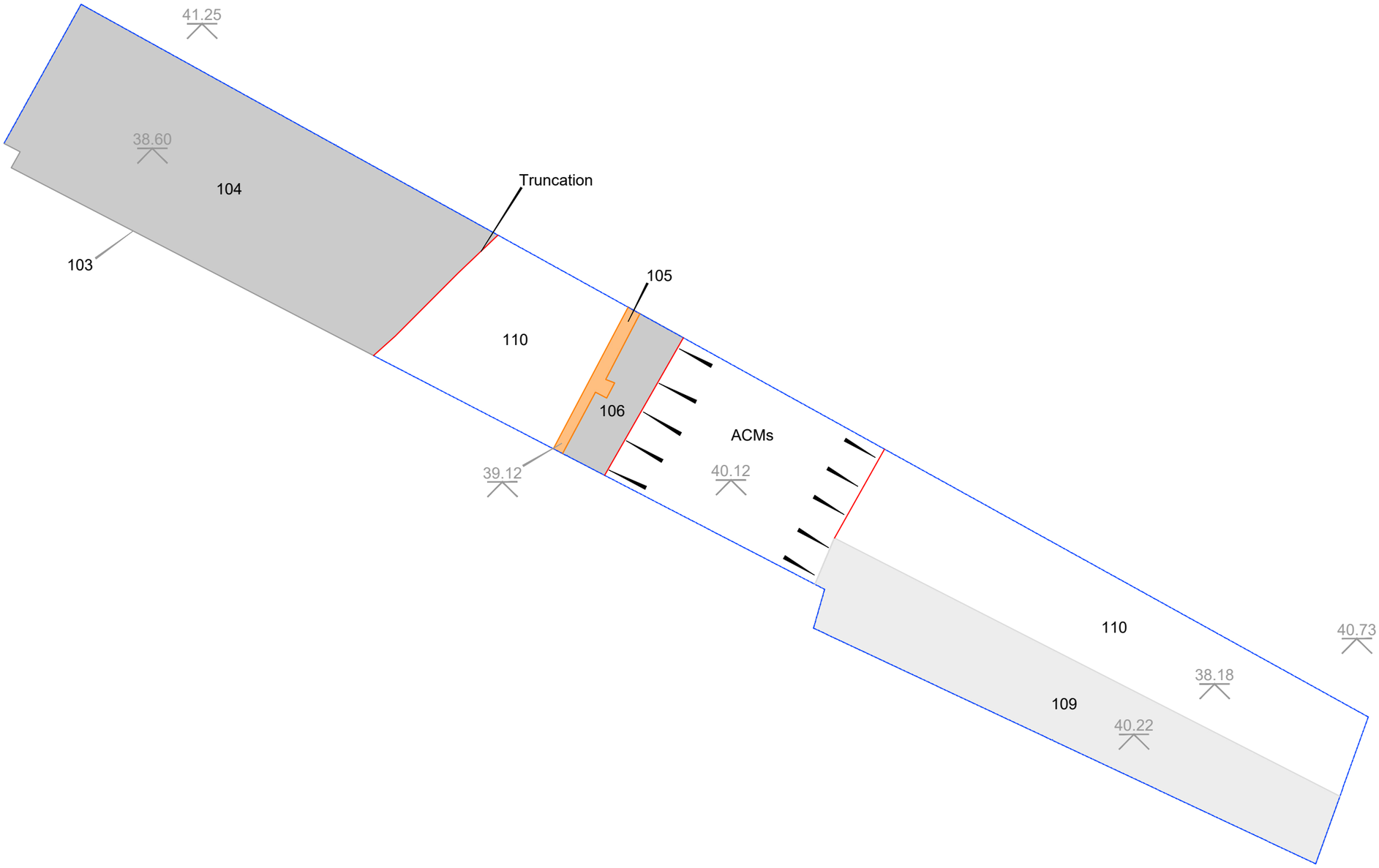
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0 5 m

Scale at A3 1:125

Figure 2:

Plan of excavation trench

N

Key:

- Trench
- Modern truncation
- Brick
- Concrete
- Concrete ringbeam

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SALFORD ARCHAEOLOGY

0 10 m

Scale at A3 1:200

Figure 3:

Excavation trench superimposed onto the Ordnance Survey 1:500 Town Plan of 1891

N

Key:

- Trench
- Modern truncation
- Brick
- Concrete
- Concrete ringbeam

Salford Archaeology, Peel Building,The Crescent, Salford, M5 4WT