



**Bradford Road,
Ancoats,
Manchester**

Greater Manchester

**Archaeological Desk-
based Assessment**



Oxford Archaeology North

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SUMMARY

Maryland Securities Group is devising proposals for a development of land on Bradford Road, in the Ancoats area of Manchester (centred at NGR SJ 8585 9872). In order to support the development proposals, and inform the planning process, Maryland Securities Group commissioned Oxford Archaeology North (OA North) to undertake an archaeological desk-based assessment of the application area. The principal aim of the assessment was to build on the results drawn from an earlier study of Brunswick Mill (Jenner 2006), and to identify, as far as possible, the nature and significance of the archaeological resource within the study area, and to establish the impact of development upon this resource. The resource has been examined to see if it includes Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Parks and Gardens, and non-designated features of regional or local archaeological or historical interest and value.

Ancoats incorporates some 400 acres on the north-eastern edge of Manchester city centre, which, from the late eighteenth century, became one of the most intensely developed manufacturing centres in the world. The industrial prowess of the area was derived primarily from a large number of closely-packed steam-powered textile mills, although a variety of other industries were also established, together with a dense concentration of workers' housing. The origins of this industrial townscape can be traced to the 1770s, when a grid-iron pattern of streets was laid out across part of Ancoats, and the intervening plots of land were sold to middlemen for development.

The application area incorporates Brunswick Mill, a nineteenth-century textile factory of considerable archaeological and historical interest. This is reflected in its designation as a Grade II Listed Building (no 387942); the building is also entered on the Greater Manchester Sites and Monuments Record (SMR 2051.1.0 – MGM271), and the National Monuments Record (NBR 53304). The site also has considerable potential to contain the *in-situ* buried remains of another early nineteenth-century textile mill, known originally as Pooley's Mill, which was demolished in recent years without record.

It is likely that further archaeological work will be required to inform the application for the redevelopment of the site. In the first instance, an archaeological building survey of Brunswick Mill will be necessary, as the impact of the proposed works on the character and fabric of the buildings will require detailed assessment. The building survey should be commensurate with an English Heritage Level 3-type survey, and would aim to provide an understanding of the relative significance of the historic fabric, buildings and features throughout the Brunswick Mill complex. The results obtained from the survey would allow informed decisions to be made on sympathetic treatment of the historic fabric, and removal of any structures or buildings within the mill complex. In addition, it is envisaged that a programme of archaeological evaluation will also be required in advance of any ground-reduction works within the study area. This would be targeted specifically on the steam-power plant for Pooley's Mill. The primary objectives of any such evaluation would be to establish the presence, character, date and extent of any buried remains.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to thank Maryland Securities Group for commissioning the project, and to Adam Gray and Jon Davies at Hodder Associates for providing the supporting documentation. Thanks are also expressed to Norman Redhead of the Greater Manchester Archaeological Unit for his advice and support, and for facilitating access to the Greater Manchester Textile Mill Survey archive. Further thanks are due to the staff of the Manchester Central Library and Greater Manchester County Record Office for providing relevant historic mapping and primary documentation.

The assessment was carried out by Ian Miller, and the illustrations were produced by Marie Rowland.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Maryland Securities Group is devising proposals for a development on land bounded by Bradford Road, Beswick Street and the Ashton under Lyne Canal in the Ancoats area of Manchester. In order to support the development proposals, and inform the planning process, Maryland Securities Group commissioned Oxford Archaeology North (OA North) to undertake an archaeological desk-based assessment of the application area. The assessment followed on from the production of an historical account (OA North 2005) and a Conservation Plan (Jenner 2006), which were both focussed on Brunswick Mill rather than the whole application area. The principal aim of the assessment was to identify, as far as possible, the nature and significance of the archaeological resource within the study area, and to establish the impact of development upon this resource. The resource has been examined to see if it includes Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Parks and Gardens, and non-designated features of regional or local archaeological or historical interest and value.
- 1.1.2 The desk-based assessment comprised a search of both published and unpublished records held by the Greater Manchester Sites and Monuments Record (SMR), the Greater Manchester County Record Office and the Lancashire County Record Office, the local studies section of Manchester Reference Library, and the archives and library held at OA North. In addition, a rapid site inspection was carried out on the site of the proposed development in order to relate the landscape and surroundings to the results of the desk-based assessment.
- 1.1.3 This report sets out the results of the desk-based assessment, and includes a statement of the archaeological potential and significance (defined by the criteria detailed in PPG 16 (DoE 1990)), in which an assessment of the impact of development on the historic environment is taken into account. This has been carried out in accordance with government advice in the form of Planning Policy Guidance notes 15 Planning and the Historic Environment (DoE 1994) and 16 Archaeology and Planning (DoE 1990).

1.2 LOCATION, GEOLOGY AND TOPOGRAPHY

- 1.2.1 The application site is situated within the Ancoats area of Manchester, and lies approximately 1km to the north-east of the city centre (Fig 1). It occupies a trapezoidal plot of land (centred at SJ 8585 9872), bounded by Bradford Road, Beswick Street, and the Ashton under Lyne Canal (Plate 1).
- 1.2.2 Although Permo-Triassic red mudstones, siltstones and sandstones ('New Red Sandstone') constitute much of the geology of the Lancashire lowlands, the solid rock rarely emerges from beneath its thick covering of glacial and post-glacial deposits, which is dominated by clay soils (Countryside Commission

1998, 87). The overlying drift incorporates Pleistocene boulder clays, and sands, gravels, and clays of fluvial/lacustrine origin (Hall *et al* 1995, 8).



Plate 1: Recent aerial view of the application area

- 1.2.3 Topographically, the Manchester Conurbation as a region is within an undulating lowland basin, which is bounded by the Pennine uplands to the east and to the north. The region comprises the Mersey river valley, which is dominated by its heavily meandering river within a broad flood plain (Countryside Commission 1998, 125). The topography of the study area, however, reflects the shallow valley of Shooter's Brook, a rivulet that flows westwards from Newton Heath, through Ancoats and into the river Medlock (Ashworth 1987, 22). The application area lies on the southern berm of this natural valley, although Shooter's Brook was culverted during the early nineteenth century, and the topography of the area has since been masked considerably by in-filling associated with urban expansion and redevelopment.
- 1.2.4 The present land use of the study area varies. The north-eastern part is occupied by Brunswick Mill, a large textile mill that is currently unoccupied; Brunswick is designated a Grade II Listed Building. Another building survives in the south-western corner of the study area, occupying a plot on the corner of Bradford Road and Beswick Street. The remainder of the study area comprises vacant land, having been occupied until recently by another textile mill.

2. METHODOLOGY

2.1 DESK-BASED ASSESSMENT

2.1.1 The assessment has focused on the site of the proposed development, although information for the immediate environs has been considered in order to provide an essential contextual background. The assessment was carried out in accordance with the relevant IFA and English Heritage guidelines (Institute of Field Archaeologists, 1999 *Standard and Guidance for Archaeological Desk-based Assessments*; English Heritage, 2006 *Management of Research Projects in the Historic Environment* (MoRPHE)). The assessment was carried out in July 2009. The principal sources of information consulted were historical and modern maps, although published and unpublished secondary sources were also reviewed. The following repositories were consulted during the data-gathering process:

- **Greater Manchester Sites and Monuments Record (SMR):** the Sites and Monuments Record for Greater Manchester, held in Manchester, was consulted. This consists of a list of known archaeological sites within the county, and is maintained by the Greater Manchester Archaeological Unit (GMAU). The SMR also maintains an updated copy of the Greater Manchester Textile Mill Survey;
- **Greater Manchester County Record Office (GMCRO):** the County Record Office in Manchester holds original documents and maps for the area, and was visited primarily to consult early maps and other relevant documents, which can provide details of the development of the study area;
- **Lancashire County Record Office, Preston (LRO(P)):** before the county boundaries were changed during the mid-1970s, Manchester lay within the county of Lancashire, and therefore most of the available published maps of the area are held in Lancashire County Record Office in Preston. All available Ordnance Survey maps for the study area were examined, covering the period from 1850 to 1992;
- **Manchester Central Library Local Studies Unit (MCL):** Manchester Central Library holds printed and manuscript maps and plans of relevance to the present study, and an extensive collection of published sources;
- **Oxford Archaeology North:** OA North has an extensive archive of secondary sources relevant to the present study, as well as numerous unpublished client reports on work carried out both as OA North and in its former guise of Lancaster University Archaeological Unit (LUAU). These were consulted where necessary.

3. BACKGROUND

3.1 INTRODUCTION

- 3.1.1 The following section presents a summary of the historical and archaeological background of the general area. This is presented by historical period, and has been compiled in order to place the study area into a wider archaeological context.

Period	Date Range
Palaeolithic	30,000 – 10,000 BC
Mesolithic	10,000 – 3,500 BC
Neolithic	3,500 – 2,200 BC
Bronze Age	2,200 – 700 BC
Iron Age	700 BC – AD 43
Romano-British	AD 43 – AD 410
Early Medieval	AD 410 – AD 1066
Late Medieval	AD 1066 – AD 1540
Post-medieval	AD 1540 – c 1750
Industrial Period	c AD1750 – 1901
Modern	Post-1901

Table 1: Summary of British archaeological periods and date ranges

3.2 HISTORICAL BACKGROUND

- 3.2.1 **Prehistoric Period:** there are relatively few sites known from this period in the vicinity, although general patterns of settlement locations that have been identified indicate that the Irwell valley would have been a favourable location for occupation and transport routes, whilst a small group of prehistoric finds have been discovered during archaeological excavations in the Castlefield area (Nevell *et al* 2003). The upland areas of the surrounding moors may have been exploited for hunting, but the poor drainage of the Pennines and spread of blanket peat at higher altitudes would have discouraged any settlement (Hall *et al* 1995, 117). There is no known evidence for prehistoric activity in proximity to the present study area.
- 3.2.2 **Roman Period:** the first military occupation of Manchester was established during the governorship of Agricola (AD 77-84), and commenced with a five-acre wooden fort, known as *Mamucium*, apparently meaning ‘a breast shaped hill’ (Brunton 1909). The site of this encampment is marked today by Camp Street in Castlefield, situated on the opposite side to the city centre from the present study area.
- 3.2.3 The Roman road between the forts of Manchester and Castleshaw is thought to have a route through Ancoats; antiquarians writing in the eighteenth and nineteenth centuries noted evidence for the course of this road (Watkin 1883, 50-1). Drawing on some of these sources, Margary suggested that modern-day Old Mill Street (which becomes Bradford Road to the north-east of Butler Street) follows the route of the Roman road (Margary 1957, 98). However, this

awaits confirmation and there is, as yet, no known evidence for Roman activity in proximity to the present study area, and the potential for any such buried remains to exist in the application area seems low.

- 3.2.4 **Early Medieval Period:** the area around Manchester came under the control of several kingdoms during this period. In AD 620, Edwin conquered and occupied Manchester, and it may have been during this period that settlement in the town was established around the area of the present cathedral (Farrer and Brownbill 1911). However, the physical remains of this period are rare in the North West as a region (Newman 1996), and this is certainly the case in Manchester (Walker 1986). One of the few artefacts in the city known to be of an Anglo-Saxon origin is the so-called 'Angel Stone', or effigy of the Archangel Michael, which was unearthed by workmen repairing the South Porch of the cathedral in 1871 (manchester2002-uk.com/history). Another remnant of the period is a Saxon-style funerary urn of probable sixth-century date, which was found to the north of Red Bank in Cheetham during construction work in c 1850 (Morris 1983). There is no known evidence for early medieval activity in proximity to the present study area, and the potential for any such buried remains to exist on the site seems low.
- 3.2.5 **Late Medieval Period:** following the Norman Conquest, William I assigned most of the land between the Ribble and Mersey rivers to Roger of Poitou, who retained the manor of Salford demesne (Tupling 1962, 116), but divided his other newly-acquired land into several fiefdoms (Kidd 1996, 13). The largest of these was the landholding centred on Manchester, created by the grant of extensive lands in the hundreds of Salford, Leyland and West Derby to Albert Grelley (Tupling 1962, 116). By the thirteenth century, the Grelley family had established a manor house at the confluence of the rivers Irwell and Irk, and the medieval town grew up around it (Hartwell *et al* 2004, 256). It was from this hall that they governed both the manor and the extensive barony.
- 3.2.6 In 1222 Manchester was granted an annual fair, and in 1301 Thomas Grelley was granted the Great Charter of Manchester by Edward I, and thus it became a free borough (*ibid*). Throughout this period, Ancoats formed one of eight hamlets within the township of Manchester, as noted in a survey of 1320 (Harland 1861). This is reflected in the origins of its name, which is likely to have derived from the Old English *ana cots* and may be translated as 'lonely cottage' (Cooper 2002, 13). The area will have comprised open land, described as 'an almost idyllic rural backwater' (Swindells 1908, 19-26), with a few scattered dwellings. The most notable building was the timber-framed Ancoats Hall, which overlooked the river Medlock on the southern edge of the district, and some 0.75km to the south-east of study area. It is uncertain when the hall was built, although it is thought to have been sold by the De la Warr family to Sir Edward Trafford during the reign of Henry VIII (1509-47), and then passed to the Byrons of Clayton (Darbyshire 1887, 118). The hall was remodelled in stone during the 1820s, and demolished in the mid-twentieth century (Miller and Wild 2007).

- 3.2.7 **Post-medieval Period:** by 1539, John Leland was able to describe Manchester as the ‘finest and busiest town in the whole of Lancashire, with the best buildings and the greatest population’ (Chandler 1993, 263), at a time when the textile industries in south Lancashire were beginning to flourish. Manchester emerged as a centre for the textile finishing processes, as woollen cloth was brought in from outlying areas for bleaching and dying. Most importantly, however, Manchester expanded its role as a market centre for textiles produced in the towns and hamlets of the surrounding district (Frangopulo 1962, 26).
- 3.2.8 From the early seventeenth century, fustians produced in a network of towns with Manchester at their hub were being exported regularly to western and southern Europe, and the town became the principal commercial centre for the region (Hartwell 2001, 8-9). A flourishing business community developed, which was dominated by a few wealthy merchant manufacturers and fustian-dealing families, notably the Chethams, the Booths, the Wrigleys, and the Byroms (*op cit*, 299). However, there are no known structural remains of a sixteenth- or seventeenth-century date in Ancoats, although fragments of seventeenth- and eighteenth-century pottery were recovered from a soil horizon during a recent archaeological excavation on George Leigh Street. Analysis of palaeo-environmental samples taken from this horizon, moreover, indicated that the local landscape had comprised a mosaic of damp, waste and cultivated ground, with some areas of shallow or slow-moving water (OA North 2008).
- 3.2.9 **The Industrial Period:** in his tour of the country in the 1720s, Daniel Defoe (1971, 219) noted that Manchester had ‘extended in a surprising manner, being almost double to what it was a few years ago’, reflecting further expansion the textile trade (Baines 1835). By the 1790s, Manchester’s thriving export market was beginning to displace London as a centre of overseas trade in cotton cloth (Edwards 1967, 176), reflecting great improvements to the transport network across the North West. In particular, the development of the canal system following the completion of the Worsley Canal to Castlefield in 1765 was of prime importance (Hadfield 1994, 65). This economic climate was linked to a rapid growth in the town’s population; in 1773, an estimated 22,481 people lived in Manchester, but this figure had tripled to 75,281 by 1801 (Lloyd-Jones and Lewis 1993).
- 3.2.10 The completion of the Ashton-under-Lyne Canal in 1796, and the Rochdale Canal in 1804, was a key element in the phenomenal expansion of Ancoats, and led to its transformation from a semi-rural district to an industrial suburb. This was coupled with a breakthrough in the application of steam power to manufacturing, and the national demand for textiles, particularly cotton, which created the explosion of factory building (Little 2004, 31). In Ancoats, this new breed of textile mills were built on an unprecedented scale, many depending upon the developing network of short branch canals for transport and a source of water for their steam-power plants (Williams 2004, 35).

3.3 DEVELOPMENT OF ANCOATS

- 3.3.1 The transformation of Ancoats from a semi-rural area into an effective industrial suburb began in the 1770s, when land owned by the Leigh family was sold to Thomas Bound, a builder, who then sold it on to others for development. William Green's *Map of Manchester and Salford*, published in 1794, shows the focus for initial development to have been at the corner of Great Ancoats Street and Oldham Road, and depicts the main elements of the existing street plan laid out on former fields of the area. Building speculation then drove further expansion, with plots of land within a grid-iron pattern of streets being sold for development.
- 3.3.2 A small number of water-powered mills erected along Shooter's Brook represented the earliest textile factories in the area. These included a 'room-and-power' mill known as Salvin's Factory, and New Islington Mill, which originated in the late 1780s as an Arkwright-patented water frame mill (Miller and Wild 2007). However, in seeking a solution to the inadequate power supplied to their waterwheels from Shooter's Brook, several firms experimented with steam power. Notably, John Kennedy is reputed to have first applied steam power to one of his spinning mules whilst renting space at Salvin's Factory in 1793 (Lee 1972, 9).
- 3.3.3 It was on the basis of a breakthrough in the application of steam power, and the national demand for textiles, particularly cotton, that created the explosion of factory building in Ancoats (Little 2004, 31). This was fuelled by the potential of cheap and reliable transport for goods and materials offered by the construction of the Rochdale and Ashton under Lyne canals, and led to the creation of a new breed of mill building in Ancoats. These were built on an unprecedented scale, many depending upon the developing network of short branch canals for transport and a source of water for the steam-power plants. The net result was the creation of an industrial suburb; an edge-of-town industrial estate with associated housing and related businesses.
- 3.3.4 From its origins as the first true industrial suburb to Manchester during the late eighteenth century, Ancoats expanded rapidly throughout the first half of the nineteenth century. Bancks and Co's detailed map of the area, published in 1831, shows an early stage in the development of land between Mill Street and the Ashton under Lyne Canal, on the eastern fringe of Ancoats (Fig 2). The deeds to Brunswick Mill describe several changes in land ownership before any building commenced, which probably reflects a high demand for building land on the outskirts of Manchester in this period. The rate of expansion during the mid-nineteenth century, and particularly with the development of land to the south of the Ashton under Lyne Canal, is highlighted by comparing Bancks and Co's map with that surveyed by the Ordnance Survey in 1848 (Fig 3), and that published by Adshead two years later (Fig 4).

3.4 DEVELOPMENT OF THE APPLICATION AREA

- 3.4.1 The development of the application area from the early nineteenth century may be traced reasonably well from the available cartographic sources. This allows the pertinent details of the site's evolution to be discerned, which may be enhanced from other sources of primary documentation, such as entries in commercial trade directories and contemporary newspaper articles; this is summarised in the following narrative. In addition, there is a considerable body of documentary evidence to chart the development of Brunswick Mill, allowing a more detailed account of the mill complex to be compiled; this account is presented in *Section 4*.
- 3.4.2 The application area remained as open agricultural land until the 1820s, and is shown as such on Pigot's map of 1819 (Plate 2). The initial development of the area can be traced to 1826, when a steam-powered cotton-spinning mill was erected on behalf of Charles Pooley along the northern bank of the Ashton under Lyne Canal. The mill may have taken several years to complete, or at least to fill with machinery, as it remained unoccupied until 1829 (PP (HC) 1834 [167] XX D1).



Plate 2: Extract from Pigot's map of 1819, south-western part of the study area

- 3.4.3 The next available map of the study area is that published by Bancks & Co in 1831, which provides the first detailed nineteenth-century survey of the site (Fig 2). This shows a factory complex, named 'Pooleys Cotton Mill', to have been established in the south-western part of the site. The factory complex comprised a long, rectangular mill block lying parallel and adjacent to the

Ashton under Lyne Canal, with a smaller block situated at a right angle. The larger block appears to have incorporated a slightly narrower section at its north-eastern end. Whilst the map does not indicate the function of the individual buildings on the site, it is possible that the narrower section of the larger block may have represented the steam-power plant; the mill was powered originally by a steam engine of 53hp (PP (HC) 1834 [167] XX D1).

- 3.4.4 Bancks & Co's map also shows the south-eastern boundary of the study area to have been developed. This comprised the erection of a terrace of six properties, presumably representing workers' cottages, fronting Beswick Street. It is notable that these houses appear to have been slightly larger than many other domestic properties in the area, and seemingly incorporated outshuts or privies to their rear.
- 3.4.5 The north-eastern part of the study area remained undeveloped until January 1837, when a plot of undeveloped land was released in fee from David Worthington to Messrs Charles Pooley, Alexander Kelly and James Gilmour. The greater portion of the land, comprising 4736 square yards, was to be shared by Kelly and Gilmour, whilst Charles Pooley was to have the remaining 348 square yards, which adjoined his existing cotton-spinning factory. However, in September 1838, the two plots were combined to form a single block of land comprising 5084 square yards, which was to be released to Kelly and Gilmour for development. This represented the origins of Brunswick Mill.
- 3.4.6 At this time, Alexander Kelly and James Gilmour are both listed in a trade directory as independent cotton-spinners in Ancoats, although their premises are not specified (Pigot 1838). Kelly and Gilmour appear to have formed a cotton-spinning partnership in 1839, and embarked upon commissioning a new cotton mill to be erected on their newly-acquired land in Ancoats.
- 3.4.7 On 4 November 1842, Pooley's extensive mills complex was damaged by a large fire. The fire broke out near the centre of the building known as the New Mill, or No 3 Mill, which was the only part of the premises that was not of fireproof construction. 'A great portion of the new mill was soon a mass of ruins, and the fire had spread along the roof of what is called the fireproof mill before it was arrested'. The adjacent warehouse was also destroyed entirely, and several operatives lost their lives in the blaze (*The Examiner* 5 November 1842). Another newspaper account of the blaze described the mill buildings as forming two sides of a parallelogram, situated between Bradford Street and the canal. The building next to the canal was continuous, and was 22 windows (bays) long; the building fronting onto Bradford Road was approximately half of that length. The damage was estimated at £10,000 (*The Hull Packet* 11 November 1842). It is clear from this description that Pooley's site had expanded considerably since Bancks & Co's survey of 1831, not least with the addition of a new mill block.
- 3.4.8 The layout of the study area during the mid-nineteenth century is depicted on two detailed plans: the Ordnance Survey 60": 1 mile map, surveyed in 1848 and published in 1850 (Fig 3); and Adshead's *Plan of the Townships of Manchester*, published in 1850 (Fig 4). Both maps show Pooley's Mill to have

expanded considerably since 1831, presumably involving the rebuilding of the blocks destroyed by fire in 1842.

- 3.4.9 The maps also confirm that the properties fronting Beswick Street were domestic, with outshuts and possibly privies to the rear, which were served by a narrow passageway along the boundary with Pooley's Mill. The maps also show a new building to have been erected at the north-western end of the terrace, occupying the south-western corner of the application area. This is named as a Methodist chapel on the Ordnance Survey map, and as a school on Adshead's map. It seems likely, however, that the detail on Adshead's map is incorrect, as other primary documentation confirms this building to have been a United Methodist Free Church Circuit.
- 3.4.10 Pooley's Mill and Kelly & Gilmour's Brunswick Mill were both affected by a strike in July 1853. The strike had arisen from a wage dispute (*Daily News*, 5 July 1853). Pooley's Mill sustained another fire in June 1880. The damage inflicted on the mill buildings by this fire, however, appears to have been minor (*Manchester Times* 26 June 1880).
- 3.4.11 Charles Pooley is listed at India Mills on Bradford Road in a trade directory for 1891 (Worrall 1891, 125). The entry accredits the mill with 58,000 spindles, producing extra hard twist and mule twist. The layout of the mill at this date is shown on the Ordnance Survey first edition 1:2500 map, which names Pooley's Mill as India Mills (Fig 5). The footprint of the mill is considerably different to that shown on the earlier mapping, indicating it to have been remodelled. A chimney is depicted in the eastern part of the mill, suggesting the general location of the steam-power plant; the position of this chimney coincides broadly with the narrower section of the original mill block shown on Bancks & Co's map of 1831. Some expansion of Brunswick Mill may also be discerned from the detail of the Ordnance Survey map (*Section 4.5 below*).
- 3.4.12 The Ordnance Survey map of 1893 shows some alterations to the properties fronting onto Beswick Street along the south-western boundary of the study area. In particular, the Methodist chapel appears to have been replaced by a continuation of the terraced houses. However, a new building for the mission was built in 1893-4, and is depicted on subsequent mapping.
- 3.4.13 Charles Pooley is listed as a cotton spinner at India Mills in a trade directory for 1895 (Slater 1895, 47), although a directory for 1903 gives the form of James Bentley & Co, calenderers, as the occupants (Slater 1903, 62); the same entry is given in a directory for 1909 (Slater 1909, 71) and 1911 (Slater 1911, 83). The layout of the mill at the latter dates is shown on the Ordnance Survey map of 1908 (Fig 6), which names Pooley's Mill as Manchester Works (Finishing & Storage). The detail of this map suggests that the mill had been remodelled slightly between 1893 and 1908, with some additions to the south-western end of the mill building. Conversely, several outbuildings on the south-western boundary of the site appear to have been demolished. The footprint of Brunswick Mill appears unaltered relative to the earlier map published by the Ordnance Survey in 1922 (Fig 7). This shows some slight additions to Pooley's Mill relative to the 1908 map, namely the addition of a

small structure against the south-western elevation of the main factory block. The map also shows some slight alterations to Brunswick Mill relative to the 1908 map, namely the addition of three small structures in the enclosed central courtyard. These structures, however, represent a major alteration to the mill complex, with the installation of electric drive (*Section 4.6 below*).

- 3.4.14 The footprint of both mill sites are shown as largely unchanged on the next edition of Ordnance Survey mapping, published in 1931 (Fig 8). Pooley's Mill, however, is named as Manchester Works (Cotton Cloth Storage), suggesting that it was not longer used for manufacturing purposes. Further details of the buildings in the study area during this period are provided by Goad's insurance plans, which were revised in 1943. The plan of Pooley's Mill shows that the complex incorporated several buildings, the largest of which comprised an eight-storey block adjacent and parallel to the Ashton under Lyne Canal (Plate 3). This building, and the adjacent four-storey block, was occupied by S Miller, a clothing manufacturer. A square-section chimney, 130ft high, was situated between the two blocks, again indicating that the steam-power plant was situated within that part of the mill complex. However, no other elements of the steam plant are annotated on the plan, suggesting that steam power may have been superseded by electric drive by the 1940s.
- 3.4.15 The northern part of the mill site was occupied by E Raffles & Co, manufacturers of waterproof clothing. The majority of their premises comprised a single-storey building, with another single-storey range abutting the south-western side of the main block. The insurance plan also marks the terrace of six dwellings, 9-10 Beswick Street, that form the south-western boundary of the study area, together with the mission hall at the western end of the terrace. The dwellings are all annotated as two storeys, and none are marked to have a basement.

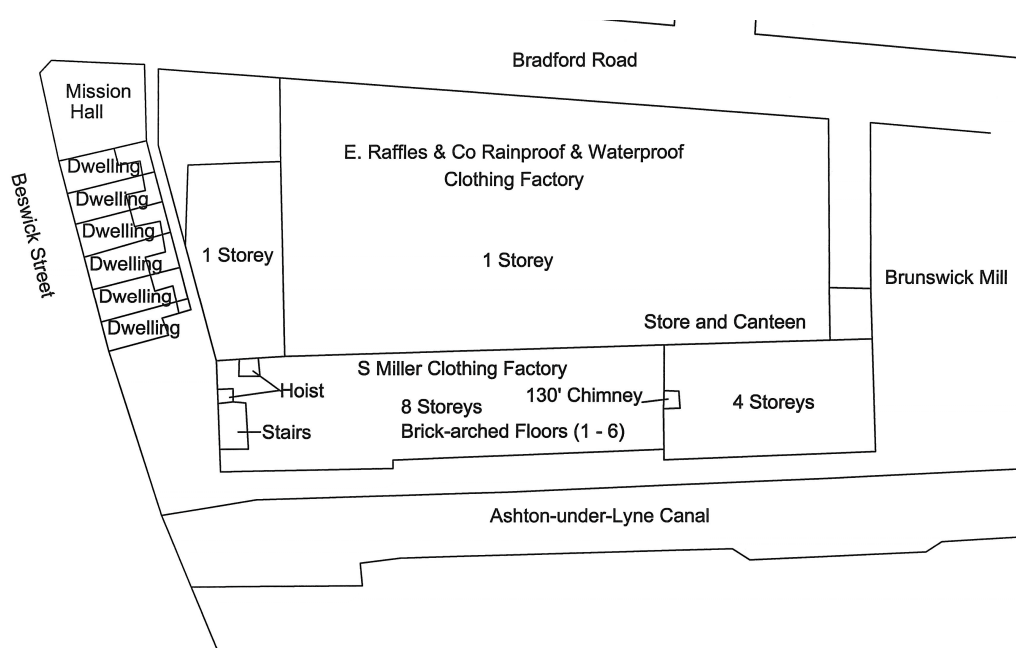


Plate 3: Plan of Pooley's Mill, based on Goad's insurance plan of 1943

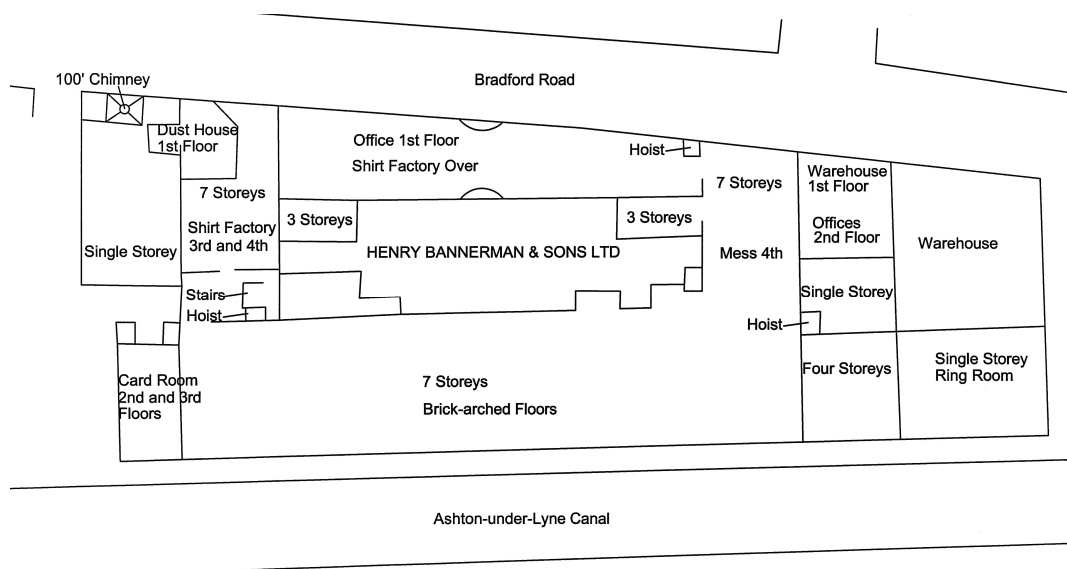


Plate 4: Plan of Brunswick Mill, based on Goad's insurance plan of 1943

3.4.16 Goad's insurance plan also provides a survey of Brunswick Mill (Plate 4). This shows the main block adjacent and parallel to the Ashton under Lyne Canal to have been of seven storeys, with brick-arched floors. The two wing blocks are similarly shown to have been seven-storeys high, with a 100ft high chimney situated on the Bradford Road frontage against the western wing. These features are visible in an aerial view of the mills taken in the 1980s (Plate 5). It is apparent, however, that the single-storey structure in the southern part of Pooley's Mill had been demolished by that date, together with the domestic properties fronting Beswick Street.



Plate 5: Aerial view of Brunswick Mill and Bradford Road Mill in the mid-1980s

- 3.4.17 Pooley's Mill is depicted on the Ordnance Survey map of 1999 (Fig 10), which marks the front portion of the site simply as 'works', and the rear part is identified as Brunswick House. Brunswick Mill is shown as largely unaltered relative to the Ordnance Survey map of 1948 (Fig 9), although the chimney is no longer shown.
- 3.4.18 Pooley's Mill has since been demolished, although the vestiges of the mill complex survive as a façade along the Bradford Road frontage (Plate 6). The area to the rear has been cleared of all buildings, and presently supports scrub vegetation.



Plate 6: The remnants of the facade fronting Bradford Road

- 3.4.19 The Methodist church at the corner of Bradford Road and Beswick Street is marked on the Ordnance Survey map of 1948, although it closed the following year when the branch moved to Withington Methodist Circuit. The building, however, survives extant (Plates 7 and 8).



Plate 7: North-west-facing elevation of the former Methodist mission, fronting Bradford Road



Plate 8: South-west-facing elevation of the former Methodist mission, fronting Beswick Street

4. DEVELOPMENT OF BRUNSWICK MILL

4.1 INTRODUCTION

- 4.1.1 Brunswick Mill was one of the largest textile mills to have been built in the country during the mid-nineteenth century, and represented a ‘state of the art’ factory when it was first put into production (Williams with Farnie 1992). The mill was built to a very high standard, using the best materials available, and incorporated some advanced design features that are unusual for mill of its date, although became characteristic of textile factories constructed during the late nineteenth century. The mill remained at the forefront of technological innovation in the early twentieth century, not least by becoming the first steam-powered mill in Manchester to be converted to electric drive (*Section 4.6.1 below*).
- 4.1.2 In recognition of its importance, Brunswick Mill was designated a Grade II Listed Building (no 387942) in 1994. The mill is entered on the Greater Manchester Sites and Monuments Record (SMR 2051.1.0 – MGM271), and the National Monuments Record (NBR 53304).

4.2 SPECIFICATION

- 4.2.1 A detailed specification for the erection of Brunswick Mill was devised in February 1839 by David Bellhouse Jnr, on behalf of Kelly and Gilmour. The firm of David Bellhouse had been responsible for constructing a number of early to mid-nineteenth century textile mills in Manchester, and became one of the earliest specialist textile mill building firms; most of their mills were of fireproof construction, and the firm appears to have combined the range of trades involved with fireproof mill construction, occupying a foundry and a timber yard, and being referred to as ‘architects’ from the early 1820s (Clark 1978, 213). However, examination of the deeds to Brunswick Mill has indicated that the eminent millwright and engineer William Fairbairn also had some input into the design of Brunswick Mill, as the design of the cast-iron beams and columns used in the mill was subject to his approval. Moreover, several notable features that were adopted in the design of Brunswick Mill mirrored those of mills built by Fairburn, particularly Orrell’s Mill in Stockport, which was erected in c 1834 (Williams with Farnie 1992, 75).
- 4.2.2 The specification provided for a mill complex comprising four main blocks, arranged in a quadrangle with an enclosed central courtyard. The main mill block, placed to the rear of the plot and adjacent to the Ashton under Lyne Canal, was an unprecedented 92m long and built to a height of seven stories. Forward-projecting wings, also of seven stories but of reduced widths, were attached to each end of the main block. The central courtyard was enclosed by a three-storey block fronting Bradford Road, which incorporated the arched main entrance to the complex. This layout was essentially preserved throughout the lifetime of the site as a cotton-spinning mill (Plate 9).

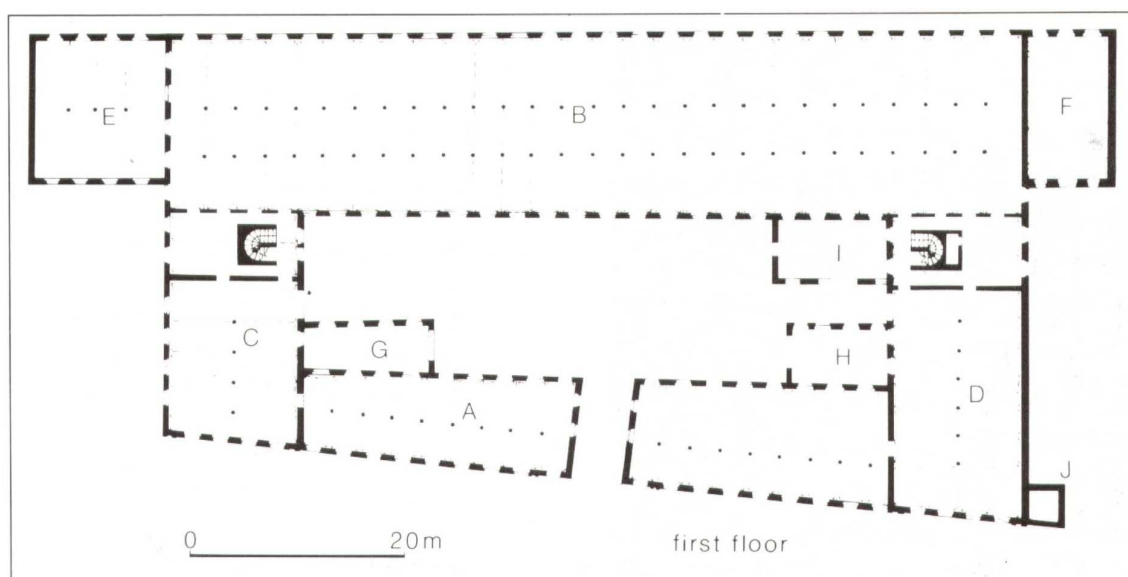


Plate 9: Composite Plan of Brunswick Mill

A Bradford Road Block	D West Wing	G, H loading Bays (added by 1888)
B Main Block	E Waste House (added 1844)	I Transformer House (added 1909)
C East Wing	F Engine House	J Dust Flue (added c1910)

4.2.3 All of the component buildings were to be of an advanced fireproof construction, comprising transverse ceiling vaults supported on Hodgkinson-type cast-iron beams and columns. The brick ceiling vaults were to be reinforced by cast-iron arch ribs, which were located at intervals along the length of the vaults. The floors of all the upper stories were to comprise square tiles, with stone flags providing the surfacing of the ground floors.

4.2.4 This type of construction was enabled largely by experiments undertaken by Eaton Hodgkinson during the 1820s. Hodgkinson had embarked upon a detailed investigation into the optimum design of cast-iron floor beams in response to a series of well-publicised collapses of fireproof mills caused by failures of cast-iron beams and columns. Hodgkinson's experiments were undertaken partly at William Fairbairn's foundry in Ancoats, who started to produce a greatly improved type of cast-iron beam during the early 1830s that was based on the results of Hodgkinson's work. These beams were of I-shaped cross-section with a wider bottom flange, and were reputed to be lighter and could safely be made longer than the earlier inverted T-section beams (Pole 1877). This allowed fireproof mills to be built to a greater width, with a corresponding increase in the size of machinery they could contain, and a resultant expansion of output. This technological advance represented a significant stage in the evolution of mill design, and the beams within Brunswick Mill have been described as amongst the most spectacular application of Hodgkinson-type beams that survive in the region (Williams and Farnie 1992, 80).

4.3 KELLY & GILMOUR'S BRUNSWICK MILL

- 4.3.1 A trade directory for 1841 contains an entry for the firm of Kelly & Gilmour, cotton-spinners at Brunswick Mill (Pigot 1841, 296). This is the earliest trade directory to list Brunswick Mill, suggesting that the mill had been put into production during 1840/41. However, given that the design specification is dated February 1839 (*Section 4.2.1 above*), it is debatable whether all four blocks had been completed when Pigot's directory was published. This is reinforced by the detail shown upon a small-scale map produced to accompany this directory, which does not depict Brunswick Mill.
- 4.3.2 In September 1844, Kelly & Gilmour obtained from Sir Oswald Mosley a further 148 square yards of land, adjoining the eastern extent of their existing plot of 5084 square yards, to allow for a three-storey extension to the mill. This structure may have been intended for storage, although in 1856 it was noted to contain machinery associated with the production of cotton yarn. During the same year, Kelly & Gilmour mortgaged the mill to Robert Barbour, presumably in order to raise additional capital to finance this extension.
- 4.3.3 In 1846, another plot of land at the eastern end of the mill was released to Kelly & Gilmour to allow further expansion of the complex. This plot was considerably larger than the plot obtained in 1844, extending up to what is now the Cambrian Street bridge over the Aston under Lyne Canal. However, this land was not developed immediately; the first detailed map of the mill is provided by the Ordnance Survey 60": 1 mile series, which was surveyed in 1848 and published in 1850, and this shows the newly-acquired plot as undeveloped (Fig 3). In order to raise an additional £2,500, the mill was mortgaged for a second time in April 1848. Again, Robert Barbour accepted the mortgage, although this time in conjunction with John Parlance. This appears to have been paid off in September 1856, when the mortgage was released.
- 4.3.4 Detailed plans of Brunswick Mill at this time are provided by the Ordnance Survey 60": 1 mile, and a comparable map of the site produced by Adshead, which was similarly published in 1850 (Fig 4). These maps show the mill complex laid out forming its distinctive quadrangle plan. The main block, overlooking the canal, has smaller buildings attached to each end. The building at the south-western end is marked as an engine house, whilst its large dimensions suggest that it contained a double-beam engine. Access to the engine house from the central courtyard appears to have been afforded via a wide passage through the West Wing block. This passage also provided direct access to the canal bank. Neither of the maps show the position of the boilers associated with the steam engine, although the chimney is marked adjacent to Bradford Road. It is therefore possible that the boilers were placed within one of the mill buildings, and probably the West Wing Mill. This suggestion is reinforced by the presence of a rectangular building immediately adjacent to the West Wing Mill, which is marked on the Ordnance Survey map as a 'coal shed and platform' (Fig 3).
- 4.3.5 The main entrance to the mill complex is shown on both maps to have been via a wide passage through the centre of the Bradford Road block. The 1850

Ordnance Survey map (Fig 3) shows this main gate to have been flanked on each side by narrower passageways, which may have been for the use of mill operatives; a similar layout existed at Murrays' Mills in Ancoats, which also had an enclosed courtyard plan (Miller and Wild 2007).

- 4.3.6 Alexander Kelly died on 26 November 1852 and, in 1856, a schedule was compiled as part of the process of conveying Kelly's real estate to James Gilmour. This schedule states that the mill complex had been valued at £29,779, and also provides considerable details of the mill's infrastructure at this time. This includes a summary of the cotton processing machinery within the mill complex, which comprised 276 carding engines, 81 roving frames, 20 drawing frames, 50 slubbing frames, 129 cop reels, and nearly 77,000 mule spindles (Parkinson-Bailey 2000, 27). It is interesting to note that the spinning mules were of the self-acting type, which had been developed by Richard Roberts by 1830. This machine was to have a significant impact on the cotton-spinning process, but its widespread adoption was slow to be implemented, and initially did not affect the spinning of fine yarns as it was confined largely to the production of coarser yarns (Catling 1986, 115-16). Indeed, it was noted as late as 1865 that 'self-acting mules are seldom found in use for finer numbers than 80. The finer yarns are spun on hand mules' (Neste 1865), highlighting the fact that Brunswick Mill incorporated the most up-to-date machinery.
- 4.3.7 **The Main Block:** appropriately referred to on the 1856 schedule as 'Large Mill', the seven-storey main block was used predominantly for spinning. The advanced type of fireproof construction provided the mill with an internal width of 16m (Plate 10), forming five bays and allowing self-acting mules of 400 to 500 spindles each to be accommodated transversely across the upper stories of the building, maximising efficient use of the available space.



Plate 10: The top floor of the main spinning block, showing the fireproof construction

- 4.3.8 The internal organisation of a large early to mid-nineteenth century mill normally allowed for spinning mules within the upper stories and preparation machinery to be installed on the lower floors, a format that was largely adhered to within Brunswick Mill. Carding engines were situated on the second storey of the main block (Plate 11), and roving, slubbing and drawing frames were installed throughout the third storey. The upper stories were dominated by spinning mules arranged transversely across the building. In addition, and unusually, the ground floor of this block also contained 28 spinning mules, one per bay.

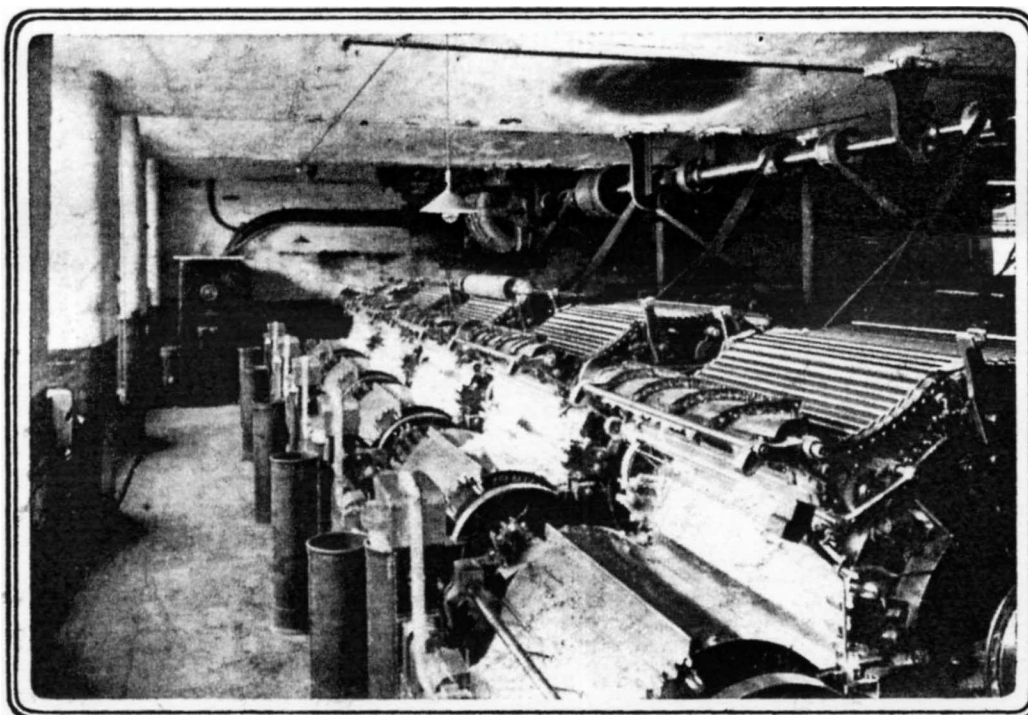


Plate 11: Carding engines within the main block of Brunswick Mill in 1909 (reproduced from the Illustrated London News July 1909)

- 4.3.9 **The Wing Mills:** two forward-projecting wings, also of seven stories, were attached to each end of the main block. These were used for a combination of spinning, preparatory and ancillary processes, including yarn winding. Both mills were four bays wide, although they differed in length, reflecting the trapezoidal shape of the site; the West Wing was nine bays long, whilst the East Wing was seven bays long. Both were of fireproof construction, although only contained a single row of cast-iron columns. Each wing incorporated a stone stair tower, which provided the access to each floor within the wing mills and the main block. Cross walls placed within the south end of each wing isolated the stair towers, and separated the wings from the main block. Most mills of this period had stone stair towers, normally square or circular in plan, attached to their external elevations. Both of the Brunswick Wing Mills, however, incorporate unusual internal semi-circular towers, each having a half-domed ceiling in the top storey.
- 4.3.10 The West Wing Mill housed the initial preparation machinery, including bale-breakers and scutchers on the second floor. It is likely that the system of internal ducting specified in the 1856 schedule connected with this floor and

led to a dust house on the roof of the mill. Roving frames were housed on the third floor, with the upper stories being dominated by spinning mules. It seems that the spinning mules in this mill were arranged longitudinally, probably with two mules on each side of the central row of cast-iron columns (Plate 12).



Plate 12: View across the top floor of the West Wing Mill, showing brick-vaulted ceiling and single row of cast-iron columns

- 4.3.11 There is also some evidence for the West Wing Mill having contained the original boiler. Evidence for this is derived from wide arched openings in the five north end bays of the west wall of the ground floor. These are of similar dimensions to those in boiler houses of Sedgewick Mill and Chorlton New Mill, and suggests that the original boiler house was internal, situated on the ground floor of the West Wing.
- 4.3.12 The East Wing similarly housed preparatory machinery on the lower floors and spinning mules arranged longitudinally on the upper stories. The detail of the schedule with the conveyance indicates the ground floors of these wings to have been used originally for storage, a feature that was to become common during the late nineteenth century but was unusual for a mill of this date.
- 4.3.13 **The Bradford Road Block:** the range along the Bradford Road frontage was originally three stories high and 20 bays long, and of a trapezoidal plan. The main point of access to the mill complex was via a large gate through the two central bays (Plate 13), and comprised a two-storey high through-passage with a brick-vaulted ceiling (Plate 14). This entrance was highlighted with rusticated voussoirs and flanking doorways, similar to the entrances of some earlier mills in the area, but also incorporated double pilasters that are more characteristic of the second half of the nineteenth century (Williams and Farnie 1992, 78). These features represent the move to architectural adornment

of spinning mills, which stemmed from the 1830s. Internally, the transverse cast-iron beams are in two pieces of unequal length, supported by a single row of columns running parallel to the north side wall.



Plate 13: The main entrance to the mill complex in 2009, showing blocked side passageways



Plate 14: Interior of the main entrance through the Bradford Road Block

- 4.3.14 The ground floor of this wing unsurprisingly contained the company offices and counting houses. The second floor appears to have contained more processing machinery, whilst spinning mules occupied the top floor. Again, these are likely to have been arranged longitudinally either side of the central row of columns.
- 4.3.15 **Steam Power Plant:** power for the mill was provided by a large double-beam engine, fitted with two side-by-side cylinders working a single flywheel. This type of engine was used increasingly in textile mills from the mid-1830s, such as that known to have powered Orrell's Mill in Stockport. The original engine at Brunswick Mill was installed in an external engine house, attached to the western end of the main block (Plate 15). This three-storey high structure incorporated three tall arched windows, and an unusual flat roof. Access to the engine house from the central courtyard appears to have been afforded via a wide passage through the West Wing block. This arrangement was typical of large mills that were being built by the 1850s, whilst those of an earlier date tended to house the engines internally.

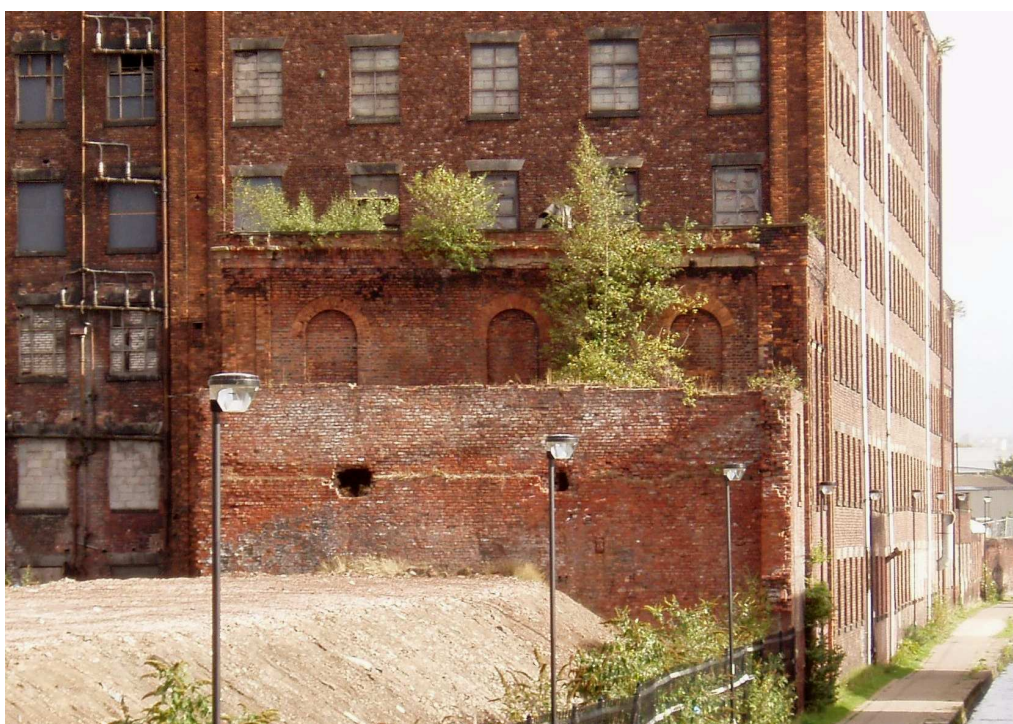


Plate 15: South-west-facing elevation of the engine house in 2005

- 4.3.16 Details of the engine within the 1856 schedule are vague, although it appears to have been a 'pusher-type' beam engine. This engine was probably compounded, with 47" low pressure cylinders and 26" high pressure cylinders placed in the northern part of the engine house. It was probably not of the McNaught type as the high pressure cylinders connected to it by spur wheels, suggesting that they were situated close to the flywheel in the southern end of the engine house. Power transmission from this engine was via spur-gears, upright shafts and bevelled gears to line shafting on each floor. The mules were probably powered directly from belt drums on the line shafts, which was to become common practice during the late nineteenth century (Williams and Farnie 1992, 89).

- 4.3.17 The steam for this engine is likely to have been provided originally by wagon-type boilers. Surviving physical evidence indicates that these had been located internally to the West Wing Mill (*Section 4.3.12 above*), with an attached coal shed and platform, as marked on the 1848 Ordnance Survey map. However, the details of the 1856 schedule indicate that the putative wagon boiler was replaced by a bank of four double-flue boilers, presumably of the Lancashire-type, that was situated to the north of the engine house, subsuming the 'coal shed' and 'platform' marked on the Ordnance Survey map of 1848. This revolutionary boiler design, patented by Fairbairn and Hetherington in 1844, was a variation on the Cornish design and became widely adopted during the second half of the nineteenth century (Watkins 1999, 218). It seems probable that the boiler installation was fitted with a fuel economiser, although such a device is not alluded to in any of the available documentation.
- 4.3.18 The form of the chimney is not described in any of the available primary documentation, although it is depicted upon two engravings of the mill complex, dating from 1893 (Plate 16) and 1926. These show a detached, multi-faceted stack, tapering to its crown that incorporated some form of embellishment, probably acting as an over-sailor. Whilst the detail is unclear, the stack appears to have been mounted on a tall plinth that seems to have incorporated recessed panels, mirroring the chimney of Orrell's Mill in Stockport. This type of chimney represents a stage in the evolution of chimney design, and a departure from the attached or internal types characteristic of early nineteenth century mills.

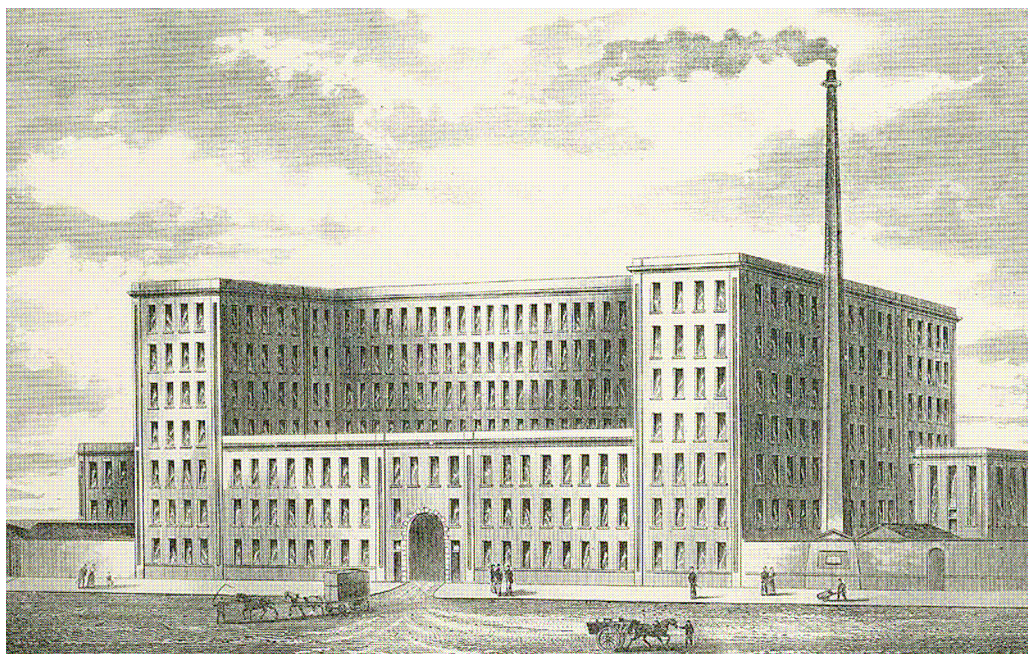


Plate 16: An engraving of Brunswick Mill from 1893

- 4.3.19 The 1856 schedule also lists five gas meters together with fixtures and fittings required for 994 gas lights. There is no mention of any gas retorts or holders within the mill complex, implying that gas was derived from the Manchester Corporation.

4.4 THE EMPIRE OF HENRY BANNERMAN & SONS

- 4.4.1 On 24 December 1856, James Gilmour mortgaged the mill again, this time to Messrs William Young and James Alexander Bannerman. This represented the first stage in a process of conveying Brunswick Mill to the Bannerman Mills Company. By 1861, Brunswick Mill was occupied by the firm of James Gilmour & Co (Slater 1861), although this firm was to be short-lived as, in March 1865, Gilmour's mortgage of the site had not been repaid and the entire site was conveyed to Young and Bannerman, partners in the firm of Henry Bannerman & Sons. From this date, Brunswick Mill was owned and occupied by the Bannerman Mills Company, the manufacturing subsidiary of Henry Bannerman & Sons.
- 4.4.2 Henry Bannerman was a prosperous Scottish farmer who sent his son David to Manchester during the early nineteenth century, seemingly with the intention of investigating opportunities in the region's textile industry (Mortimer 1891). David evidently met with considerable success, as his father and three brothers with their families were induced to relocate to Manchester to establish the firm of Henry Bannerman & Sons. Initially, the firm was engaged as textile merchants, with a warehouse and offices in Market Street Lane. The success of the firm by the 1840s is reflected by their commissioning the erection of an immense block of warehouses on York Street, Manchester, which acted as their head office and main warehouse facility.
- 4.4.3 During 1864, the firm diversified into cotton-spinning and manufacturing in addition to continuing their role as textile merchants. They took over four large textile factories, including Brunswick Mill, leading to the formation of the Bannerman Mills Company, which had come into existence to facilitate the management of the industrial departments (Men of the Period 1895, 41). These mills appear to have each concentrated on complimentary processes, either spinning different counts of yarn or weaving, and it seems likely that all of these factories were managed as a single concern by the 1880s.
- 4.4.4 In 1889, the Bannerman Mills Company was registered as a limited liability company. This was followed in 1890 by the registration of the parent company, which became known as Henry Bannerman & Sons Ltd. A few years later, the firm was described as 'one of the giants of Manchester commerce and industry', and that no other business could 'claim a more eminent or a more honourable position in the city's trade' (The Century's Progress 1892, 102). This accolade was reinforced three years later, when Henry Bannerman & Sons Ltd was reported to have 'attained colossal dimensions, and is a monument to the splendid energies and administrative powers that have been brought to bear upon it' (Men of the Period 1895, 42). The same report alludes briefly to Bannerman & Sons mills, which are described as ranking amongst the largest and finest in Lancashire and being 'elaborately equipped with the best modern machinery' (*ibid*).
- 4.4.5 By 1910, Brunswick Mill served as the head office of the Bannerman Mills Company Ltd, the Bradford Road block being referred to as the 'administration block' in that year.

4.5 LATE NINETEENTH-CENTURY DEVELOPMENT OF BRUNSWICK MILL

- 4.5.1 An indication of the changes wrought to the mill complex during the second half of the nineteenth century may be obtained by comparing the detail of the site as depicted on Ordnance Survey mapping of 1850 and 1893. The latter map, published at a scale of 25": 1 mile (Fig 5), shows the layout of the mill complex as essentially unchanged, although some additions may be noted. Two loading bays were placed in the central courtyard, in the angle between the Bradford Road block and each wing mill. The western loading bay, attached to the West Wing Mill, was two stories high and four bays long, with a full-height double doorway in the east end. The doorway was served by a single hoist, although this was not an original feature. It seems likely that this loading bay may have been used primarily for taking in raw cotton, as the adjoining West Wing Mill contained the initial preparation machinery. Conversely, the East Wing Mill contained yarn reeling machinery, suggesting that the eastern loading bay may have been used for the dispatching of spun yarn to its market. A weighing machine, probably associated with these operations, had also been installed in the mill yard by this date.
- 4.5.2 The 1893 Ordnance Survey map also depicts the plot immediately to the east of the mill to have been developed, seemingly comprising a structure contiguous to the West Wing block and the Waste House. However, subsequent mapping of the site indicates this addition to have been divided into four rooms, all except one of which were of a single storey. These were used predominantly for warehousing purposes, although it seems that one room was used to house ring spinning frames, and the two-storey room incorporated an office on its upper floor.
- 4.5.3 A minor but nevertheless interesting addition to the complex shown on the 1893 map is a short plateway running between the canal and the mill's steam-power plant. This was doubtless intended to facilitate the delivery of coal from canal boats to the boiler house, and reinforces the continued crucial role of the canal in the operation of the mill during the late nineteenth century. During this period, a single cylinder horizontal steam engine had been installed to supplement the power provided by the original twin cylinder beam engine, providing a combined power of 1600 ihp (*The Times*, 21 March 1911). This new engine was located in the south-western corner of the mill yard, on the site that was to be occupied subsequently by the transformer house. Power transmission from this engine to the machinery utilised a rope drive system, whereby the main line shafts on each floor were driven from the engine flywheel by a number of cotton ropes, providing a more efficient, reliable and quieter drive than the traditional geared system. Developed in America, the installation of rope drive systems became widespread in England during the 1880s.
- 4.5.4 During this period, and possibly associated with the installation of the new engine, the original spinning mules were replaced by larger mules that were orientated longitudinally along the main block (Plate 17). The precise date at which this occurred is uncertain, although a renewal of machinery in 1884 is documented (Mills 1917, 68). The mill was accredited with operating 80,000 mule spindles at this time (Worrall 1884), although it is unknown whether this

total accounted for the new machinery. Similarly, orders for new scutchers, carding engines and ten mules of up to 1308 spindles were placed with Platts of Oldham between 1889 and 1893. This programme of renewal led to a strike by the minders and piecers in the mule-spinning department, the eleventh strike at the mill since 1876 (*ibid*).

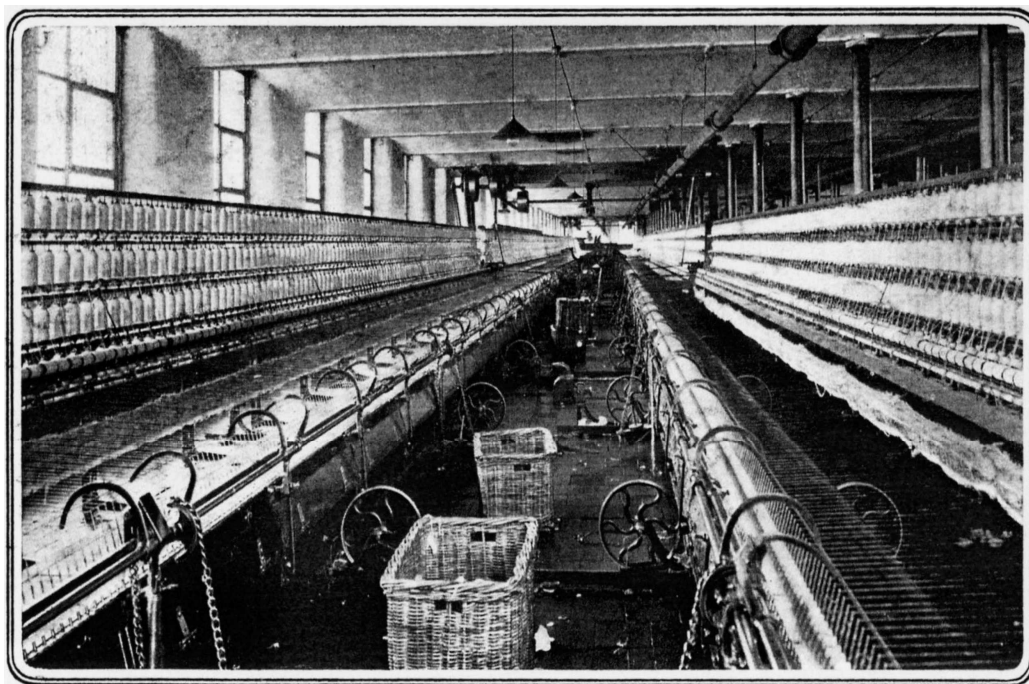


Plate 17: A view along one of the spinning rooms at Brunswick Mill, showing the remodelled mules arranged longitudinally (reproduced from the *Illustrated London News*, July 1909)

4.6 EARLY TWENTIETH-CENTURY DEVELOPMENT OF BRUNSWICK MILL

- 4.6.1 In 1908/09, Brunswick Mill was reputedly the first mill in Manchester to adopt electricity as a source of power, which was applied to every part of the mill (Williams and Farnie 1992). Electricity was supplied from the Manchester Corporation main at 6,500 volts, and was transformed down to 400-440 volts for machinery and 220 volts for lighting purposes in a newly-built transformer house, located in the south-western corner of the courtyard (Plate 18). The installation of electric drive motors necessitated the entire system of gearing within the mill to be replaced, except for one pair of bevelled gears that continued to drive a small amount of machinery in one of the wing blocks (*Illustrated London News* 1909). This remodelling appears to have included the removal of the two steam engines. The electric motors installed in Brunswick Mill replaced the power supplied by two steam engines: a two-crank beam engine; and a single-crank horizontal engine, together producing 1,600 ihp. The power from these engines was transmitted in the various sections of the mill by spur gears, upright shafts, bevelled gears and rope drives (*The Times*, 21 March 1911).
- 4.6.2 The new system comprised 37 electric motors, which were supplied by the British Thompson-Houston Company of Rugby. Most of these motors were installed within two external towers that were erected against the courtyard

elevation of the main block (Plate 19). These towers were constructed of steel framing with glazed casings, purportedly to protect the electric motors from dust (*Textile Mercury* 1910), although concerns of fire associated with what was essentially untried technology is likely to have been a factor.

- 4.6.3 Each spinning floor was served by two electric motors, which were fixed directly to the spinning mules' line shafts by means of a flexible coupling. Each of the motors for the spinning mules was rated at 75hp, and ran at 485 revolutions per minute. The motors used to power the ring spinning frames were rated at 30hp, running at 725 revolutions per minute, and were similarly coupled to existing line shafts by flexible couplings (*Illustrated London News* 1909). These motors were all installed in the eastern tower, and one motor was required to drive four ring spinning frames per floor. A more powerful motor, rated at 45hp, was installed in the western tower to drive six frames. For driving the preparation machinery, electric motors were directly coupled to the original line shafts (*ibid*).



Plate 18: Transformer house in south-west corner of the central enclosed courtyard

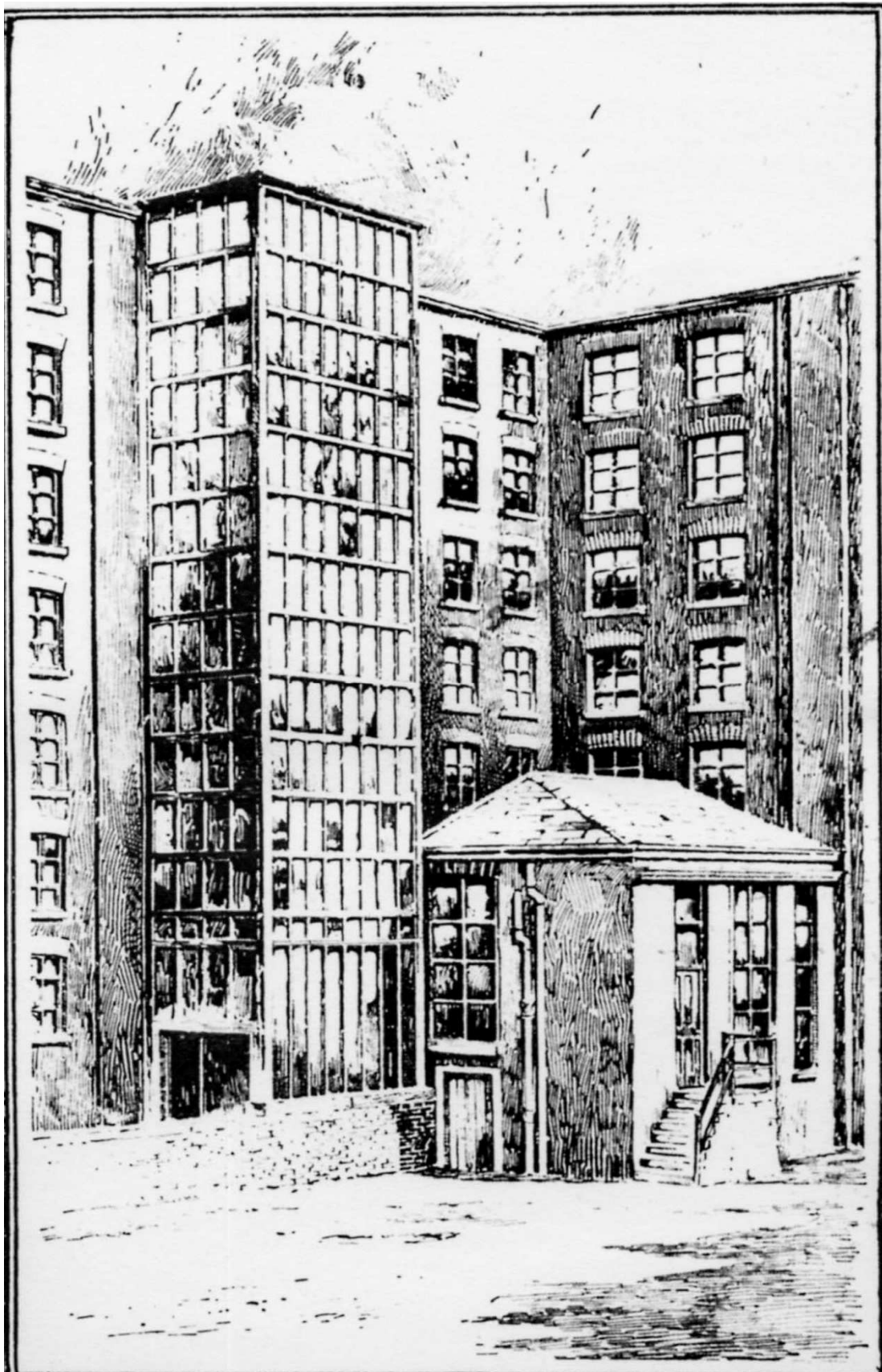


Plate 19: One of the towers erected to house the electric motors, and the transformer house
(reproduced from the Illustrated London News, 1909)

- 4.6.4 The firm took advantage of the remodelling necessitated by the installation of electric motors to install a new sprinkler system. This included the erection of a water tank on top of the eastern motor tower. The supply of water to this tank was provided by an electrically-driven pump (Plate 20), which had a capacity to raise 650 gallons of water a minute to the reservoir tank. Whilst this may have been the first automatic sprinkler system to have been fitted to the mill, it would seem unlikely that there had previously been no provision for fire-fighting equipment.

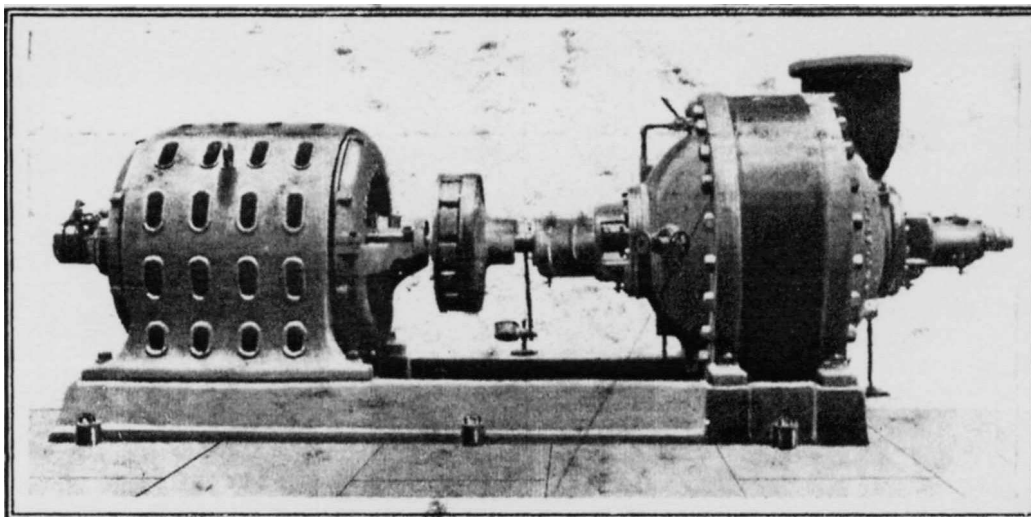


Plate 20: The electrically-driven, high-lift turbine pump that supplied water to the sprinkler system (reproduced from the Illustrated London News, July 1909)

- 4.6.5 At some point during this period, and possibly after the conversion to electric power, a large rectangular external dust flue was added to the western end of the Bradford Road block (Plate 21). This had a decorative and distinctive castellated top, with the dust chamber at its base inserted into the former boiler house. Also at this time, an additional storey with a flat concrete roof was added to the Waste House (Plate 22). The east end wall of this storey contained six windows, in contrast to the lower stories that had none.
- 4.6.6 Other modifications to the mill complex at this time included the replacement of all the original roofs. Also, the original cornice around most of the main walls was replaced with terracotta embellishment. Single-storey sheds with multi-aisle roofs were added to the eastern end of the site during the late nineteenth century. These were attached to the East Wing Mill, and enclosed the ground floor of the Waste House. The precise function of these structures is uncertain, although they are likely to have been intended for storage and warehousing purposes. The following year, a trade directory accredited Brunswick Mill with 23,000 ring spindles, together with 46,500 mule spindles (Worrall 1910). This demonstrates that the process of replacing the tradition mule with the ring frame which was to dominate the final years of cotton spinning in Lancashire had begun at Brunswick Mill by the first decade of the twentieth century.



Plate 21: The west-facing elevation of the mill in 2005, showing the late nineteenth-century dust flue



Plate 22: The upper three stories of the Waste House in 2005

- 4.6.7 A visit to the mill by a representative of the *Empire Mail* in 1925 resulted in the publication of a useful article that described the mill at this time. The newspaper correspondent was clearly impressed with the scale and magnitude of the factory, commenting that ‘it is one of the most interesting cotton mills in the country, one of the oldest and largest and best equipped’ (*Empire Mail* 1925). It is clear within the published article that the Bradford Road block had been raised to four stories by 1825, and this incorporated a flat concrete roof with a row of inclined sky-lights (Plate 23). Whilst the additional floor is not shown on an engraving published in 1926 (Plate 24), it is probable that this had actually been produced several years previously.



Plate 23: View along the roof of the Bradford Road block in 2005, showing inclined sky-lights



Plate 24: An engraving of Brunswick Mill from 1926

- 4.6.8 By 1923, the Bannerman Mills Company Limited was in liquidation, and the business was merged with the parent company. Hence, Brunswick Mill continued to be operated by Henry Bannerman & Sons Ltd, as listed in trade directories subsequently. The final entry for the firm in association with the entire mill complex, however, occurs in a directory for 1928, as the following year Henry Bannerman & Sons Ltd was amalgamated with the Lancashire Cotton Corporation Ltd, and Brunswick Mill was conveyed to this new combine. Within 12 months, the Bradford Road block had been leased back to Henry Bannerman & Sons Ltd, initially for a period of ten years.
- 4.6.9 The Lancashire Cotton Corporation Ltd replaced the spinning mules with ring-spinning frames, presumably as part of a programme of modernisation in the face of increasing foreign competition. Ring-spinning frames were somewhat heavier than spinning mules, necessitating the strengthening of the original cast-iron floor structure (Jones 1985, 183). This was achieved by installing a system of trussed tie-rods mounted beneath the beams on short vertical brackets.

4.7 POST-COTTON SPINNING

- 4.7.1 Brunswick Mill ceased to be used for cotton production during the mid-1960s, and in January 1968 the mill was sold by the Lancashire Cotton Corporation Ltd to the Trownbay Property Company Ltd. Since that date, the mill complex has been used by a variety of small firms. At least one of these was associated with ancillary textile processes and, until recently, represented a very rare survival of textile-related industries still operating in Ancoats during the twenty-first century. Presently, however, all firms occupying the mill have left, and the buildings are now empty.

Telephones:
Private Branch Exchange
City 8274
(6 lines)



WAREHOUSE, 33, YORK STREET, MANCHESTER.

Telegraphic Address:
"BANNERMAN,
MANCHESTER."

ESTABLISHED 1805.

Henry Bannerman & Sons Ltd.

Cotton Spinners, Manufacturers and Merchants.

33, YORK STREET ————— MANCHESTER

*Chairman and Joint Managing Director: Sir CHARLES W. MACARA, Bt.
 Joint Managing Director: Mr. WILLIAM C. MACARA.
 Director and Secretary: Mr. R. H. W. BANNERMAN.*



BRUNSWICK MILL, ANCOATS.
(T.N. CENTRAL 5527/8.)

BRANCHES:

LONDON: 13, Bread Street, E.C. 4 (T.N. Central 3501.)
 BIRMINGHAM: 67, Carlton House, High Street.
 NOTTINGHAM: Swan Court, Long Row.
 LIVERPOOL: 21, Leigh Street.
 GLASGOW: 20, Springfield Court, Buchanan Street.
 (T.N. Central 5703.)



OLD HALL MILL, DUKINFIELD.
(T.N. ASHTON 6.)

MILLS:

BRUNSWICK MILL, ANCOATS, MANCHESTER.
 OLD HALL MILL, DUKINFIELD.
 BANNER TEXTILE FACTORY, ALTRINCHAM.



BANNER TEXTILE FACTORY, ALTRINCHAM.
(T.N. ALTRINCHAM 1992)

Plate 25: An advertisement for Henry Bannerman & Sons Ltd taken from Skinner's Directory for 1928

5. ARCHAEOLOGICAL SIGNIFICANCE OF THE SITE

5.1 INTRODUCTION

- 5.1.1 The significance of the application area is represented both in the built heritage, and the sub-surface archaeological resource. The archaeological, architectural and historical significance of Brunswick Mill is reflected in its designation as a Grade II Listed Building. As such, all of the buildings in the mill complex are subject to special planning controls, whereby listed building consent is required for works that affect their special interest. These works may be either internal or external works, and consent has to be obtained for any alterations and demolitions. This does not apply to the former Methodist church on the corner of Bradford Road and Beswick Street, which is, at best, of local importance.
- 5.1.2 Bridge No 5 over the Ashton under Lyne Canal, situated on Beswick Street immediately beyond the southern boundary of the application area, is also designated a Grade II Listed Building. Whilst it will not be affected directly by development in the application area, consideration should be afforded to any significant alteration to the setting of the monument.

5.2 CRITERIA

- 5.2.1 There are several different methodologies used to assess the archaeological significance of sites; that to be used here is the 'Secretary of State's criteria for scheduling ancient monuments', which is included as Annex 4 of PPG 16 (DoE 1990). In the following section, the known or possible remains within the proposed development area are considered using these criteria.
- 5.2.2 **Period:** the archaeological interest within the application area dates firmly to the Industrial and Modern periods. In particular, the archaeological interest spans the years 1829-1910, and incorporates all the major innovations adopted in the construction of textile mills. The site of Pooley's Mill has some potential to contain the buried remains of an early textile mill steam engine, whilst the surviving fabric of Brunswick Mill, for instance, is likely to retain physical evidence for the pioneering adoption of electric drive in a textile mill. The domestic properties along the south-western boundary of the site are similarly associated with the growth of the area as an industrial townscape.
- 5.2.3 **Rarity:** the remains of early nineteenth-century industrial buildings, and especially their power systems, can be considered to be of regional rarity. This is particularly the case in Ancoats, which is acknowledged as the pioneering centre of the factory-based textile industry, based on steam-powered. Physical evidence for all of the major advances in structural engineering applied to a textile mill may survive in the fabric of Brunswick Mill, which can be considered to be of national rarity. Conversely, the remains of the domestic properties are not considered to have a rarity value.

- 5.2.4 **Documentation:** the historical development of the application area from the 1830s can be traced reasonably well from cartographic sources, and additional information can be obtained from the available trade directories and other primary sources. Further documentary research may furnish additional evidence, although this is unlikely to alter the outline presented in this assessment.
- 5.2.5 **Group value:** the sites within the study area all fall into the Industrial Period, and form part of an important group of steam-powered textile mills that were erected along the Ashton under Lyne canal corridor. In addition, the domestic properties, and public building in the form of the Methodist church, add to the group value of the nineteenth-century industrial townscape.
- 5.2.6 **Survival/Condition:** the extent to which any buried archaeological remains survive beneath the modern ground surface is unknown. The intensive development of the study area during the nineteenth century is likely to have obliterated any surviving remains from earlier periods. Conversely, the site of Pooley's Mill has remained undeveloped since the mill was demolished, and offers considerable potential for buried remains to survive *in-situ*.
- 5.2.7 **Fragility:** any surviving buried remains may be adversely affected by development.
- 5.2.8 **Diversity:** the remains relate mainly to the Industrial Period. They include industrial buildings, public buildings and housing. These sites are not diverse in themselves, and are not significantly diverse as a group.
- 5.2.9 **Potential:** there are no prehistoric sites within the application area, and the potential for prehistoric remains is considered to be low. Similarly, there are no known Romano-British or early medieval sites within the application area, and the potential for remains from these periods is considered to be low, although the possibility that the line of a Roman road crosses the western boundary of the site cannot be discounted entirely.
- 5.2.10 The application area was probably used for agricultural purposes during the post-medieval period. However, it is likely that the intensive development of the site between the late eighteenth and twentieth centuries resulted in the disturbance or loss of these soils, and their potential to survive seems low.
- 5.2.11 The greatest potential for buried archaeological remains of significance lies in the Industrial Period. In particular, the buried remains of the steam-power plant associated with Pooley's Mill would be of interest.

5.3 SIGNIFICANCE

5.3.1 Table 3 shows the sensitivity of the site scaled in accordance with its relative importance using the following terms for the cultural heritage and archaeology issues, with guideline recommendations for a mitigation strategy.

Importance	Examples of Site Type	Negative Impact
National	Scheduled Monuments (SMs), Grade I, II* and II Listed Buildings	To be avoided
Regional/County	Conservation Areas, Registered Parks and Gardens (Statutory Designated Sites) Sites and Monuments Record/Historic Environment Record	Avoidance recommended
Local/Borough	Sites with a local or borough value or interest for cultural appreciation Sites that are so badly damaged that too little remains to justify inclusion into a higher grade	Avoidance not envisaged
Low Local	Sites with a low local value or interest for cultural appreciation Sites that are so badly damaged that too little remains to justify inclusion into a higher grade	Avoidance not envisaged
Negligible	Sites or features with no significant value or interest	Avoidance unnecessary

Table 3: Criteria used to determine Importance of Sites

5.3.2 Brunswick Mill is considered to be of National Importance, not least on account of its designation as a Grade II Listed Building. Any surviving buried remains of the early nineteenth-century steam-power plant associated with Pooley's Mill would be considered to be of Regional/County Importance. The former domestic properties and Methodist church are considered to be of Local/Borough Importance.

6. ASSESSMENT OF IMPACT ON BURIED REMAINS

6.1 INTRODUCTION

6.1.1 In its Planning Policy Guidance *Note 16*, the Department of the Environment (DoE 1990) advises that archaeological remains are a continually diminishing resource and ‘should be seen as finite, and non-renewable resource, in many cases, highly fragile and vulnerable to destruction. Appropriate management is therefore essential to ensure that they survive in good condition. In particular, care must be taken to ensure that archaeological remains are not needlessly or thoughtlessly destroyed’. It has been the intention of this study to identify the archaeological potential of the study area, and assess the impact of redevelopment, thus allowing the advice of the DoE to be enacted upon. Assessment of impact has been achieved by the following method:

- assessing any potential impact and the significance of the effects arising from redevelopment;
- reviewing the evidence for past impacts that may have affected the archaeological sites; and
- outlining suitable mitigation measures, where possible at this stage, to avoid, reduce or remedy adverse archaeological impacts.

6.1.2 The impact is assessed in terms of the sensitivity or importance of the site to the magnitude of change or potential scale of impact during the future redevelopment scheme. The magnitude, or scale, of an impact is often difficult to define, but will be termed as substantial, moderate slight, or negligible, as shown in Table 4, below.

Scale of Impact	Description
Substantial	Significant change in environmental factors; Complete destruction of the site or feature; Change to the site or feature resulting in a fundamental change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Moderate	Significant change in environmental factors; Change to the site or feature resulting in an appreciable change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Slight	Change to the site or feature resulting in a small change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Negligible	Negligible change or no material changes to the site or feature. No real change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.

Table 4: Criteria used to determine Scale of Impact

- 6.1.3 The interaction of the scale of impact (Table 4) and the importance of the archaeological site (Table 3) produce the impact significance. This may be calculated by using the matrix shown in Table 5, below.

Resource Value (Importance)	Scale of Impact Upon Archaeological Site			
	Substantial	Moderate	Slight	Negligible
National	Major	Major	Intermediate/ Minor	Neutral
Regional/County	Major	Major/ Intermediate	Minor	Neutral
Local/Borough	Intermediate	Intermediate	Minor	Neutral
Local (low)	Intermediate / Minor	Minor	Minor/ Neutral	Neutral
Negligible	Neutral	Neutral	Neutral	Neutral

Table 5: Impact Significance Matrix

- 6.1.4 The extent of any previous disturbance to buried archaeological levels is an important factor in assessing the potential impact of redevelopment. This is largely unattested, although it seems probable that the intensive nineteenth-century development will have had a substantial impact on any buried archaeological remains of earlier periods, and their potential is therefore considered to be low. Conversely, it is considered likely that the buried remains of Pooley's Mill and the domestic properties fronting onto Beswick Street will survive *in-situ*.

6.2 IMPACT ASSESSMENT

- 6.2.1 Following on from the above considerations, the significance of effects on buried remains has been determined based on an assumption that they will be substantially impacted by groundworks. The results are summarised in Table 6, although will require review once detailed design proposals are known.

Site	Nature of Impact	Importance	Impact	Significance of Impact
Pooley's Mill Steam Plant	Disturbance of buried remains	Regional/County	Substantial	Major
Other Parts of Pooley's Mill	Disturbance of buried remains	Local/Borough	Substantial	Intermediate
Domestic Properties	Disturbance of buried remains	Local/Borough	Substantial	Intermediate
Former Methodist Church	Demolition of extant building	Local/Borough	Substantial	Intermediate

Table 6: Assessment of the impact significance on each site during development

7. RECOMMENDATIONS

7.1 INTRODUCTION

- 7.1.1 Current legislation draws a distinction between archaeological remains of national importance, and other remains considered to be of lesser significance. Those perceived to be of national importance may require preservation *in-situ*, whilst those of lesser significance may undergo preservation by record. Brunswick Mill, through its designation as a Grade II Listed Building, is of national importance and merits preservation. This does not mean that the building cannot be subject to any alteration, but that all design proposals need to take full account of the surviving historic fabric.
- 7.1.2 There is also potential for buried remains of archaeological significance from the Industrial Period to survive *in-situ* within the application site. These remains, however, are not considered to be of national importance and could, if necessary, be preserved by record. As such, in accordance with current planning policy guidance, the archaeological remains would require preservation by record should they be directly affected by future development proposals.

7.2 ARCHAEOLOGICAL BUILDING SURVEY

- 7.2.1 A study of Brunswick Mill was carried out as an initial element of the current proposed development, culminating in the production of a Conservation Plan for the former mill complex (Jenner 2006). Further archaeological work may, however, be required to properly inform the development proposals for Brunswick Mill, as the impact of the proposed works on the character and fabric of the buildings will require detailed assessment. Similarly, Listed Building Consent will require the conversion of the mill to be carried out sympathetically, and based on sound information.
- 7.2.2 In order to satisfy these requirements, an archaeological building survey, commensurate with an English Heritage Level 3-type survey, may be necessary to enhance and support the conclusions drawn in the Conservation Plan that has been produced as part of the present scheme (Jenner 2006). Any such survey would be intended to provide a comprehensive understanding of the relative significance of the historic fabric, buildings and features throughout the Brunswick Mill complex. The results obtained from the survey would allow informed decisions to be made on sympathetic treatment of the historic fabric, and removal of any structures or buildings within the mill complex.

7.3 ARCHAEOLOGICAL EVALUATION

- 7.3.1 It is envisaged that a programme of archaeological evaluation will be required in advance of any ground-reduction works within the study area. This would be targeted specifically on the steam-power plant for Pooley's Mill. The primary objectives of any such evaluation would be to establish the presence, character, date and extent of any buried remains.
- 7.3.2 Depending on the findings of the archaeological evaluation, further archaeological work may be required should the design proposals for development necessitate the destruction of significant archaeological remains. This may constitute an open-area excavation, or a watching brief during ground-breaking works. The need for any further work would be discussed with the County Archaeologist following the evaluation.

BIBLIOGRAPHY

PRIMARY AND CARTOGRAPHIC SOURCES

Primary Sources

PP (HC) 1834 [167] XX D1, 1834 *Queries Addressed by the Central Board of Commissioners to Manufacturers*

Daily News, 5 July 1853

Empire Mail, June 1925

Examiner, 5 November 1842

Hull Packet, 11 November 1842

Illustrated London News, July 1909

Manchester Times, 26 June 1880

Men of the Period, 1895

Textile Mercury, 1910, **42**, 142-7

Times, 21 March 1911

The Century's Progress, 1892

Cartographic Sources

Map of Manchester and Salford, Pigot, 1819

A Map of Manchester and Salford, Bancks and Co, 1831

Ordnance Survey 60": 1 Mile, Manchester Sheet 25, published in 1850

Ordnance Survey 10': 1 Mile, Manchester Sheet 104.7.18/19, published in 1891

Ordnance Survey 25": 1 Mile, Lancashire Sheet 104.7, published in 1893

Ordnance Survey 25": 1 Mile, Lancashire Sheet 104.7, 1908 revision (surveyed 1905)

Ordnance Survey 25": 1 Mile, Lancashire Sheet 104.7, 1922 revision (surveyed 1915)

Ordnance Survey 25": 1 Mile, Lancashire Sheet 104.7, 1931 revision

Ordnance Survey 1:2500 map, Sheet 33/8598 NE, 1948 revision

Goad, Insurance Plan, Manchester, Vol II, Sheet 213, Revision of 1943

Trade Directories

Pigot, J, 1838 *General Classified and Street Directory of Manchester and Salford*, Manchester

Pigot, J, 1841 *Directory of Manchester and Salford*, Manchester

Slater, I, 1861 *Manchester and Salford Directory*, Manchester

Slater, I, 1895 *Manchester and Salford Directory*, **1**, Manchester

Slater, I, 1903 *Manchester and Salford Directory*, **1**, Manchester

Slater, I, 1909 *Manchester and Salford Directory*, **1**, Manchester

Slater, I, 1911 *Manchester and Salford Directory*, **1**, Manchester

Worrall, J, 1884 *Cotton Spinners and Manufacturers Directory*, Oldham

Worrall, J, 1891 *Cotton Spinners and Manufacturers Directory*, Oldham

Worrall, J, 1910 *Cotton Spinners and Manufacturers Directory*, Oldham

Worrall, J, 1935 *Cotton Spinners and Manufacturers Directory*, Oldham

SECONDARY SOURCES

Ashworth, G, 1987 *The Lost Rivers of Manchester*, Altrincham

Baines, E, 1835 *History of Cotton Manufacture in Great Britain*, London

Bruton, FA (ed), 1909 *The Roman Fort at Manchester*, Manchester

Catling, H, 1986 *The Spinning Mule*, Newton Abbot

Chandler, J, 1993 *John Leland's Itinerary: Travels in Tudor England*, Stroud

Chapman, SJ, 1905 *The Cotton Industry and Trade*, London

Clark, S, 1978 Chorlton Mills and their Neighbours, *Ind Archaeol Rev*, **2**, 207-39

Cooper, G, 2002 *Illustrated History of Manchester's Suburbs*, Manchester

Countryside Commission, 1998 *Countryside Character Volume 2: North West*, Cheltenham

Darbyshire, A, 1887 *A Book of Old Manchester and Salford*, Manchester

DoE, 1990 *Planning Policy Guidance 16: Archaeology and Planning*, London

DoE, 1994 *Planning Policy Guidance 15: Archaeology and Planning*, London

English Heritage, 2006 *Management of Research Projects in the Historic Environment*, London

Edwards, MM, 1967 *The Growth of the British Cotton Trade 1780-1815*, Manchester

Farrer, W, and Brownbill, J, 1911 *The Victoria History of the County of Lancaster*, Vol 4, London

Frangopulo, NJ (ed), 1962 *Rich Inheritance: A Guide to the History of Manchester*, Manchester

Hadfield, C, 1994 *British Canals: The Inland Waterways of Britain and Ireland*, 8th edn, Stroud

Hall, D, Wells, CE, and Huckerby, E, 1995 *The Wetlands of Greater Manchester*, Lancaster Imprints 3, Lancaster

Harland, J, (ed), 1861 *Mamecestre: Chapters from the Early Recorded History of the Barony*, 1, Chetham Society, Manchester

Hartwell, C, 2001 *Manchester*, London

Hartwell, C, Hyde, M, and Pevsner, N, 2004 *The Buildings of England. Lancashire: Manchester and the South-East*, London

Jenner, M, 2006 *Conservation Plan for Brunswick Mill, Bradford Road, Ancoats, Manchester*, unpubl rep

Jones, E, 1985 *Industrial Architecture in Britain, 1750 – 1939*, London

Kidd, A, 1996 *Manchester*, 2nd edn, Manchester

Lee, CH, 1972 *A Cotton Enterprise 1795-1840: A History of M'Connel and Kennedy, Fine Cotton Spinners*, Manchester

Little, S, 2004 Ancoats - The First industrial Suburb, in R McNeil and D George (eds), *The Heritage Atlas 4: Manchester - Archetype City of the Industrial Revolution*, Manchester, 31-33

Lloyd-Jones, R, and Lewis, MJ, 1993 Housing Factory Works: Ancoats in the Early 19th Century, *Manchester Region Hist Rev*, 7, 33-6

Margary, ID, 1957 *Roman Roads in Britain*, London

Miller, I, and Wild, C, 2007 *A & G Murray and the Cotton Spinning Mills of Ancoats*, Lancaster Imprints 13, Lancaster

Mills, WH, 1917 *Sir Charles Macara, Bart: A Study in Modern Lancashire*, Manchester

Morris, A, 1983 *Medieval Manchester: A Regional Study. The Archaeology of Greater Manchester*, 1, GMAU, Manchester

- Mortimer, J, 1891 *Henry Bannerman and Sons Ltd: Its Origin, Rise and Progress, Diary and Buyer's Guide for 1891*
- Neste, K, 1865 *The Mule Spinning Process*, Manchester
- Nevell, M, McNeil, R, and Redhead, N, 2003 *Manchester Research Framework, Phase 1: The City of Manchester*, unpubl rep
- Newman, RM, 1996 Medieval Rural Settlement, in R Newman (ed) *The Archaeology of Lancashire: Present State and Future Priorities*, Lancaster, 109-124
- OA North, 2005 *Brunswick Mill, Ancoats, Manchester: Documentary Account*, unpubl rep
- OA North, 2008 *George Leigh Street, Ancoats, Manchester: Archaeological Investigation*, unpubl rep
- Parkinson-Bailey, J, 2000 *Manchester: An Architectural History*, Manchester
- Pole, WM (ed), 1877 *The Life of Sir William Fairbairn, Bart, Partly Written by Himself*, Newton Abbot (1970 facsimile)
- Swindells, T, 1908 *Manchester Streets and Manchester Men*, Manchester
- Tupling, GH, 1962 Medieval and Early Modern Manchester, in CF Carter (ed) *Manchester and its Region: A Survey Prepared for The British Association*, Manchester 115-130
- Walker, JSF (ed), 1986 *Roman Manchester: A Frontier Settlement. The Archaeology of Greater Manchester*, **3**, GMAU, Manchester
- Watkin, WT, 1883 *Roman Lancashire*, Liverpool
- Watkins, G, 1999 *The Textile Mill Engine*, 2nd edn, Ashbourne
- Williams, M, 2004 Ancoats - Where the Steam-Powered Textile Mill Began, in R McNeil and D George (eds), *The Heritage Atlas 4: Manchester - Archetype City of the Industrial Revolution*, Manchester, 34-38
- Williams, M, and Farnie, DA, 1992 *Cotton Mills in Greater Manchester*, Manchester

APPENDIX 1: LISTED BUILDING DESCRIPTIONS

MANCHESTER SJ8598 BRADFORD ROAD, Beswick And Clayton 698-1/17/529 (South East side) Brunswick Mill GV II Cotton spinning mill, now various workshops and warehouses. c.1840, with some later C19 alterations. Constructed by the firm of David Bellhouse, but with possible involvement by William Fairbairn (the mill is planned according to principals which have been particularly associated with him). Brick with slate roofs, fireproof internal construction, with cast iron columns and beams, and transverse brick arches. Trussed wrought iron tie rods added to strengthen structure when the mill was converted to use the heavier ring spinning machinery c1920. Built largely in a single phase to a courtyard plan, with main spinning mill alongside canal, 2 wings for spinning and ancillary processes including blowing and winding and a front block housing main entrance, and use for warehousing and offices. Main spinning mill is 7 storeys, and 28 bays with 2 rows of cast iron columns internally. Small rectangular windows with flat arched heads in each bay. External engine house (built to house 2 beam engines) at W of site. Advanced wings are also 7 storeyed, each of 6 bays. Semi-circular stair-cases in each wing, adjoining spinning mill. 4-storey, 20-window range *upper storey a later addition) to street links the 2 wings and encloses the yard; central entrance in wide segmental archway. 2-storey loading bays built in internal angles in yard. The mill is thought to be the first Greater Manchester mill to be converted to use mains electricity as its principal power source, and later additions include an electricity transformer house added in angle of W wing and spinning mill (electric motor towers built on inner face of main spinning block have been removed). A dust flue was also added as a tower to the We of the W wing. This was a large scale operation, a distinctive example of site planning and built as a single phase around a courtyard. Structurally and technologically conventional, but of interest as an example of adaptation to suit changing technologies, both in relation to power supply (the first mill in the region to be converted to use mains electricity), and spinning technology (the structure adapted to take ring spinning machinery).

MANCHESTER SJ8598 BESWICK STREET, Beswick And Clayton 698-1/17/528 Bridge No.5 over Ashton Canal GV II Public road bridge over Ashton Canal. Probably c.1800. Brown brick in English garden wall bond, with sandstone dressings. Narrow rectangular structure across canal waisted to width of lock. A low segmental arch of brick springing from a sandstone base, with a keystone (oval cast-iron number plate attached to this); broad pilasters and terminal pilasters, stone band, brick parapet with stone coping.

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Figure 7: Extract from the Ordnance Survey 25": 1 mile map, published in 1922

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Figure 9: Extract from the Ordnance Survey 1:2500 map, published in 1948

Figure 10: Extract from the Ordnance Survey 1:2500 map, published in 1999

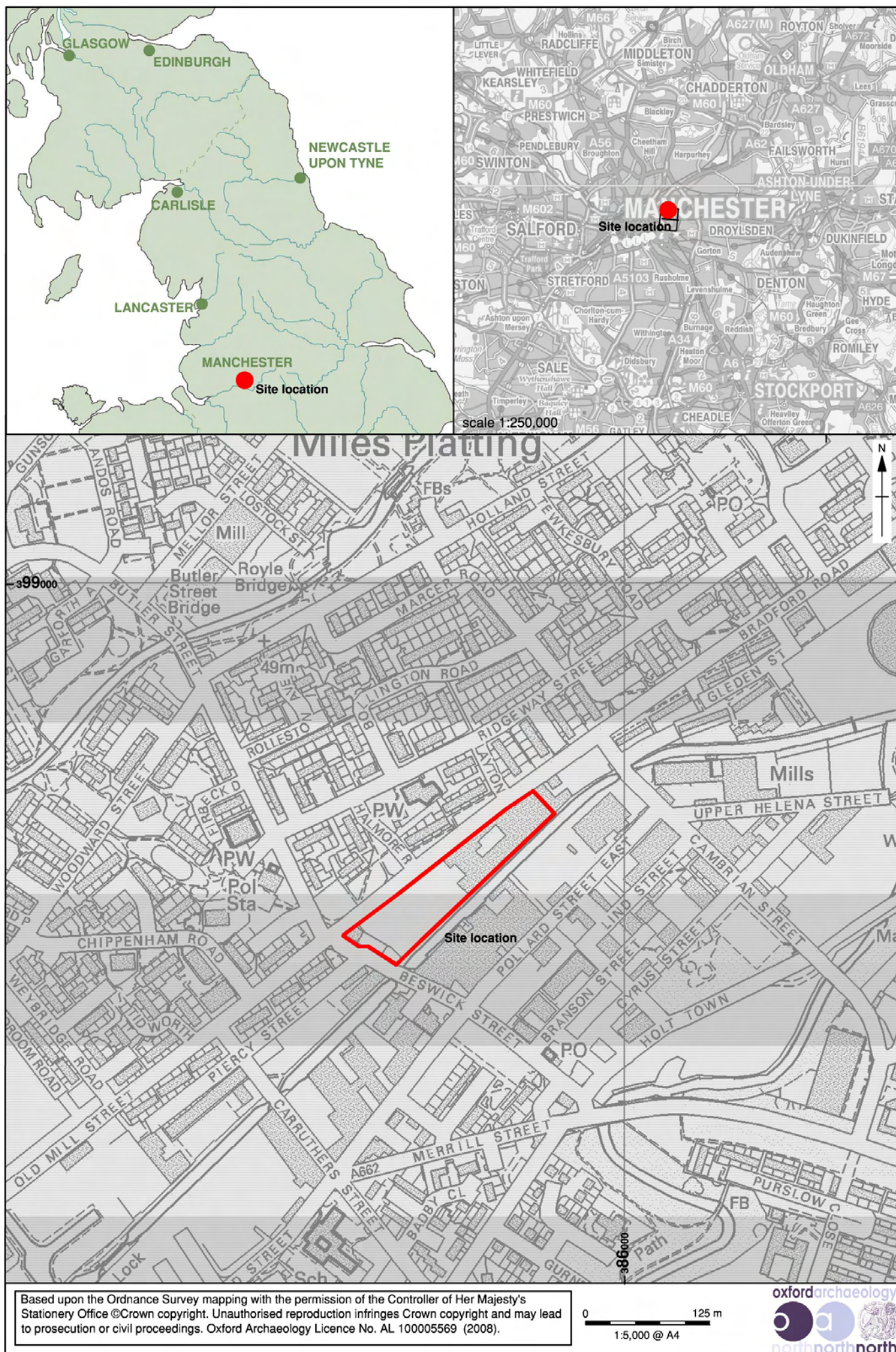


Figure 1: Site location

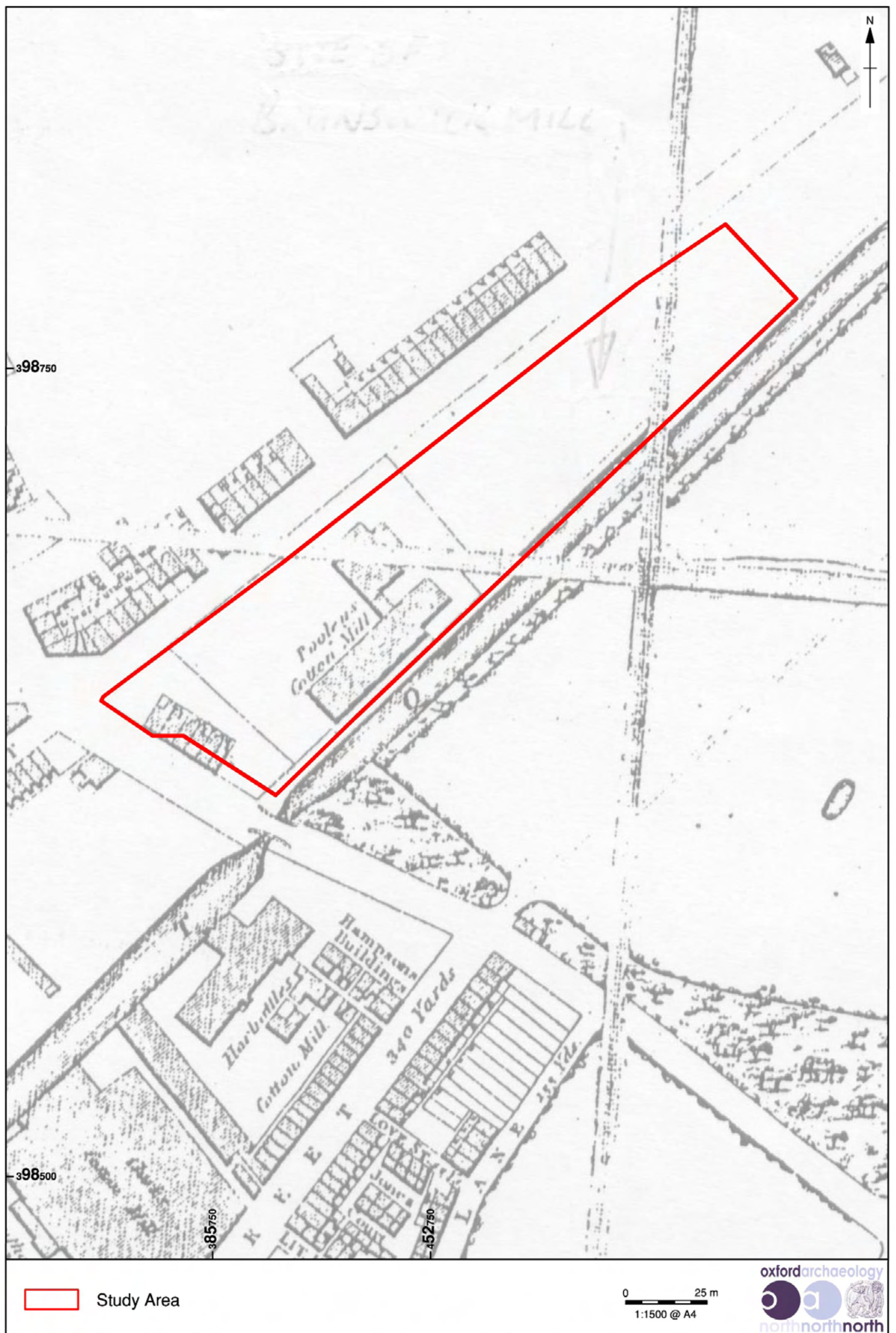


Figure 2: Extract from Banks & Co's map of Manchester, 1831



Figure 3: Extract from the Ordnance Survey 60": 1 mile map, 1850



Figure 4: Extract from Adshead's map of Manchester, 1850

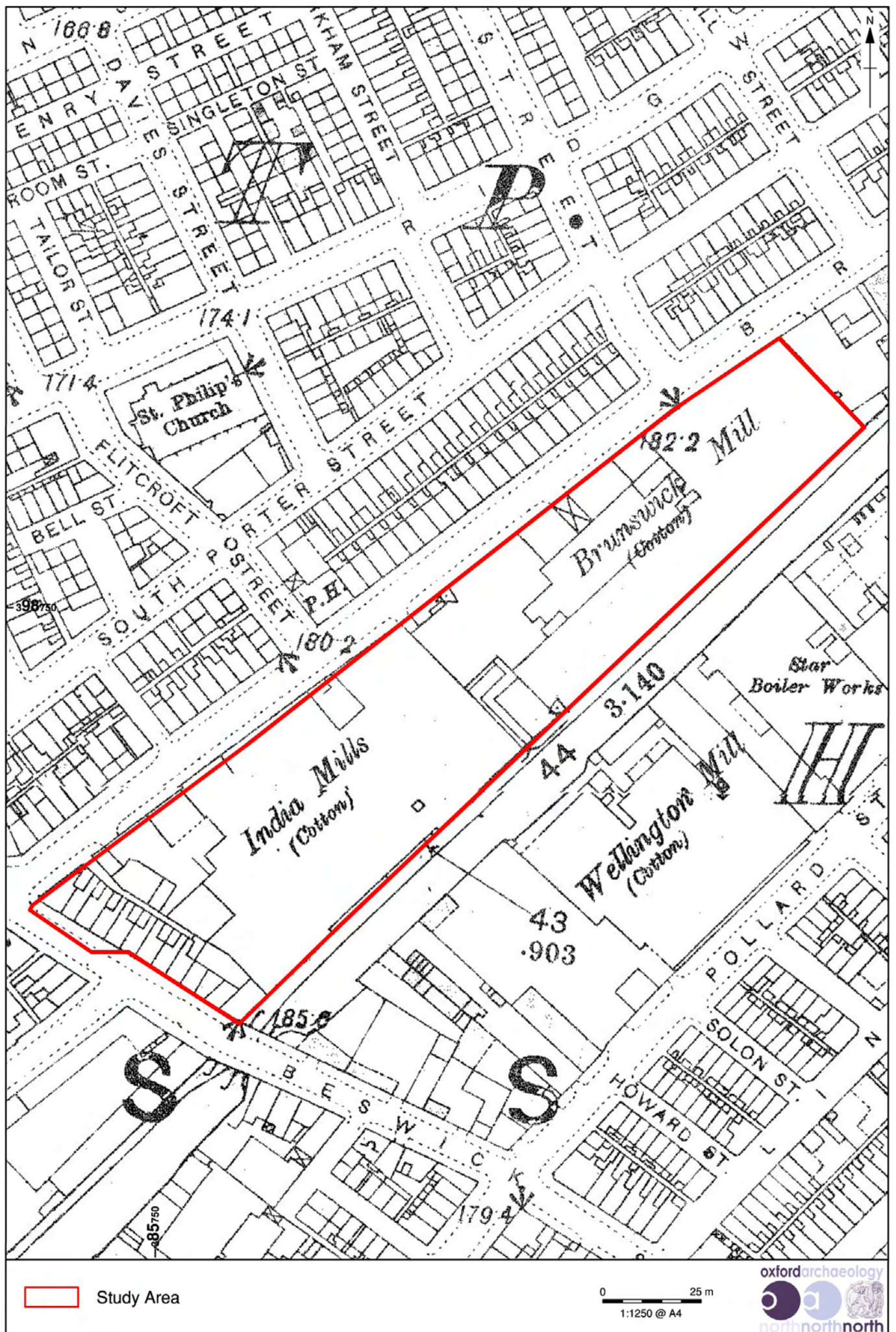


Figure 5: Extract from the Ordnance Survey 25": 1 mile map, 1893



Figure 6: Extract from the Ordnance Survey 25": 1 mile map, 1908

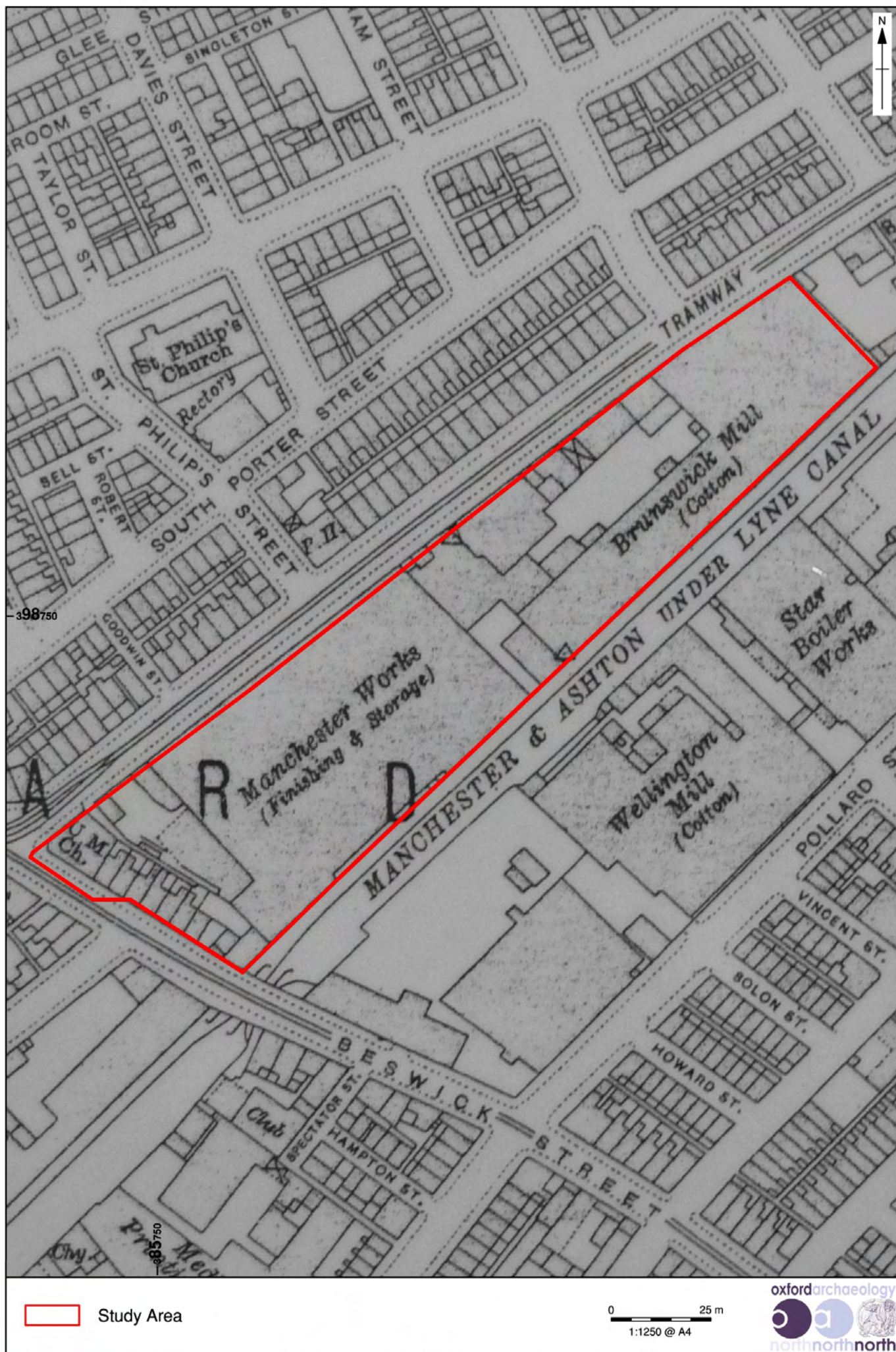


Figure 7: Extract from the Ordnance Survey 25": 1 mile map, 1922

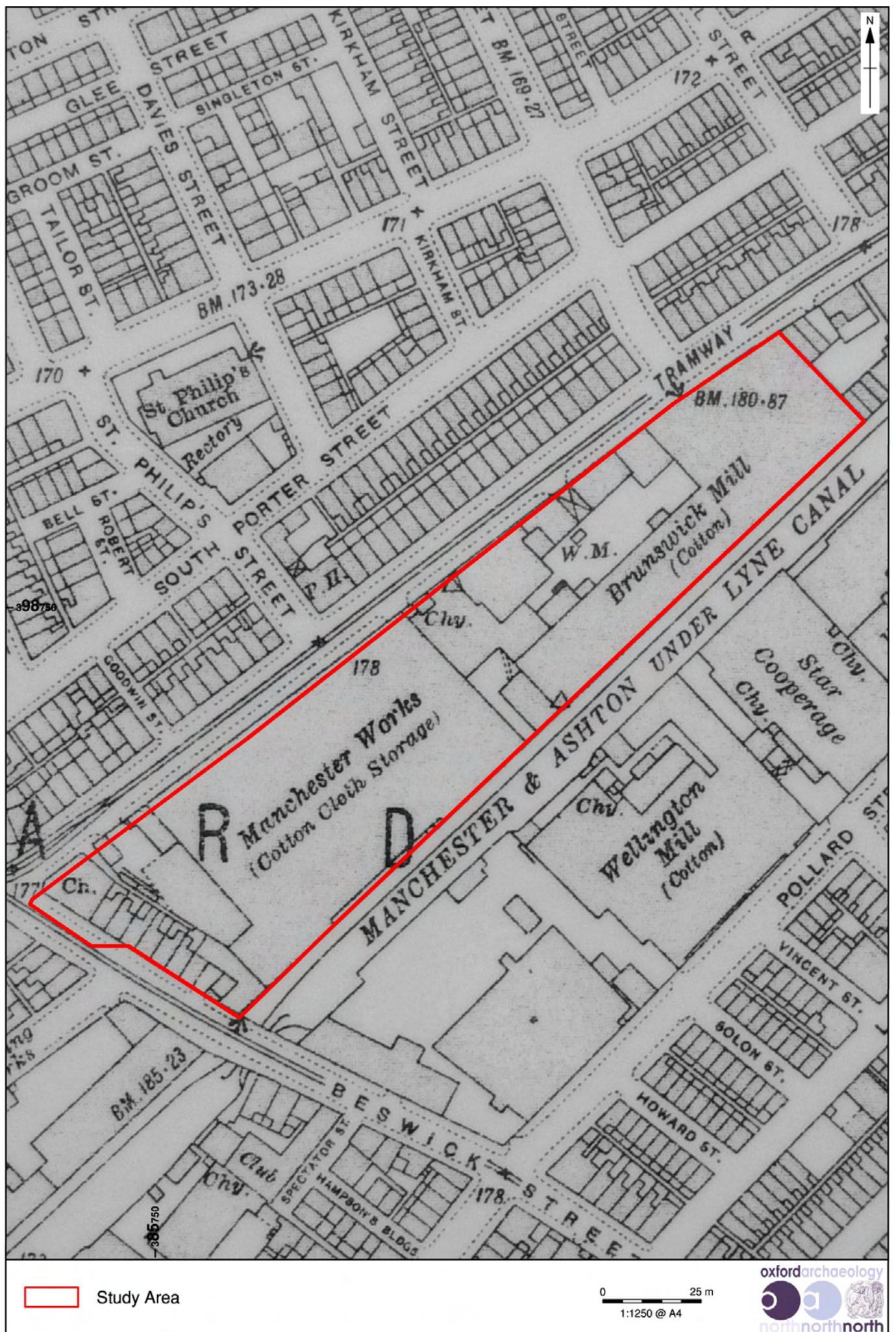


Figure 8: Extract from the Ordnance Survey 25": 1 mile map, 1931



Study Area

0 25 m
1:1250 @ A4

oxfordarchaeology
northnorthnorth

Figure 9: Extract from the Ordnance Survey 1:2500 map, 1948



Figure 10: Extract from the Ordnance Survey 1:2500 map, 1999