



Archaeological Building Investigation and Recording,  
Royal Worcester Porcelain Works,  
Buildings M, N, Q, R, S, Y and Z

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September 2008



## archenfield archaeology ltd

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Archenfield Archaeology Ltd is a multidisciplinary archaeological consultancy, offering a complete range of archaeological advice and services to the public and private sector. We specialise in giving archaeological advice to developers, housing associations and private individuals. We also undertake archaeological intervention, from monitoring to full-scale excavation; building survey; landscape and geophysical surveys and community-based historical and archaeological projects.

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Cover: Prince's Drive with Buildings S and N  
(reproduced with permission from the Worcester Porcelain Museum)



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## **Summary**

*Archaeological building investigation and recording was undertaken by Archenfield Archaeology Ltd at Royal Worcester Porcelain Works, Severn Street, Worcester, on behalf of Berkeley Homes (Oxford & Chiltern) Ltd prior to redevelopment of the site. This report deals with the Grinding and Polishing West and East Ranges (Buildings M and N), the Aerographic Block (Building Q), the China Decorating and Warehouse Range (Building R), the Spray Glazing Range (Building S) and the New Mould Shed (within Buildings Y and Z).*

*The building investigation and recording identified that most of the original construction of Building M took place in the mid 19th century. Further arrangements were made when Building N was built in 1874 as an extension of Building M. In 1875 Buildings R, S and the New Mould Shed (within Buildings Y and Z) were erected. Shortly after that, in 1888, Building Q was added to the Works. Most of their original external fabrics are extant but a high proportion of internal original fittings, including carpentry and masonry detailing, no longer survive. These buildings constitute an interesting example of 19th century factory construction and are of historical and architectural importance nationally.*

## 1 Introduction

**Site name:** Royal Worcester Porcelain Works  
**Location:** Severn Street, Worcester, Worcestershire  
**NGR:** SO 8515 5425  
**SMR/HER:** WCM 96186  
**Type:** Building Investigation and Recording  
**Date:** November 2006 – September 2007  
**Location of archive:** Worcester City Museum  
**Planning authority:** Worcester City Council  
**Planning reference:** P05D0432, L05D0074  
**Developer:** Berkeley Homes (Oxford & Chiltern) Ltd  
**Site Code:** AA\_70

Archenfield Archaeology Ltd was commissioned by Berkeley Homes to undertake a programme of archaeological building investigation and recording prior to the redevelopment of the Royal Worcester Porcelain Works, Severn Street, Worcester. The development site constitutes approximately three-quarters of the whole Severn Street site and the remaining quarter is to be retained by Royal Worcester Porcelain Works. The development scheme involves the demolition of 26 large buildings and 6 small sheds, and the modification of 10 existing buildings in order to build 356 dwellings (comprising 317 apartments and 39 houses), a hotel, B1 space and A3 restaurants. The site is located on the south side of Worcester city centre and is bounded by Sidbury, St Peter's Street, King Street, Severn Street, Mill Street and the Worcester and Birmingham Canal (Figures 1 and 2). The majority of the buildings were built parallel or perpendicular to the central lane of the Works (Prince's Drive) which runs north-west to south-east. Thus a site north was established for the survey at approximately the same orientation (Figure 2).

This report (number 20 of a series) deals with the Grinding and Polishing West and East Ranges (Buildings M and N), the Aerographic Block (Building Q), the China Decorating and Warehouse Range (Building R), the Spray Glazing Range (Building S) and the New Mould Shed (within Buildings Y and Z). An initial assessment of the buildings recognised that they are of historical and architectural importance. The archaeological work was conducted in accordance with the written scheme of investigation (WSI) issued by Archenfield Archaeology Ltd (2006), which was in response to a brief issued by Worcester City Museum Archaeology Section (2006). The WSI was issued to fulfil a condition in the planning approval which stated that a programme of archaeological work must be carried out before the redevelopment works commence. This document gives details of how the archaeological project was conducted and includes any conclusions drawn from the investigation.



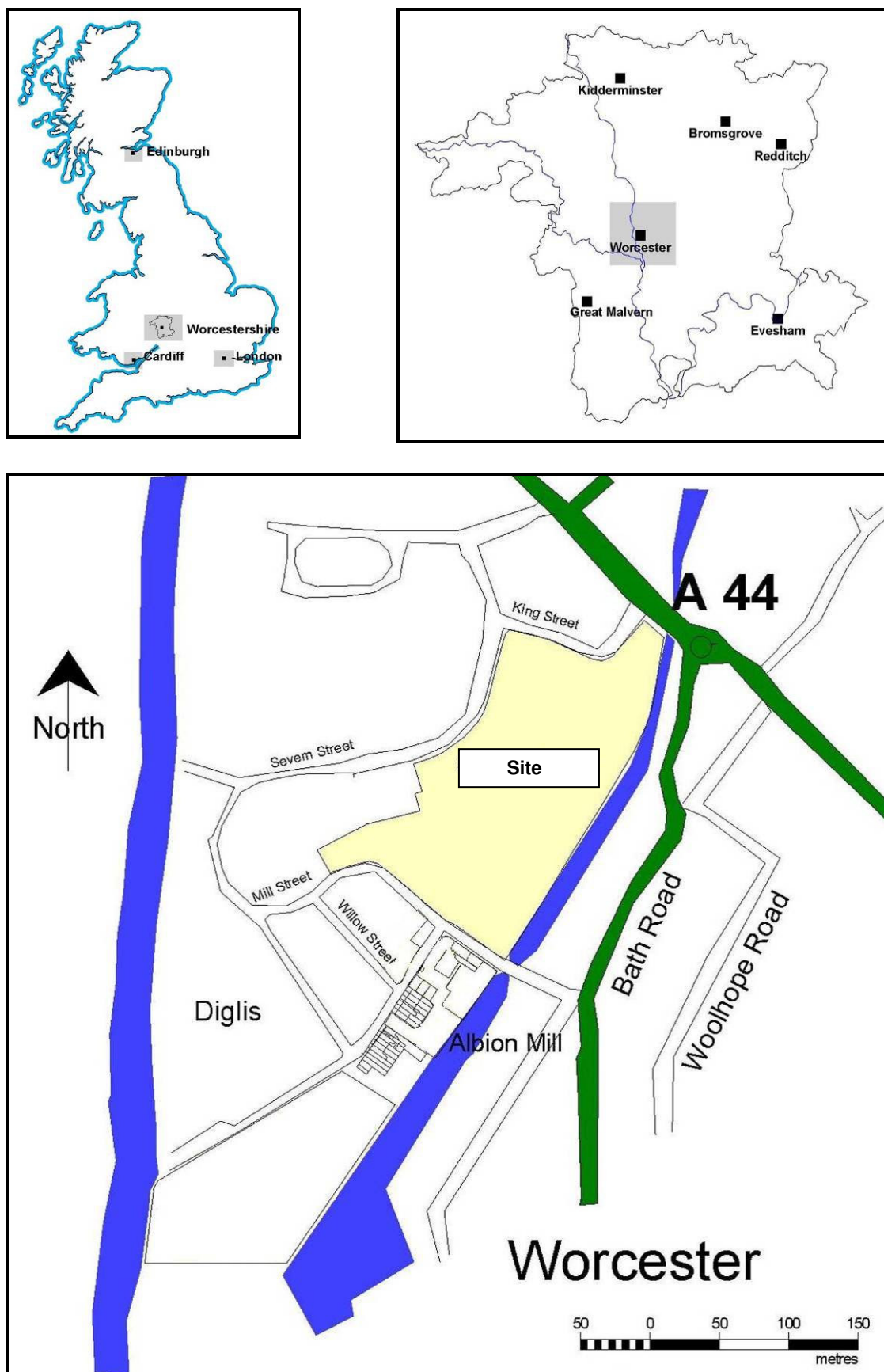


Figure 1: Site location

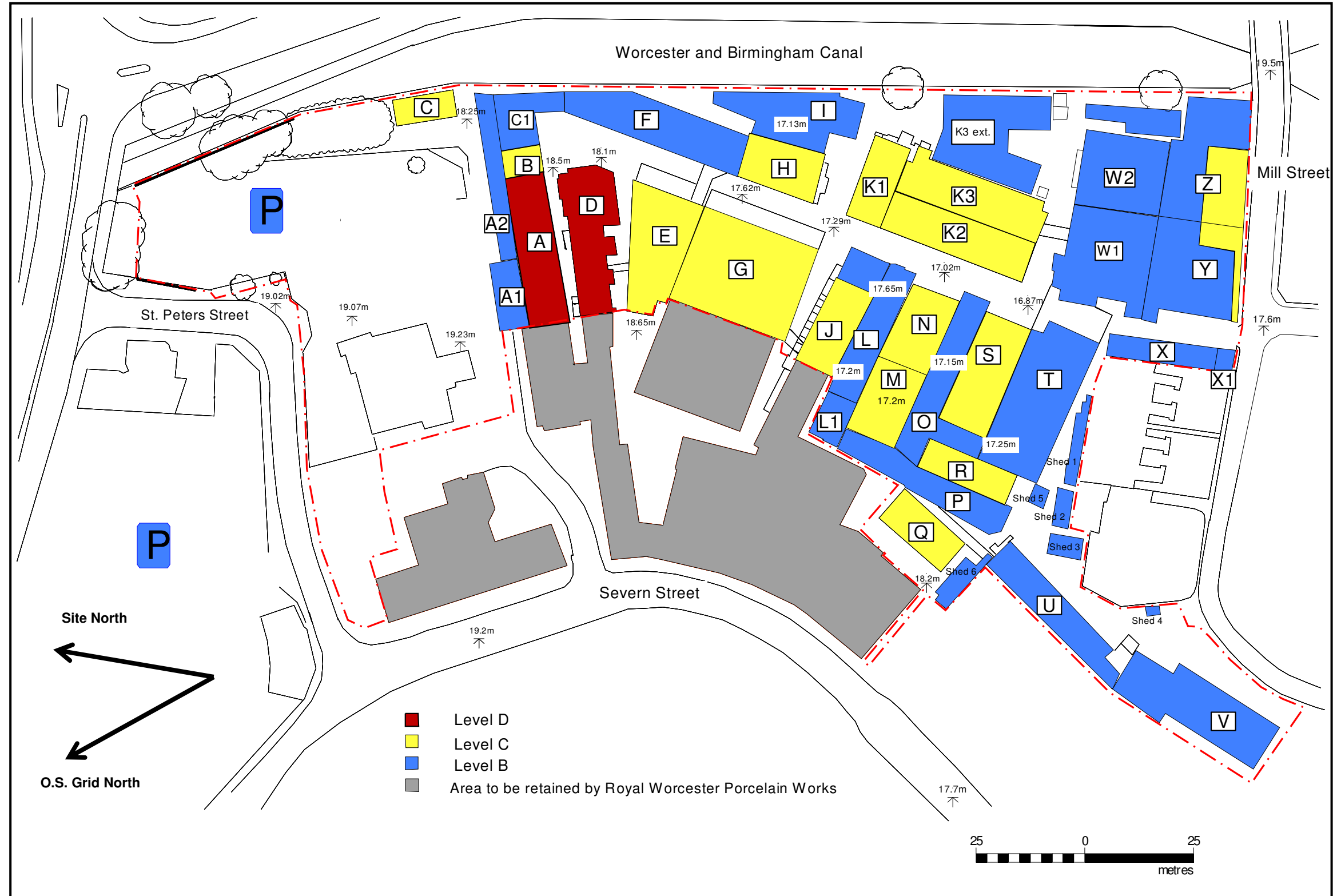


Figure 2: Detailed plan of site, building codes and levels of recording (scale 1:1,000 based on architect's drawing provided by Berkeley Homes)

## **2 Project aims**

The aims of the programme of archaeological building investigation and recording, as defined by the project brief, consisted of the following:

- To make an appropriate record, as identified by the levels of building recording stipulated by the brief, of all the standing buildings at the Royal Worcester Porcelain site.
- To record different phases of all the buildings affected by the development and identify features for conservation.
- To annotate available architects' drawings to include archaeological features such as blocked windows and doors, etc.
- To produce original drawings of important elevations and features.
- To conduct a photographic survey of the major components of the buildings that are directly affected by the development. This should include general views of the exterior of the buildings, all exterior and internal elevations, selective internal views and any detailed coverage of the buildings deemed to be fitting with the character and setting of the buildings. Photographs of any machinery and fittings associated with the working life of the buildings should also be taken.
- To maintain close liaison with the curator of the Worcester Porcelain Museum (henceforth abbreviated as WPM), Wendy Cook, to enable access to the museum archives and give advice on specific aspects of the operation of the manufactory.
- To create a detailed project archive and deposit it with Worcester City Museum after completion of the project.
- To disseminate the results obtained.

## **3 Geological, historical and archaeological background**

### **3.1 Geology and land use**

Worcester lies in the valley of the River Severn, just to the north of its confluence with the River Teme. The eastern bank of the Severn is a sand and gravel terrace. The site lies in the valley of a former tributary of the Severn, the Frog Brook, whose former course was partially used in the creation of the Worcester and Birmingham Canal, which forms the eastern boundary of the site. The underlying geology of the site consists of beds of alluvial drift deposit over the Eldersfield mudstone formation (British Geological Survey).

### **3.2 Historical, archaeological and architectural background**

Two archaeological desk-based assessments have been produced which examine the historical and archaeological background to the Royal Worcester Porcelain Works, Severn Street site (Feryok and Sherlock 2004; Lovell and Pikes 2004). These include cartographic regressions and reproduce the results of documentary studies of the historical evolution of the site. In addition two assessments of the nature, architectural merit and relative importance of the building have also been undertaken

(Morriss and Sherlock 2004; Robinson 2005). These four documents have previously been submitted to the local planning authority in support of the planning application for redevelopment, and thus they should be used in conjunction with this report. However, this report includes revised and updated facts, which have been revealed during the site work and where discrepancies appear, then this document supersedes previous statements.

## 4 Methodology

A detailed project design was prepared by Archenfield Archaeology Ltd (2006a). The recording of the Buildings M, N, Q, R and S conformed to level C (specified in Worcester City Museum Archaeology Section brief 06/22) which corresponds to English Heritage level 3 (EH 2006). Buildings Y and Z were mainly recorded at level B (English Heritage level 2) and their records are included in a separate report (AA\_70\_19). However, an earlier structure, the New Mould Shed, was identified within them which was recorded at level C and is included in this report.

The requirement for the archaeological building investigation and recording on the Royal Worcester Porcelain site is in line with government guidance and with the archaeological policies in the adopted City of Worcester Local Plan (1991 – 2001; saved policies BE21, BE24, BE26 and BE27). All work was undertaken to the standards specified in the *Recording Historic Buildings: A Descriptive Specification* (RCHME 1996); *Measured Survey and Building Recording for Historic Buildings and Structures* (Dallas 2003); *Understanding Historic Buildings: A guide to good recording practice* (English Heritage 2006) and in accordance with the standards set out by the Institute of Field Archaeologists' *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures* (IFA 2001). All stages of the project were carried out in accordance with the guidelines established in the *Management of Archaeological Projects (MAP 2)* (English Heritage 1991).

The project archive will be compiled in accordance with the guidelines contained in *Guidelines for the Preparation of Excavation Archives for Long-Term Storage* (UKIC 1990) and the *Standards in the Museum Care of Archaeological Collections* (Museum and Galleries Commission 1992).

The project complied with all Health and Safety requirements stipulated by Berkeley Homes (Oxford & Chiltern) Ltd and those outlined in the *Health and Safety in Field Archaeology Manual* (SCAUM 2002) and in the project's *Risk Assessment* (Archenfield Archaeology Ltd 2006b).

The fieldwork was managed by Huw Sherlock BA DIPARCH MIFA and supervised by Alvaro Mora-Ottomano (Gamba). Brenainn Morley and Robert Williams assisted in the fieldwork. The report was written by Gamba. The historical and industrial research was conducted by Dr John van Laun and Wendy Cook, and it is included as an appendix. The survey photographs reproduced in the report were taken by Gamba.

The illustrations were digitised by Abby George. The report was edited by Julie Phillips. The subsequent result comprised the following elements:

#### **4.1 The written record**

A written record of the buildings was carried out by annotating plans and elevations and by completing *pro-forma* building recording sheets. The presence of any significant artefacts was recorded with a description of their type, quantity and original location. In order to identify obscured areas, soft-stripping of surfaces was carried out using hand tools.

#### **4.2 The drawn record**

A metric survey was initially based on architects' elevations and plans, which were annotated to include archaeological sequences and architectural features. Further survey drawings were carried out using tapes and a laser distance meter. Dumpy and laser levels were also employed. The drawn survey comprised measured floor plans, elevations and sections at 1:50 scale. Detailed features were drawn at appropriate scales ranging from 1:20, 1:10 and 1:5.

#### **4.3 The photographic record**

A detailed photographic survey comprised high resolution digital photographs (6 megapixels or above). A further 35mm colour print photographic survey of general exterior views was also conducted. Where possible, photographs included a graduated scale and cameras were mounted on tripods for extra stability. Details of the photographs were recorded on *pro-forma* index sheets, which included location, subject and orientation. The location and direction of the photographs were plotted on scaled plans.

#### **4.4 Documentary research**

A further programme of documentary research was undertaken by John van Laun Associates (Industrial Archaeologists) and the results are included in this report in three appendices. The appendices also contains Buildings L, L1, O, P, T, U, V, W1, W2, X and X1, recorded at level B which corresponds to English Heritage level 2 (EH 2006); and submitted in the report of Buildings Recorded at Level B (AA\_70\_19). The research dealt with the buildings' forms, functions, dates and sequences of development. The names and dates of architects involved in the development of the site were included. Archival research included the consultation of relevant secondary sources pertinent to the study area located at the Worcester Porcelain Museum. This enabled further specific historic map regression analysis and relevant contemporary photographs were also reproduced.

### **5 Results**

This section deals with the analysis and interpretation of Buildings M, N, Q, R, S and some elements of Y and Z. Only Buildings Q, R and the facade of Building N are to be retained. Building M was initially planned to be kept but due to structural instability it was decided to be demolished as a safety measure. The rest of the buildings have already been demolished, however the building analysis refers to the record made whilst they still existed.

## **5.1 Building M**

This is the Grinding and Polishing West Range, a substantial brick-built two-storey range of eight bays articulated, externally and internally, by brick pilasters. It is situated between Buildings L and L1 on the north and Building O on the south. To the east is Building N, built originally as an extension, and to the west is Building P. The building has an overall dimension of 18.55 metres long (east/west), 12.2 metres wide (north/south) and is 11 metres high. It is built of mid reddish brown bricks (9" x 4<sup>1</sup>/<sub>4</sub>" x 3") bonded with flush beige lime mortar and laid mainly to Flemish Garden Wall bond and it has a slated pitched roof. Little of the exterior walls are visible because of the buildings butting up against it. The survey of the building was somewhat limited as it was planned to be completed once the buildings around were demolished in order to expose the external walls. However, following the demolition, a structural instability was detected and access to the building was prevented. This was followed by a detailed engineering inspection which determined the immediate demolition of the building. It was initially intended to restore and refurbish the building but due to its unscheduled demolition the record included in this report may assist to formulate a design for any future development plan.

### **5.1.1 Exterior**

East elevation (Figures 3 – 7)

This gable facade is of four bays articulated by brick pilasters and topped by a simple cornice. The central bays are set more closely together than the outer ones. The ground floor has been considerably altered by the removal of the walls and the insertion of two steel stanchions and a steel beam supporting the upper storey. On the first floor there are original window openings with segmental arched heads in each bay. The southernmost has been converted into a doorway and the northernmost has been partially blocked with bricks and has an inserted timber sliding door with a concrete lintel. The window openings in the central bays have projecting brick sills. Most of the first floor wall is painted yellow as it became an internal wall when the upper storey of Building N was erected. The gable is topped by a cornice with simple dentilled brickwork laid to rowlock bond. There are two ovolo moulding kneeler greenish sandstones forming a termination at the eaves of the coping. On the gable panel there are two oculi which have been internally blocked with bricks and an original cast-iron vent between them.



**Figure 3: East elevation of Building M, from Building N**



**Figure 4: Eastern gable of Building M, from Building K1**



Figure 5: Detail of the eastern gable of Building M



Figure 6: East elevation of Building M after demolition of surrounding buildings





**Figure 7: East and south elevations of Building M**

#### West elevation (Figures 8 – 11)

On this elevation the ground floor is opened up to the adjacent Building P and, like the east elevation, it has inserted RSJ stanchions and a bridging beam bearing the upper wall. The first floor is the only portion of the whole building which is truly external, except for the uppermost section of the eastern gable and the top end of the two western bays of the north elevation. The windows on this level survive and have segmental arched heads and projecting sills made of blue engineering bricks. There are later plastic louvre vents above the windows' heads and two on the gable recessed panel. There is also an original cast-iron vent on the top section of the gable matching the opposite elevation.

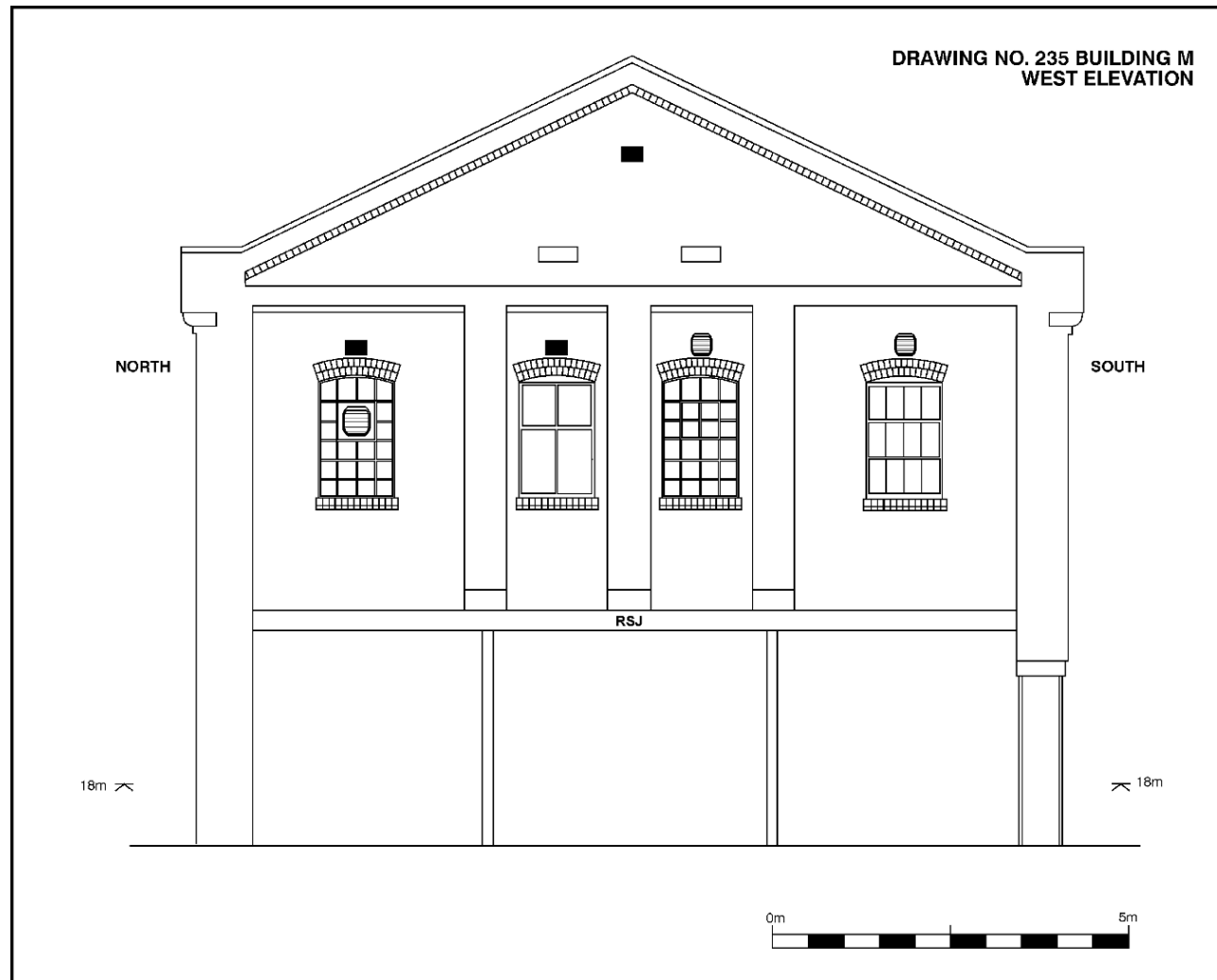


Figure 8: Survey drawing of the west elevation of Building M (scale 1:100)



Figure 9: West elevation of Building M



Figure 10: West elevation of Building M after demolition of the surrounding buildings



**Figure 11: Detail of kneeler stone on the west elevation of Building M**

#### South elevation (Figures 12 – 13)

The south elevation is now a party wall between this range and the adjacent Building O. It has been considerably transformed and is currently painted white. The ground floor has been altered by the removal of the original window openings which were replaced by new brick panels. The two westernmost bays also have the original openings removed and replaced by large open doorways with RSJ lintels. The second of these bays from the west still has its segmental arched head over the lintel. The westernmost pillar has been replaced by a steel stanchion covered with cement; and second pillar from the west has been widened with bricks. There are two primary rectangular cast-iron vents on the third and fourth bays from the west. The first floor has also been largely modified and there are large open doorways with RSJ lintels in most bays except for the two westernmost bays which have been completely bricked-up. The third bay from the west has a wide segmental arched head made of bricks. There is a continuous simple cornice made of two brick string courses laid to rowlock bond. The pitched roof is made of natural slates topped with tile ridges in which two large metal cowls are set. It has close eaves with cast-iron guttering and both of the gables have parapets at their verges.

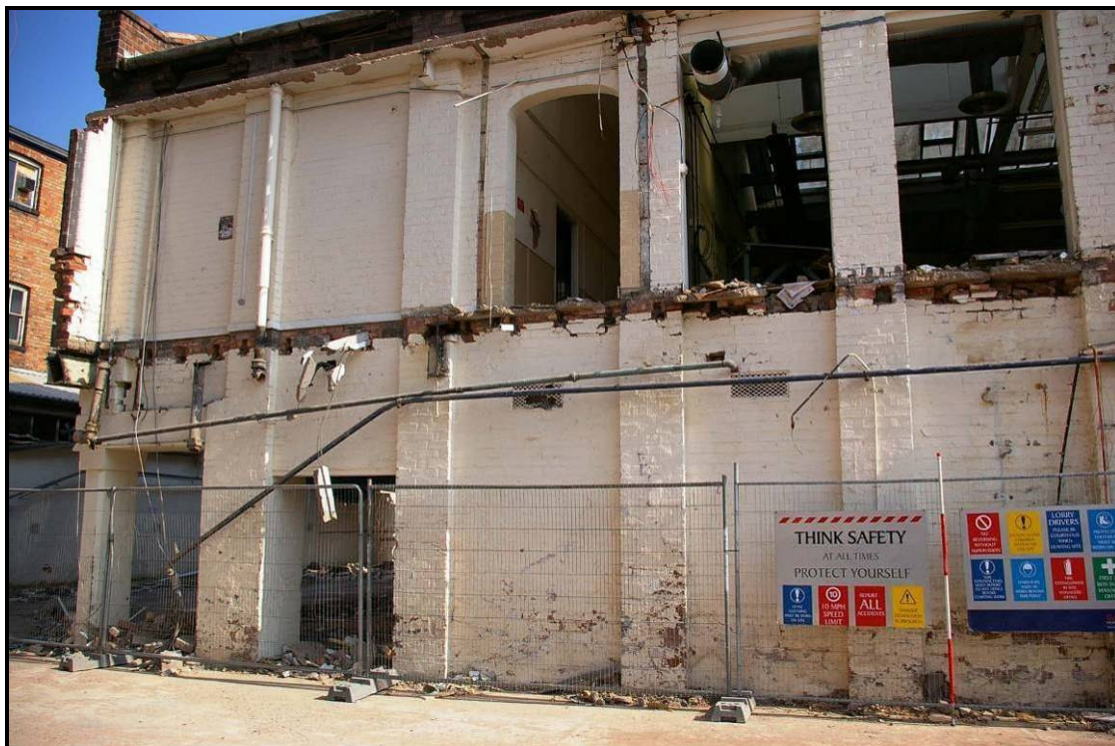


Figure 12: Western side of the south elevation of Building M



Figure 13: Central and eastern side of the south elevation of Building M

### North elevation (Figures 14 – 17)

This elevation also has become a partition between the adjacent Buildings L and L1 and has suffered radical alterations. The windows have been blocked with bricks on both floors. Despite being painted some of the window heads can be still seen. On the ground floor there are later doorway openings with steel beams inserted on the two westernmost bays and on the fifth from the west. There is another doorway on the third bay from the west under an original window head. There is a segmental head on the second bay from the east which extends the whole width of the panel and might have formerly been a doorway instead of a window. This opening and the one on the easternmost bay are blocked with breeze blocks. Most of the first floor is heavily painted, however, four segmental arched heads of former windows have been identified on the four eastern bays. The second bay from the east has an inserted opening for a conveyor belt and the fourth from the east has a roller shutter under an original window head. The window opening on the third bay from the east has been converted into a doorway. On the westernmost bay there is a primary cast-iron vent still *in situ* over a window head.



Figure 14: North and east elevations of Building M



Figure 15: North elevation of Building M



Figure 16: Detail of cast-iron vent on the north elevation of Building M

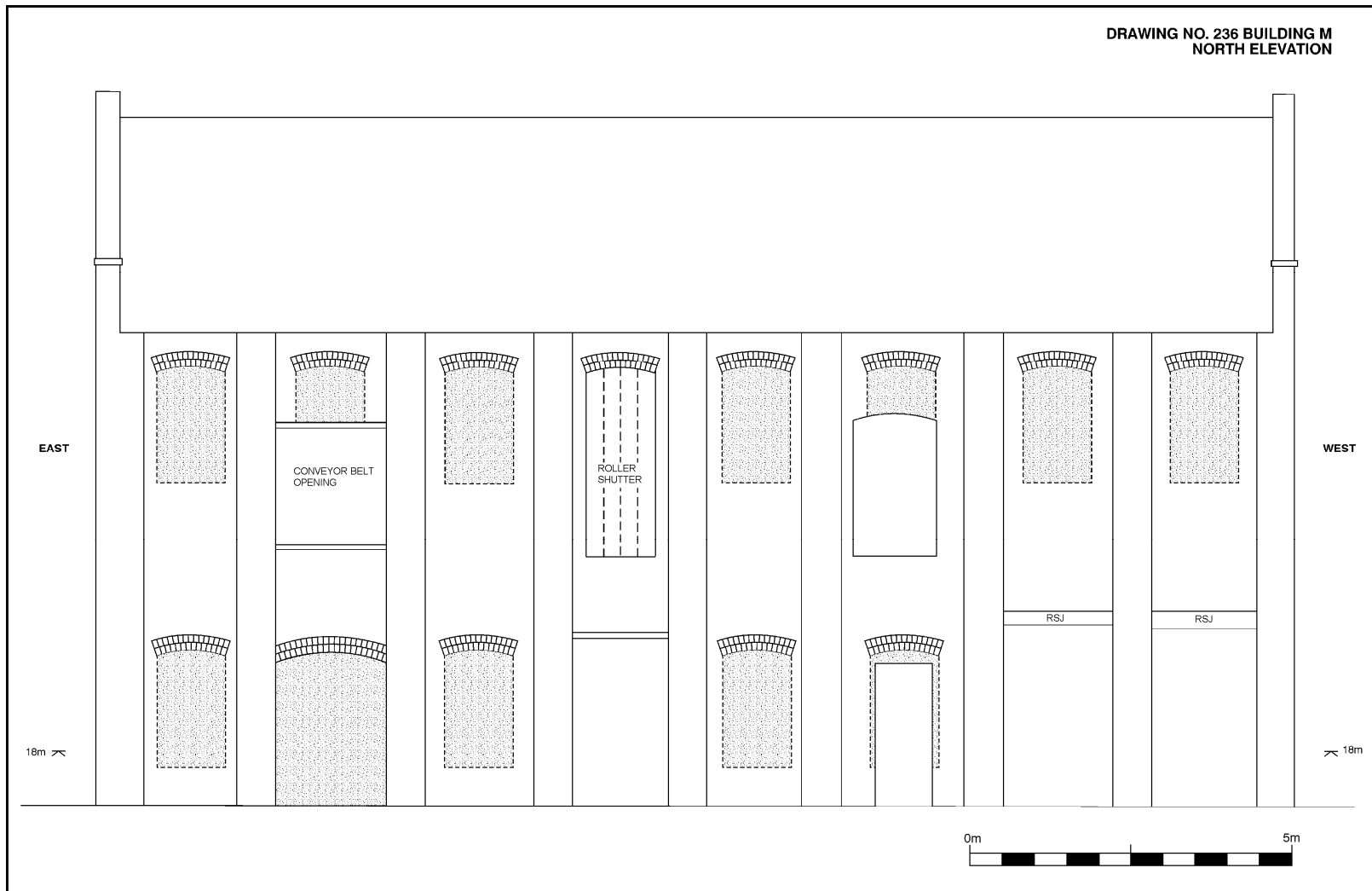


Figure 17: Survey drawing of the north elevation of Building M (scale 1:100)



### 5.1.2 Interior

Ground floor (Figures 18 – 24)

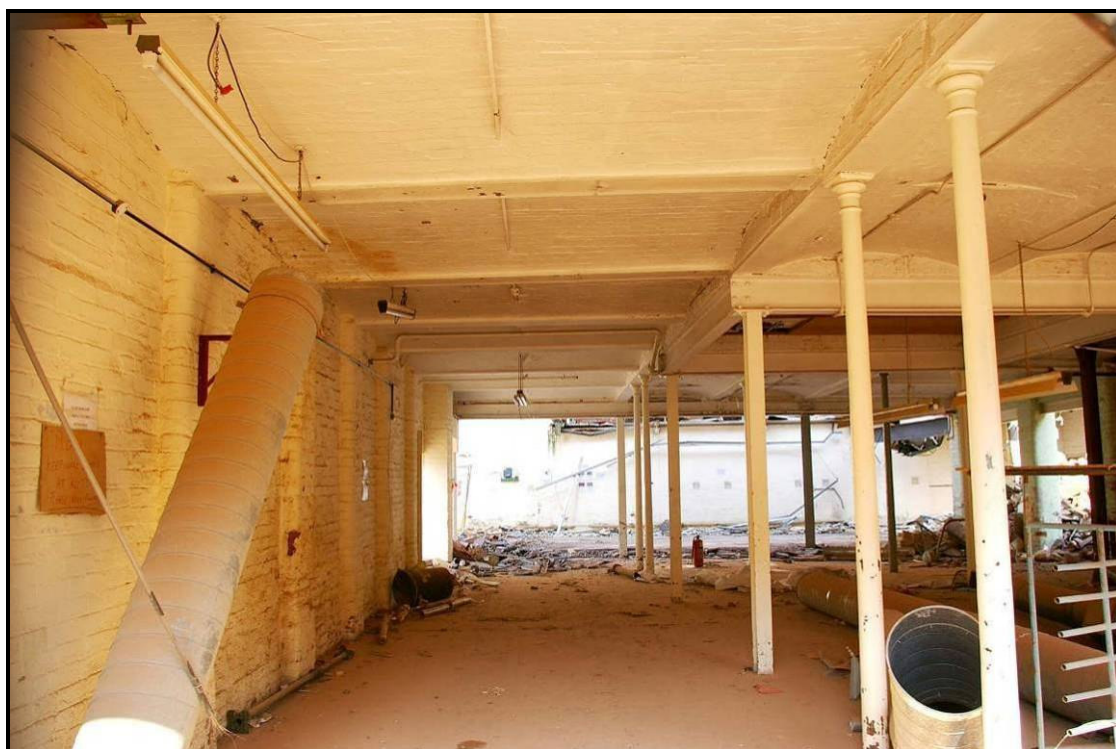
This floor is a large open workshop which measures 17.7 metres long (east/west), 11.5 metres wide (north/south) and 3.55 metres high. The interior is practically empty and has modern fluorescent lighting. A dumbwaiter linking this floor to the first is situated against the north wall on the fourth bay from the west. The eastern and western walls have been removed and replaced by two steel stanchions supporting a bridging beam on each side. These are opened to Building N on the east and Building P on the west. The northern and southern walls have also been considerably altered and their original openings are blocked with bricks. Later doorways, which have been already described on the north and south external elevations, lead to Building L on the north and Building O on the south. The workshop has painted brickwork, bullnose brick jambs on the internal pilasters, a concrete floor and a jack-arched ceiling. The ceiling structure consists of segmental brick vaults which spring from a series of steel girders positioned in accordance with the bays of both side and gable walls. The girders are supported by three rows of cast-iron columns aligned east/west, forming two central narrow bays (determined by the gable elevations) with parallel east/west segmental vaults and two wider side bays (determined by the side bays) with north/south transverse segmental vaults. The vaulted structure is reinforced with wrought-iron bars linking the transverse girders. There are in total ten cast-iron columns painted white which have Tuscan capitals and are 3.20 metres high. In the centre of the workshop there are four RSJ stanchions supporting a steel square structure with an asbestos soffit under a timber floor, which were inserted when a central chimney stack was removed in the late 1920s (see Appendix). On the north wall there are three surviving windows which are blocked externally. One of them was internally boarded up behind the hoist and is an original specimen made of a cast-iron frame with glazing bars. The other two are later replacements positioned on the first and second bays from the east. They have wooden frames and slender glazing bars with six lights each.



**Figure 18: Ground floor of Building M, looking west**



**Figure 19: Northern bay on the ground floor of Building M, looking west**



**Figure 20: Southern bay on the ground floor of Building M, looking west**



**Figure 21: Recovery of cast-iron columns during demolition, looking west**



**Figure 22: Detail of jack-arched ceiling during demolition**



**Figure 23: Detail of cast-iron column**

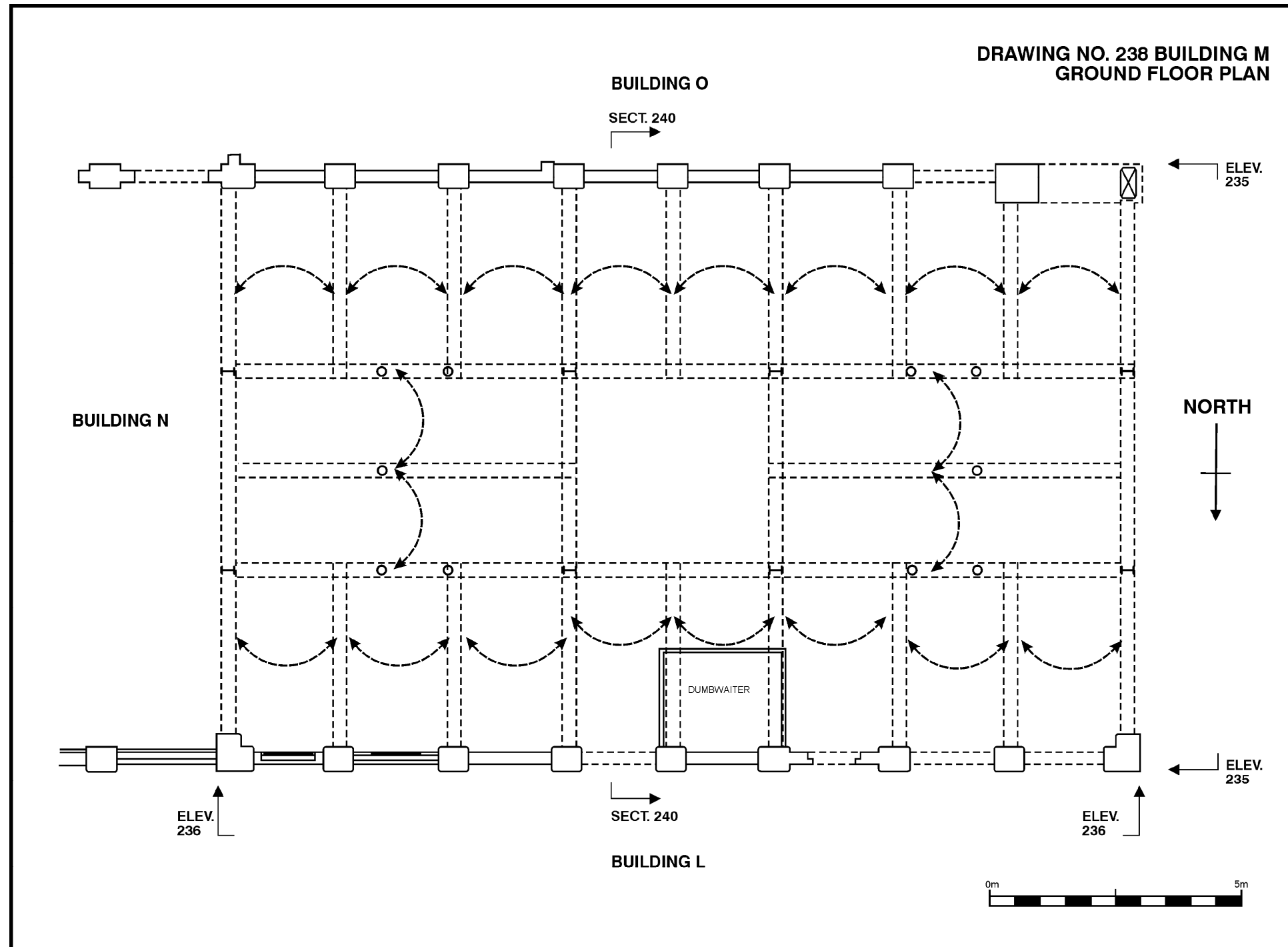


Figure 24: Ground floor plan of Building M (scale 1:100)

### First floor (Figure 25 – 27)

The first floor is accessed from Building N, L and O through a series of inserted doorways described in the exterior section. Its original access may have been through a straight staircase positioned on a narrow east/west block on the northern wall which is illustrated on the 1941 plan of the Works with the number 19 as that block is also recognised in the 1867 Board of Health plan of the Works. This floor was originally built as an open space with a central chimney. However, it is now divided into three areas. The eastern and central section is a large workshop, there is a corridor across the third bay from the west and there are two offices on the western side. These later subdivisions are made with stud partition walls. The main workshop is mostly empty but has tall wooden shelves, long tables and modern fluorescent lighting. It measures 11.15 metres long (north/south), 10.8 metres wide (east/west) and the side walls are 3.6 metres high. It has painted brickwork, a timber floor with asphalt finish and a plasterboard sloping ceiling with two rows of glazed skylights on each side of the pitched structure and two cowls situated on the ridge. The roof structure of the whole storey comprises seven sawn-timber bolted queen-post trusses, with raking struts from both tie beams and queen posts to the principal rafters. The trusses support four tiers of trenched side purlins (two on each principal) which carry the common rafters, notched over a wall plate with their upper ends set on a ridge piece. The tie beams stand 3.3 metres high and the ridge 6.5 metres tall. The east wall has two sliding doors at each end and two windows on the central bays. The windows are later replacements which are made of wooden frames and slender glazing bars with six lights (2 rows x 3 columns each, of which the upper row is an awning opening).

The corridor is open to Building L on the north and Building O on the south. It measures 11.5 metres long (north/south), 1.7 metres wide (east/west) and has a suspended ceiling (4.25 metres high) which extends almost the entire length, except for the northern and southern ends which are sloping with skylights. The stud separating the main workshop and the corridor has two doorways linking them.

The offices on the western side are accessed from the corridor through two doorways set on the stud wall between the corridor and the offices. These offices are separated by another stud wall orientated east/west. The southern one is 5.5 metres long (north/south), 5 metres wide (east/west) and has a suspended ceiling 2.66 metres high. It has plasterboard covering the south and west walls and a timber floor and is lit by two windows set on the west wall. The window in the narrow bay seems to be original and is made of cast-iron with twenty four lights (6 rows x 4 columns). This window has a four-lights pivotal opening with central hinges on the upper section. The window on the wide bay appears to be a replacement and has a wooden frame and slender glazing bars with twelve lights (3 rows x 4 columns) of which the upper row has an awning opening. There are desks and chairs inside this office.

The northern office measures 5.85 metres long (north/south), 5 metres wide (east/west) and the ceiling is identical to the one in the main workshop. It is also lit by two windows on the west wall: the one situated on the wide bay is a cast-iron type the same as the original window of the southern office, the other is a later encasement type which has been adapted into a fire escape window.



**Figure 25: Queen-post trusses on the first floor of Building M, looking east**



**Figure 26: Building M under demolition, looking south-west**

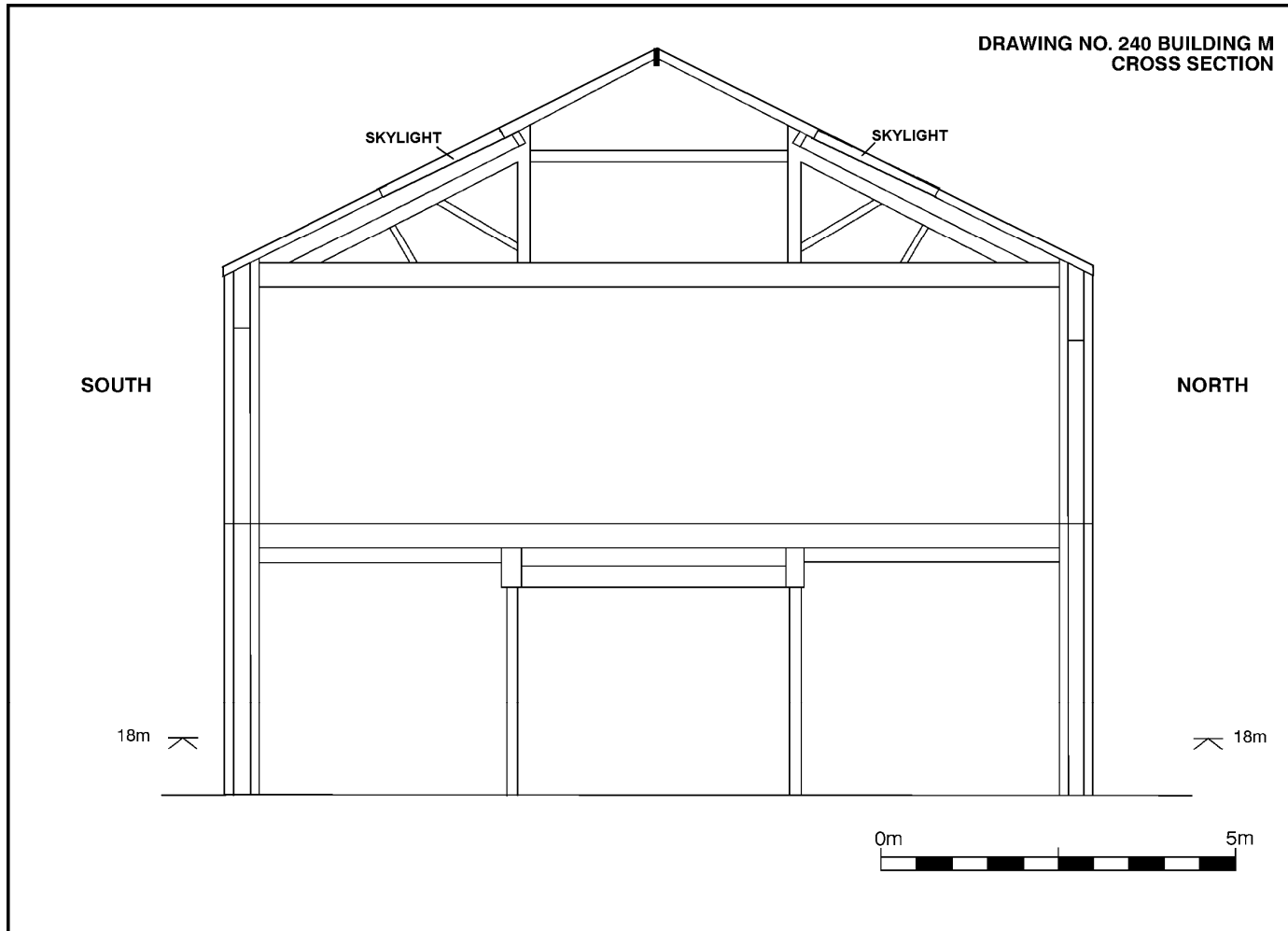


Figure 27: Cross-section of Building M (scale 1:100)



## 5.2 Building N

This building is the Grinding and Polishing East Range which is situated between the earlier east gable wall of the Grinding and Polishing West Range (Building M) and the side of the central lane of the Works. Building N is a brick-built two-storey range of eight bays articulated by brick pilasters. It was originally built as a single-storey extension to Building M with a lean-to block (east/west) on its northern side. The lean-to structure partially survives within the adjacent Building L and thus its survey has been included as part of Building N. Its overall dimensions, including the remains of the former lean-to, are 17 metres long (east/west), 16 metres wide (north/south) and 9.3 metres high. It is built of reddish brown bricks (9" x 4½" x 3") bonded with flush orangey grey medium coarse lime mortar laid to English bond and it has a slated pitched roof.

### 5.2.1 Exterior

East elevation (Figures 28 – 32)

The main east elevation is a fairly elaborately decorated tripartite composition, with two ground-floor windows in the central section and one to each side. These have segmental arched heads and moulded brick sills. The southernmost window was dismantled during the survey. A dentilled brick cornice, interrupted by the bay pilasters, is taken up to a semi-circular lunette above the central pair of windows. The dentil work is repeated at the base of the fairly shallow-pitched coped gable. There are two *cyma reversa* kneeler sandstones forming a termination at the eaves of the coping. The upper section of the gable was raised in the 1940s and there is a distinct construction break between the original and the additional brickwork. There is small vent in the lunette set on an earlier oculus which is blocked with bricks. The pilasters have blue engineering chamfered brick plinths at ground floor level. The former lean-to structure is obscured by a projecting brick tower which contains a large extractor fan. Following its demolition, the remains of a doorway was revealed.



Figure 28: Building N facing the central lane of the Works, viewed from Building W1



Figure 29: West elevation of Building N, looking north-west



Figure 30: West elevation of Building N, viewed from Building K2



Figure 31: Blocked doorway of former lean-to of Building N revealed during its demolition

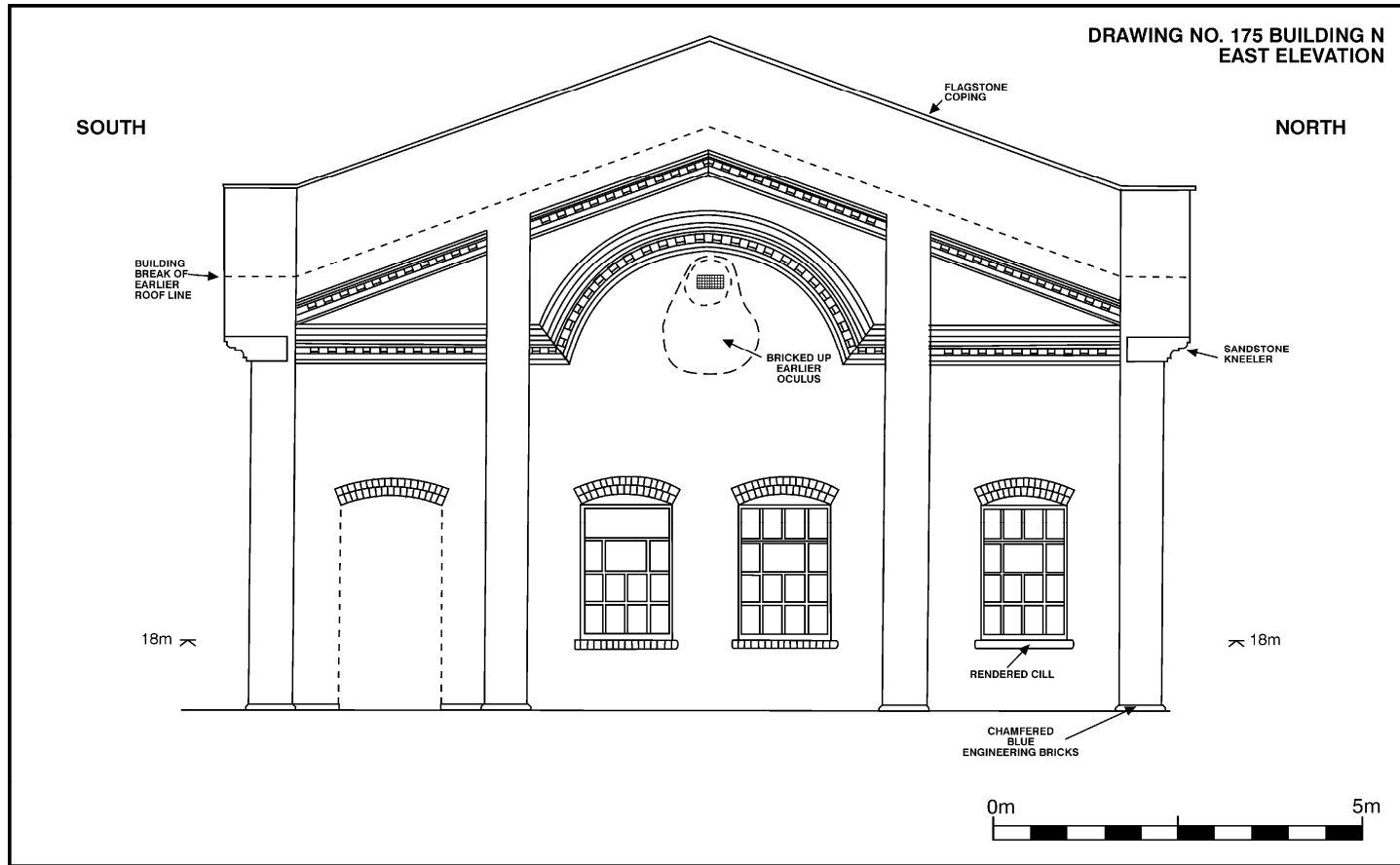


Figure 32: Survey drawing of the east elevation of Building N (scale 1:100)

### South elevation (Figures 33 – 38)

The south elevation has been considerably altered at ground-floor level with the insertion of later doorway openings. There are five arched heads of former window openings on the western side of the wall and above them the remnants of a dentilled cornice can be still seen. The bays are articulated by brick pilasters and there is a single inserted doorway with a steel lintel on the second and third from the east. The fourth and fifth bays from the east are blocked with breeze blocks. An earlier photograph taken inside the adjacent Building O shows the original windows of this elevation (Figure 35). The first floor was added later in the 1940s and is made of mid brownish red bricks (9½" x 4½" x 3½") bonded with orangey mortar and laid to stretcher bond. There are eight windows with concrete lintels and projecting sills. The roof is made of corrugated asbestos sheeting and has close eaves with cast-iron guttering and a parapet at the eastern verges of the gable wall.



Figure 33: South elevation of Building N, looking north-east



**Figure 34: South elevation of Building N, looking south-west**



**Figure 35: South elevation around the mid 20th century with the original windows (WPM)**



**Figure 36: South elevation of Building N**



**Figure 37: First floor of the south elevation of Building N**

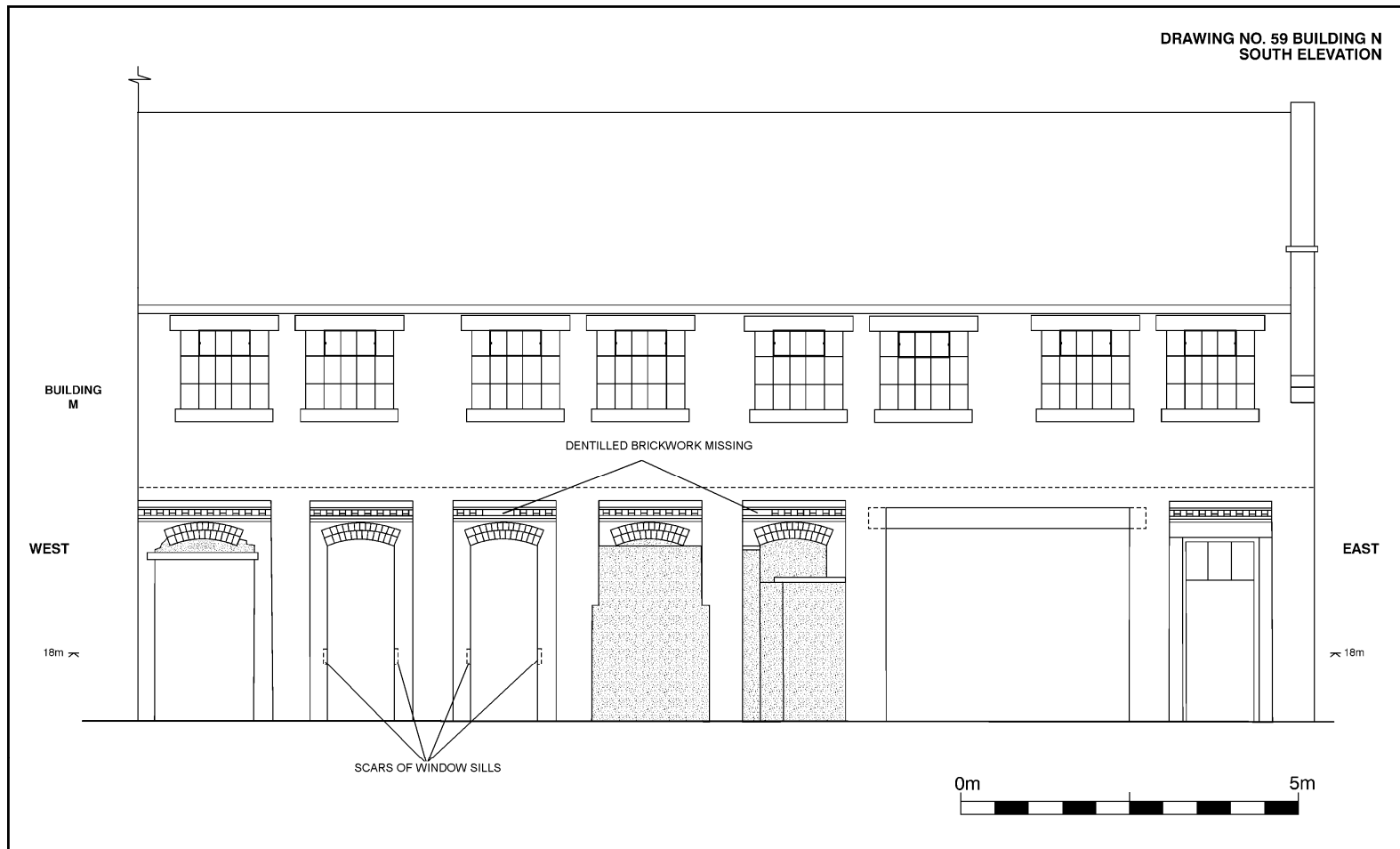


Figure 38: Survey drawing of the south elevation of Building N (scale 1:100)



### North elevation (Figures 39 – 42)

This elevation was originally a partition wall between the lean-to on the north and the main workshop. It is slightly shorter than the south elevation and thus it has seven bays rather than eight. The bays consist of wide doorway openings with segmental arched head and pillars with bullnose brick jambs. Most of them are blocked with bricks and breeze blocks except for the fourth and fifth bays from the east. The whole ground floor wall is painted cream. The first floor is a later addition to the original single-storey building and is now an interior wall of the southern side of Building L which is made of bricks (9¼" x 4¼" x 3") bonded with mid grey hard mortar and laid to Flemish Garden Wall bond. It has two small doorways on the eastern and western ends and five window openings with timber lintels which are blocked with bricks.

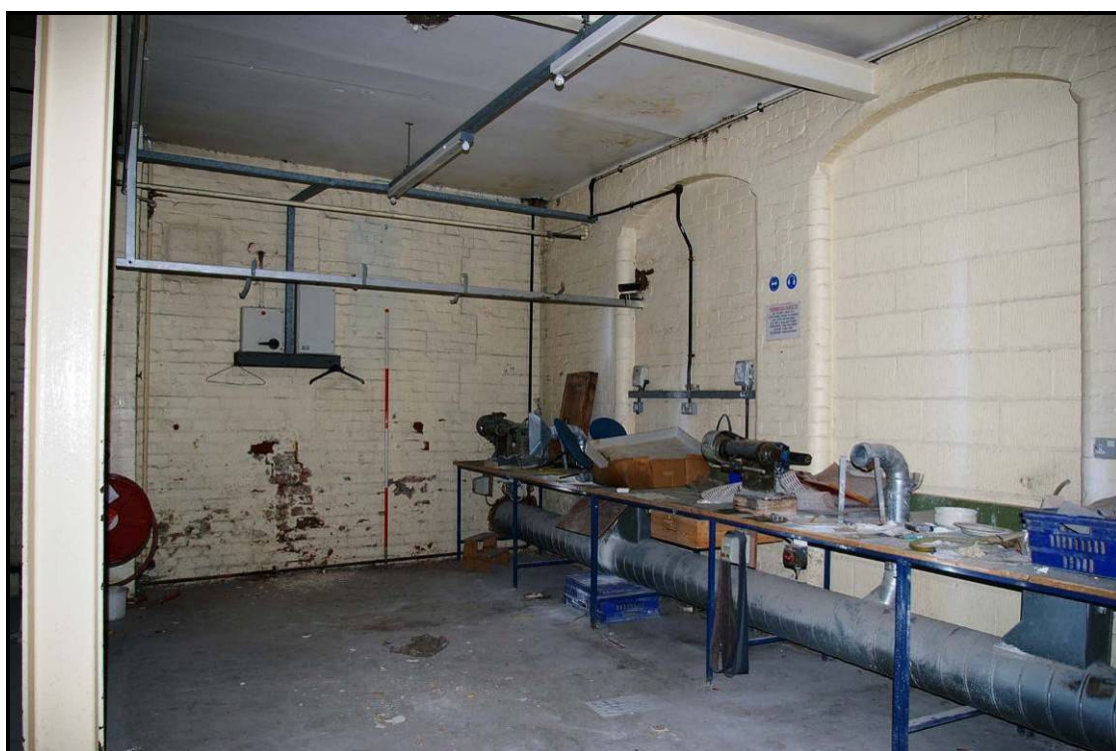


Figure 39: Eastern end of the south elevation of Building N



**Figure 40: Ground floor of the north elevation of Building N**



**Figure 41: Western end of the north elevation of Building N**



**Figure 42: The first floor of the north elevation with internal blocked windows**

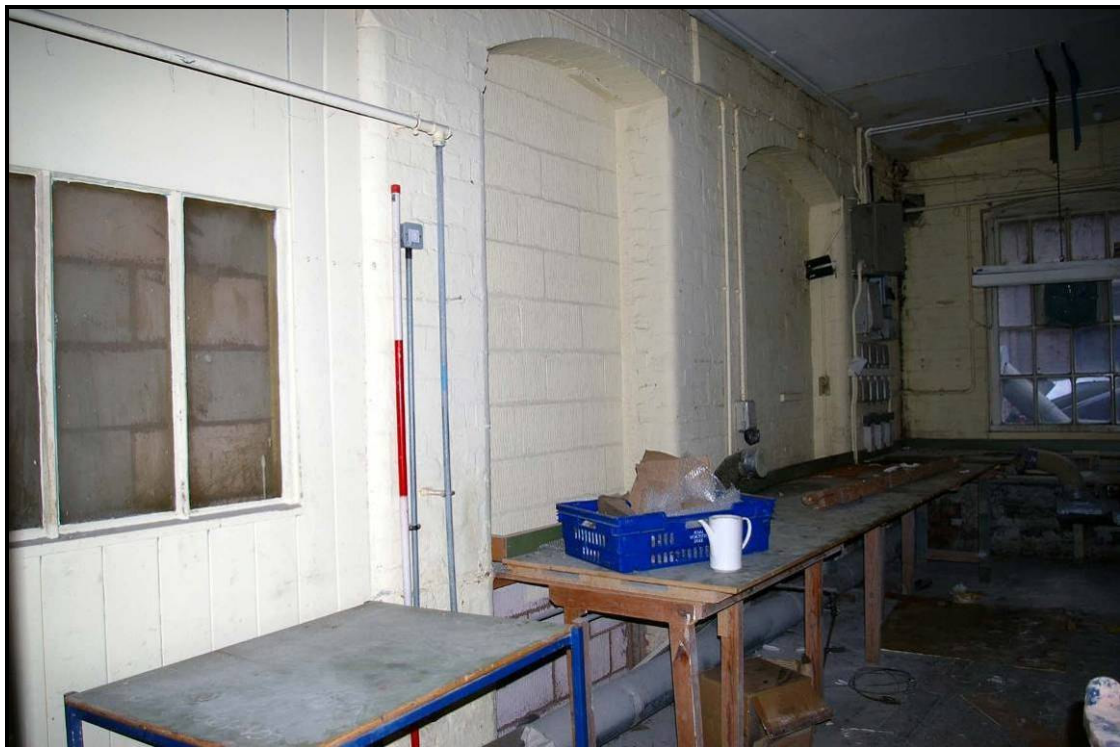
## **5.2.2 Interior**

Ground floor (Figures 43 – 47)

The northern lean-to structure has been considerably modified and its northern wall has been replaced by three RSJ stanchions supporting a wall of Building L. The only surviving remains are on the east wall which has a primary doorway blocked with bricks. The main workshop measures 17 metres long (east/west), 11.3 metres wide (north/south) and is 3.4 metres high. It has painted brickwork, a concrete floor with an U-shaped area covered with herringbone parquet flooring and a lath-and-plaster ceiling supported by a steel structure composed of four RSJ stanchions bearing two transverse RSJ beams. The brick pillars on the north and south walls have bullnose bricks. On the north wall there are three bays with tongue-and-groove panelling and the remains of window openings. The westernmost bay has a complete wooden window with six lights. These bays are blocked externally with breeze blocks. The east wall has four window openings with bullnose segmental arched heads and jambs, except for the northernmost bay which has straight jambs. The latter opening was formerly a doorway. There is a long worktop wooden table along the windows of the east wall.



**Figure 43: Ground floor of Building N, looking south**



**Figure 44: North-east corner of the ground floor of Building N**



Figure 45: North wall of the ground floor of Building N

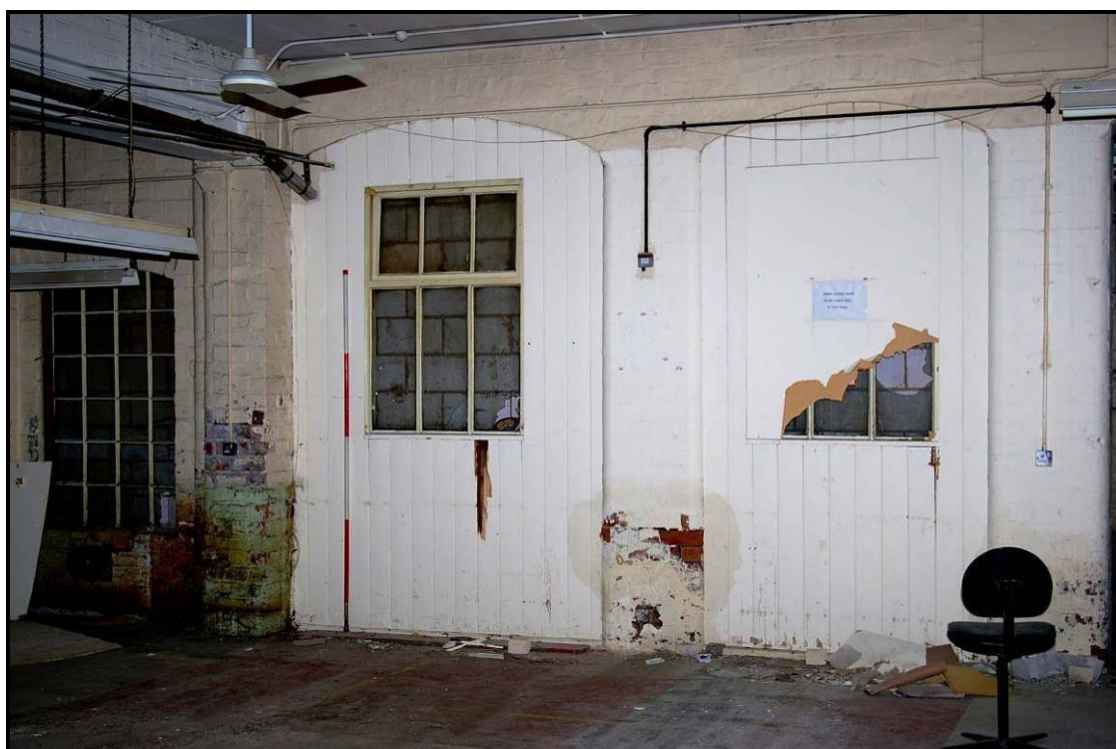


Figure 46: Western end of the north wall of Building N with Building M on the left

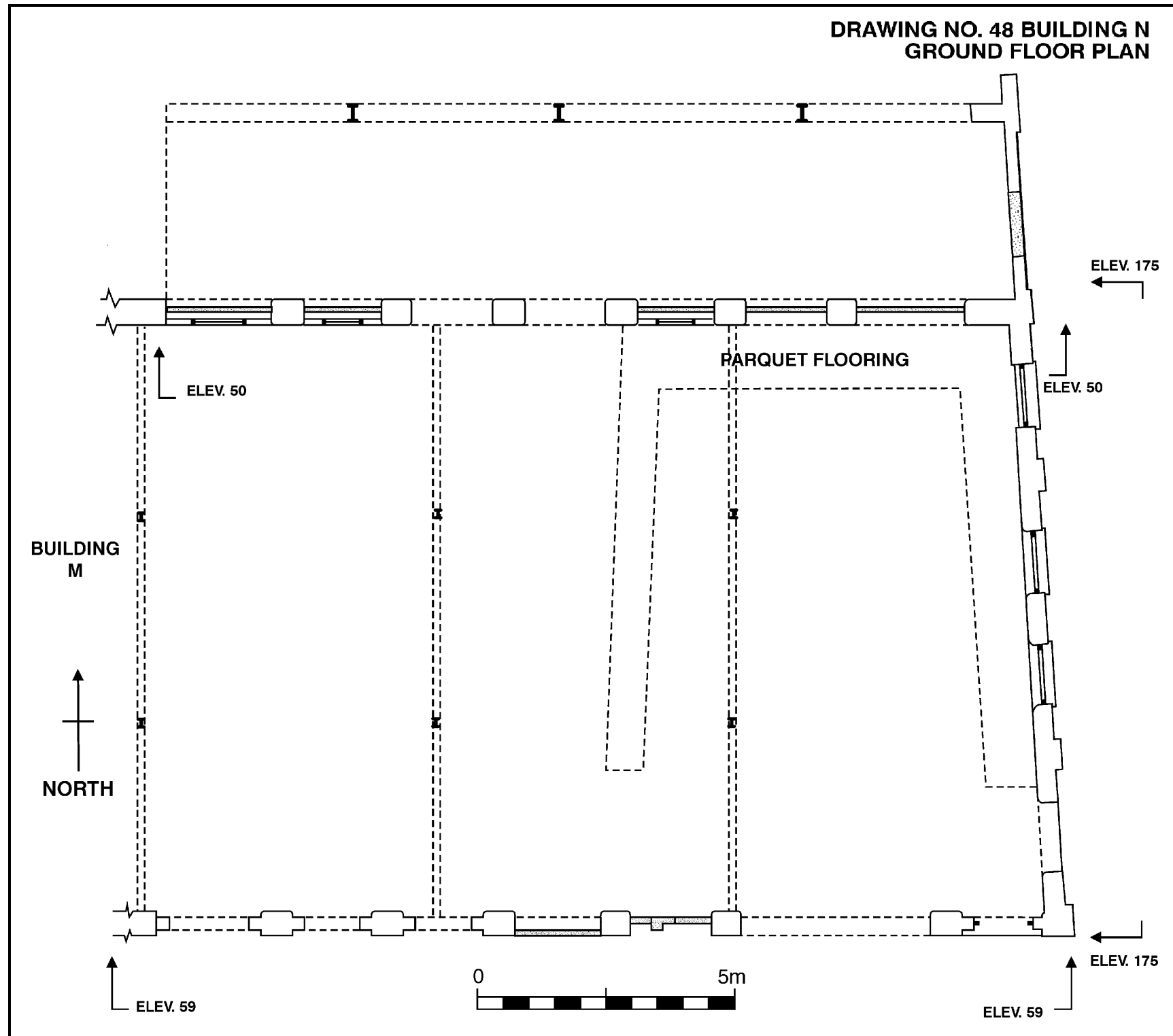


Figure 47: Ground floor plan of Building N (scale 1:100)

### First floor (Figures 48 – 56)

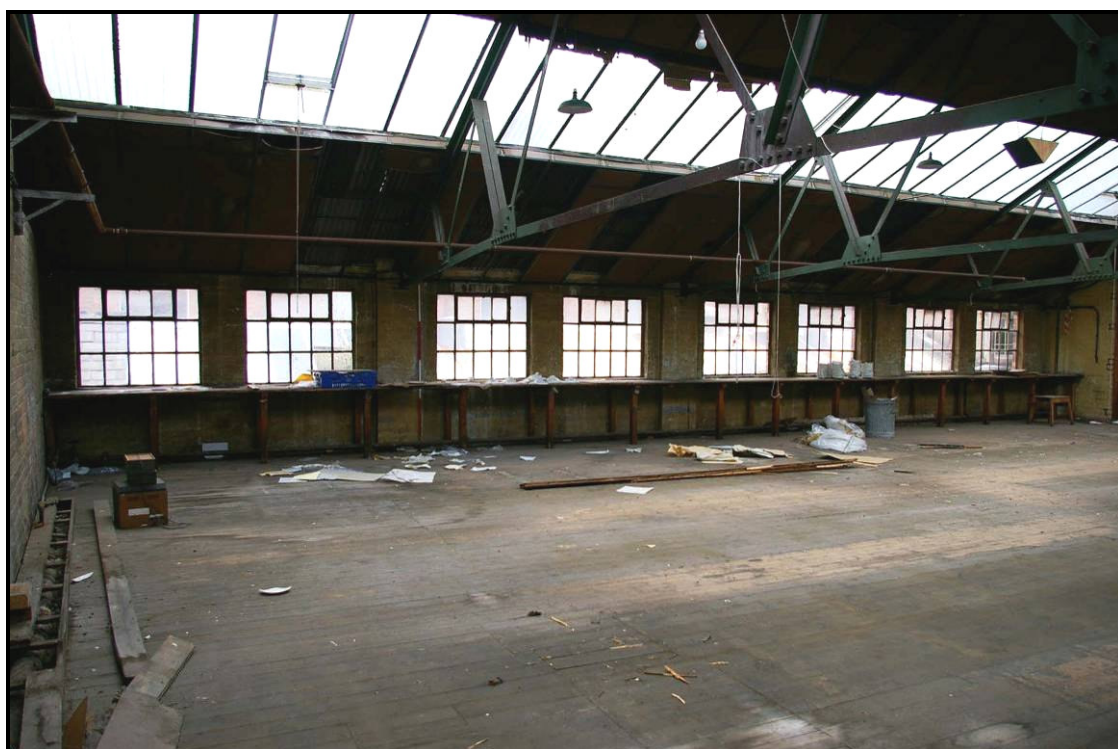
The first floor was added to the building in the 1940s and was built against the eastern gable end of Building M on the west and the first floor of the southern block of Building L on the north. Therefore, the south wall and the roof were the only additions to the first floor. Moreover, the eastern gable facade was slightly raised to accommodate the new roof structure. The south wall has eight 'Crittall-type' windows with fifteen rectangular lights set vertically (3 rows x 5 columns). Each has a central opening with pivotal central hinges on the top row. The windows light a long worktop table set against the wall. The inner side of the north wall is the exterior wall of the adjacent Building L and has five window openings with segmental arched heads and are blocked with bricks. Their projecting sills have been mostly removed but one of them partially survives. The east wall has an earlier oculus bricked up in which a later vent has been inserted. The northern kneeler stone can be seen from inside the first floor of Building L which was built against the original fabric of Building N. The floor is made of wooden boards and the roof structure consists of three lightweight steel trusses which stands 5.3 metres tall. The trusses are supported by brick pilasters on the south wall and steel stanchions butting against the north wall. The roof is covered with asbestos corrugated sheeting and two continuous central glazed skylights on each slope of the pitched roof.



**Figure 48: First floor of Building N, looking west with Building M on the background**



**Figure 49: Windows on the south wall of the first floor of Building N**

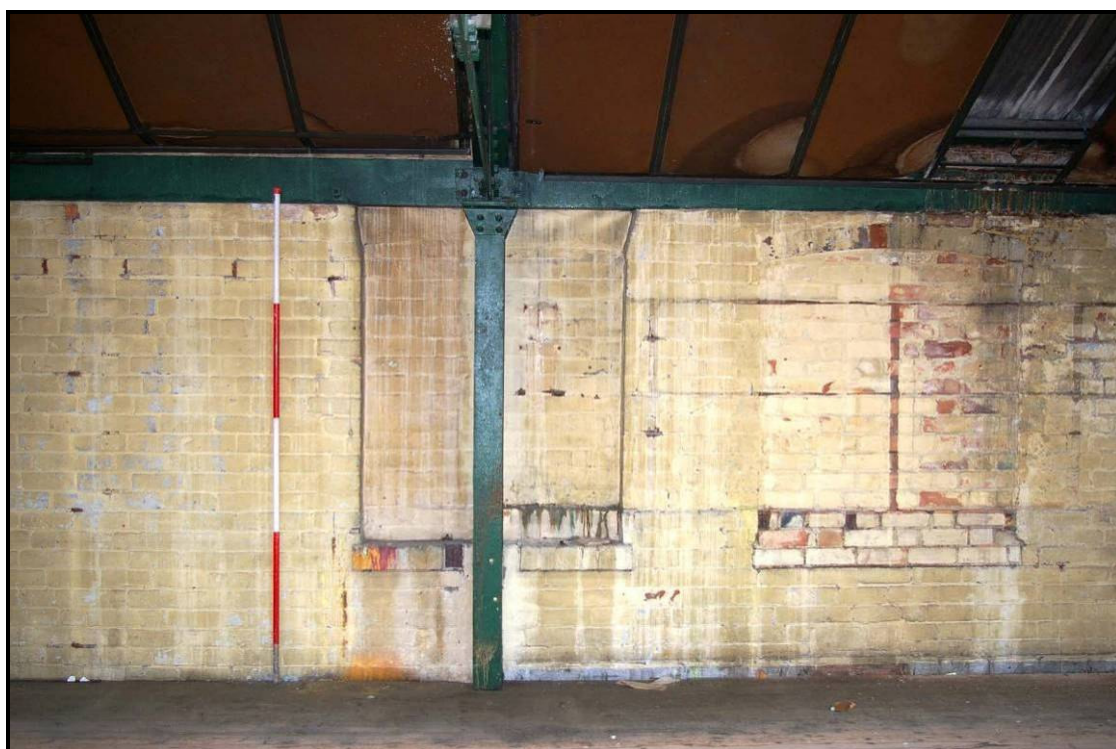


**Figure 50: First floor of Building N, looking south**





**Figure 51: First floor of Building N, looking east**



**Figure 52: Blocked windows on the north wall of the first floor of Building N**



Figure 53: North wall of the first floor of Building N



Figure 54: Detail of window



Figure 55: Kneeler stone inside Building L

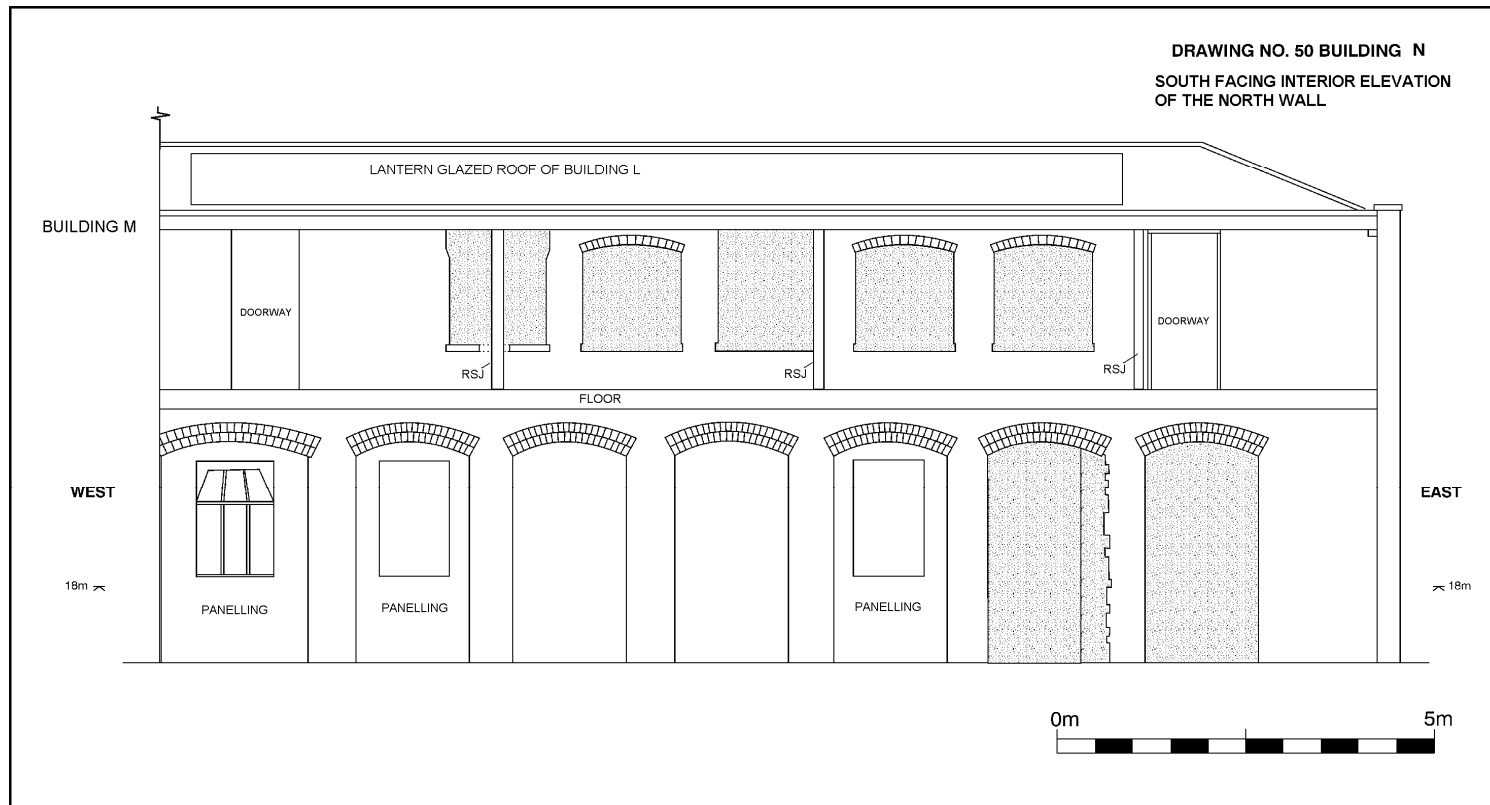


Figure 56: Survey drawing of the internal south facing of the north wall of Building N (scale 1:100)

### 5.3 Building Q

This is the Painting Rooms/Aerographic Block. It is a large three-storey brick-built range of seven bays articulated by brick pilasters. It is situated on the western side of the Works, opposite Building P. It measures 18.95 metres long (north/south), 8.85 metres wide (east/west) and is 13.7 metres high. It is constructed with regular red bricks (9" x 4¼" x 3") laid to English bond and it has a slated pitched roof.

#### 5.3.1 Exterior

East elevation (Figures 57 – 60)

This side elevation is of seven bays articulated by brick pilasters which have plinths decorated with chamfered blue engineering bricks. Each of the recessed panels between the pilasters is topped by dentilled moulded brick cornices. This elevation has a glazed walkway/bridge built against the first-floor level which extends towards Building U on the south. There is a double timber door on the northernmost bay of the ground floor with flat chamfered brick jambs. In each bay there is a broad window opening with a segmental brick head and plain sills of engineering blue brick. Most of the window openings retain their original cast-iron multi-paned glazing, apart from the windows of the first-floor level which are later replacements. Moreover, the northernmost window opening on the first floor has an inserted doorway which leads to a later bridge. The southernmost bay of the second floor has also been altered by the insertion of a modern window. There are small rectangular vents above the segmental arched heads of the ground and first floors' windows. The pitched roof is made of natural slates topped with tile ridges. It has close eaves with cast-iron guttering and close verges.



Figure 57: East elevation of Building Q



**Figure 58: Glazed bridge on the east elevation of Building Q, looking south towards Building U**



**Figure 59: Ground floor of the east elevation of Building Q**



**Figure 60: East elevation of Building Q after demolition of bridge**

West elevation (Figures 61, 62 and 64)

This elevation is virtually identical to the eastern one although it retains much of its original windows on every level. The only exception is that an opening was later made on the southern side of the first floor for the insertion of a bridge leading westwards.

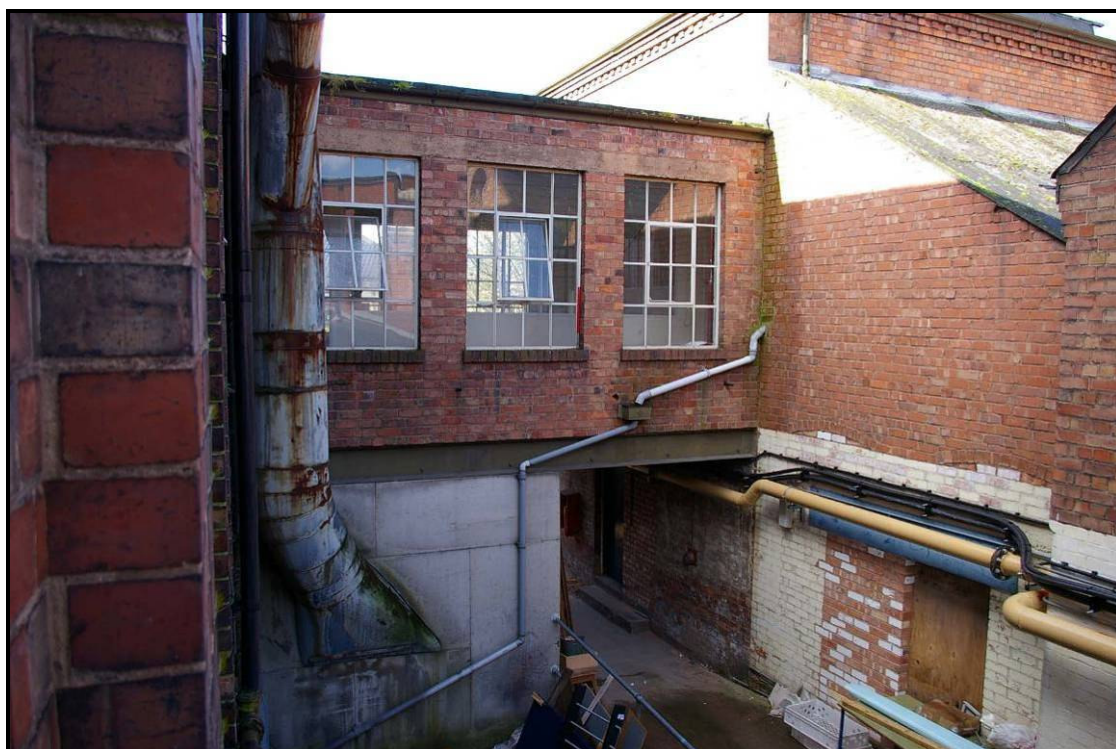


Figure 61: Bridge on the west elevation of Building Q



Figure 62: West elevation of Building Q



Figure 63: North elevation of Building Q

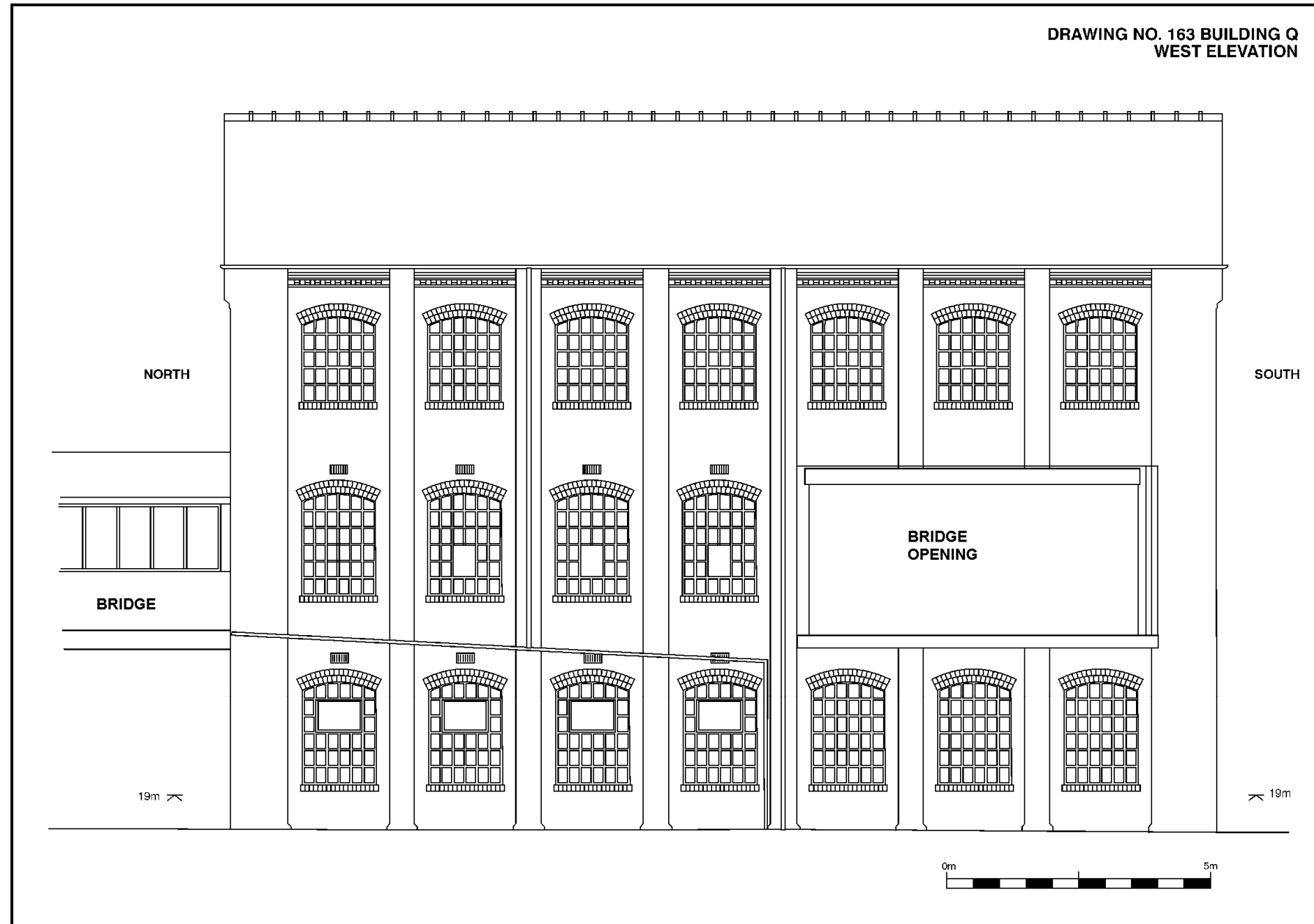


Figure 64: Survey drawing of the west elevation of Building Q (scale 1:100)



### North and south elevations (Figures 63, 65 – 71)

The gable elevations are simpler than the side walls, without pilasters, although the coped gables are decorated with dentilled brick cornices with a central cast-iron vent. The north elevation has fewer windows as the internal staircase is built against this wall. There is an inserted bridge on the first floor and an inserted doorway on the ground floor which is set on a former window which is now bricked-up. The doorway has a concrete lintel and is currently boarded up.

The south gable is of three bays and retains much of its original windows, although here too, like the east elevation, the windows of the first floor have been replaced by modern types. On the ground floor the westernmost window has been partially blocked and a timber door with a concrete lintel has been added. There is a metal fire escape ladder attached to the wall with small platforms on the first and second floors.



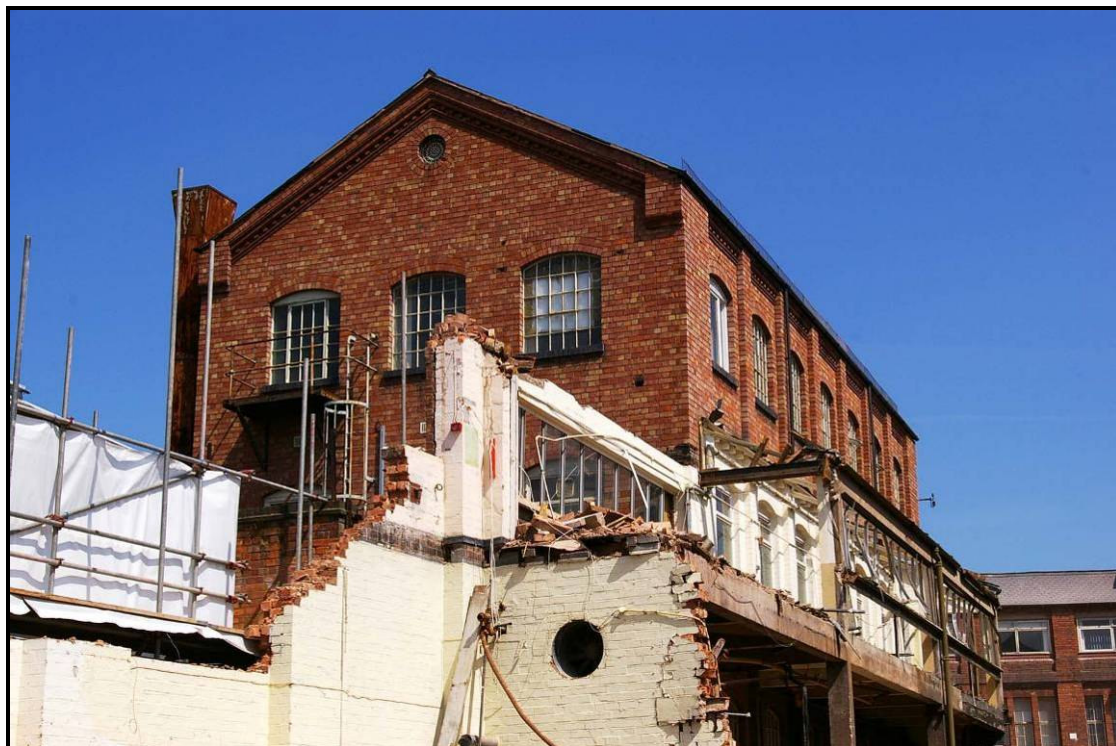
Figure 65: General view of the north elevation of Building Q



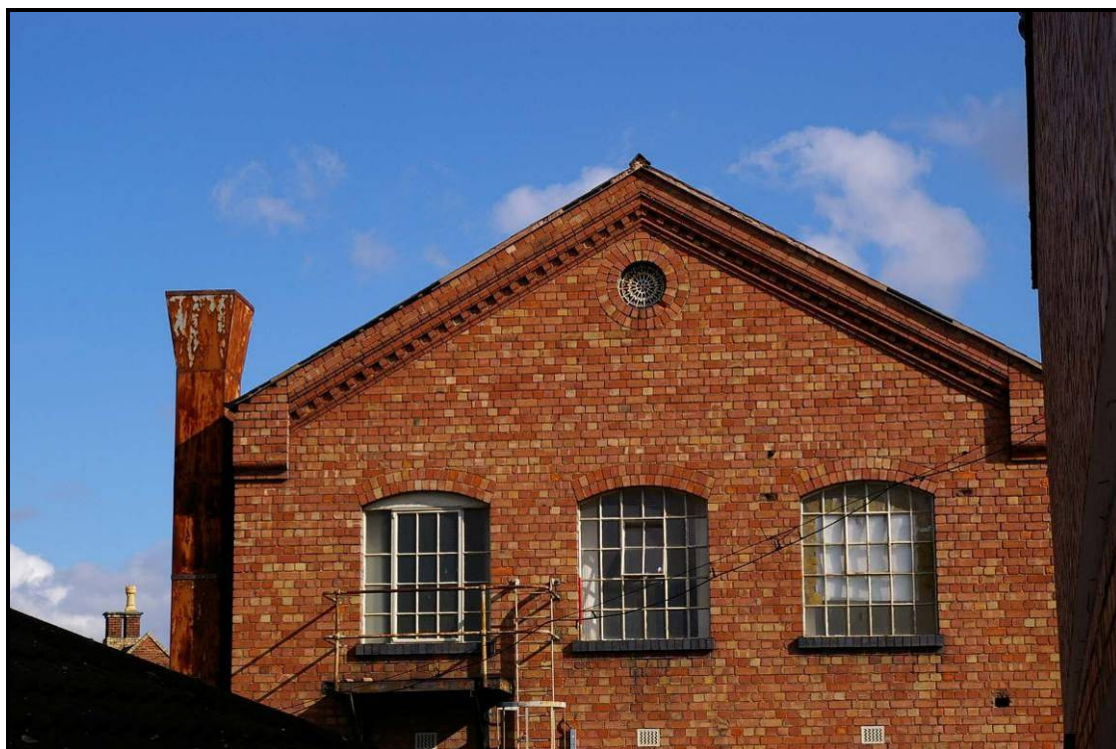
Figure 66: Detail of cast-iron vent on the northern gable of Building Q



Figure 67: Buildings Q and R after demolition of surrounding buildings, looking south



**Figure 68: South elevation of Building Q during demolition of Building U (foreground)**



**Figure 69: Detail of the southern gable of Building Q**

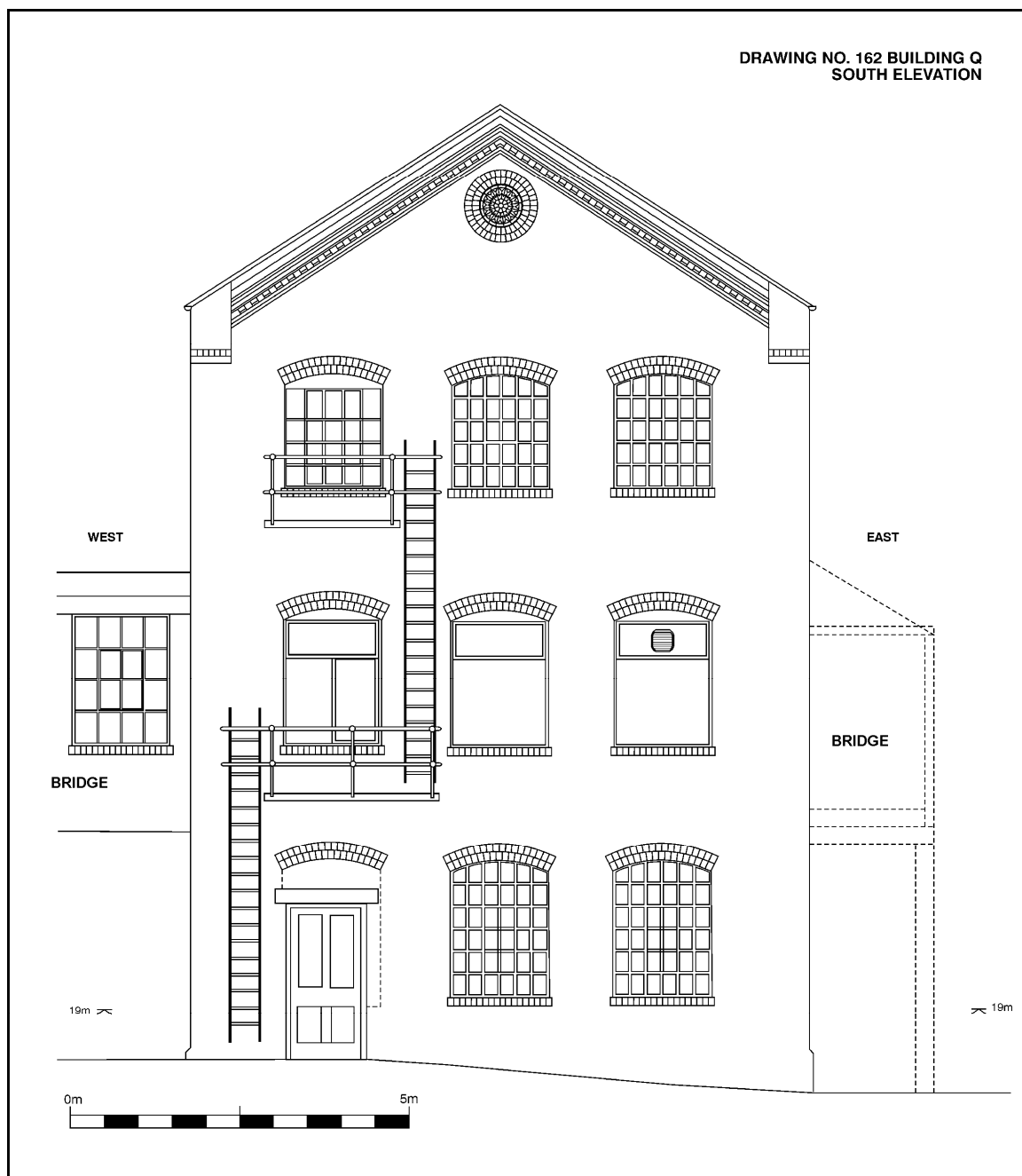


Figure 70: Survey drawing of the south elevation of Building Q (scale 1:100)

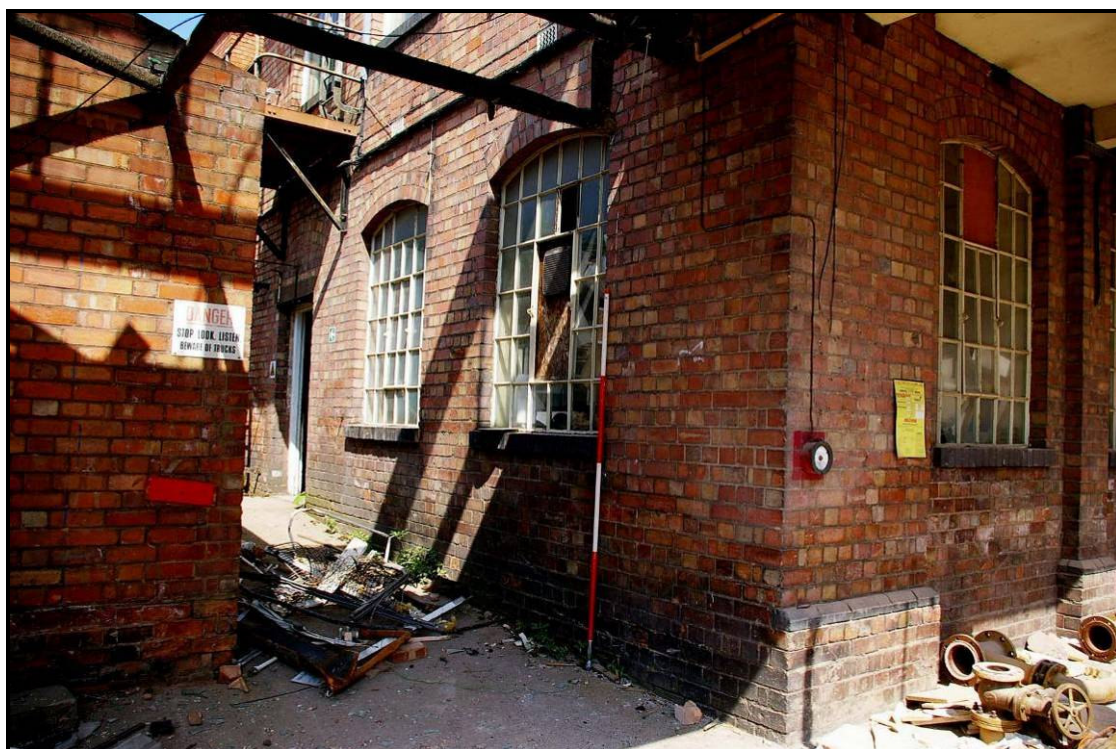


Figure 71: Windows on the ground floor of Building Q, looking north-west

### 5.3.2 Interior

Ground floor (Figures 72 – 77)

This floor is accessed from the main double door through a step (140mm high) on the northernmost bay of the east wall and from the later inserted doors on both gable walls. This floor is an open workshop which measures 18 metres long (north/south), 7.65 metres wide (east/west) and is 3.35 metres high. In contrast to the external side walls, the interior consists of five bays demarcated by four cast-iron tapered columns with Tuscan capitals supporting transverse timber beams (east/west). The ceiling beams have narrow flat chamfered edges and plain chamfer stops. Most of the fenestration is original and made of cast-iron with thirty six rectangular lights set vertically (6 rows x 6 columns); on the central section is an opening (3 rows x 2 columns) with pivotal hinges. The inner windows' jambs and arched heads are flat chamfered with plain stops. The northern bay has a timber straight staircase set against the north wall which is enclosed with an asbestos boarding partition stud. There is another partially glazed stud wall orientated north/south forming separate working spaces. There is a small kitchen unit with a sink on the south-west corner. There are also some metal-framed worktop tables lit by modern fluorescent lighting. The workshop has painted brickwork, a brick floor and a plasterboard ceiling.



Figure 72: Ground floor of Building Q, looking north



Figure 73: Ground floor of Building Q, looking south-east



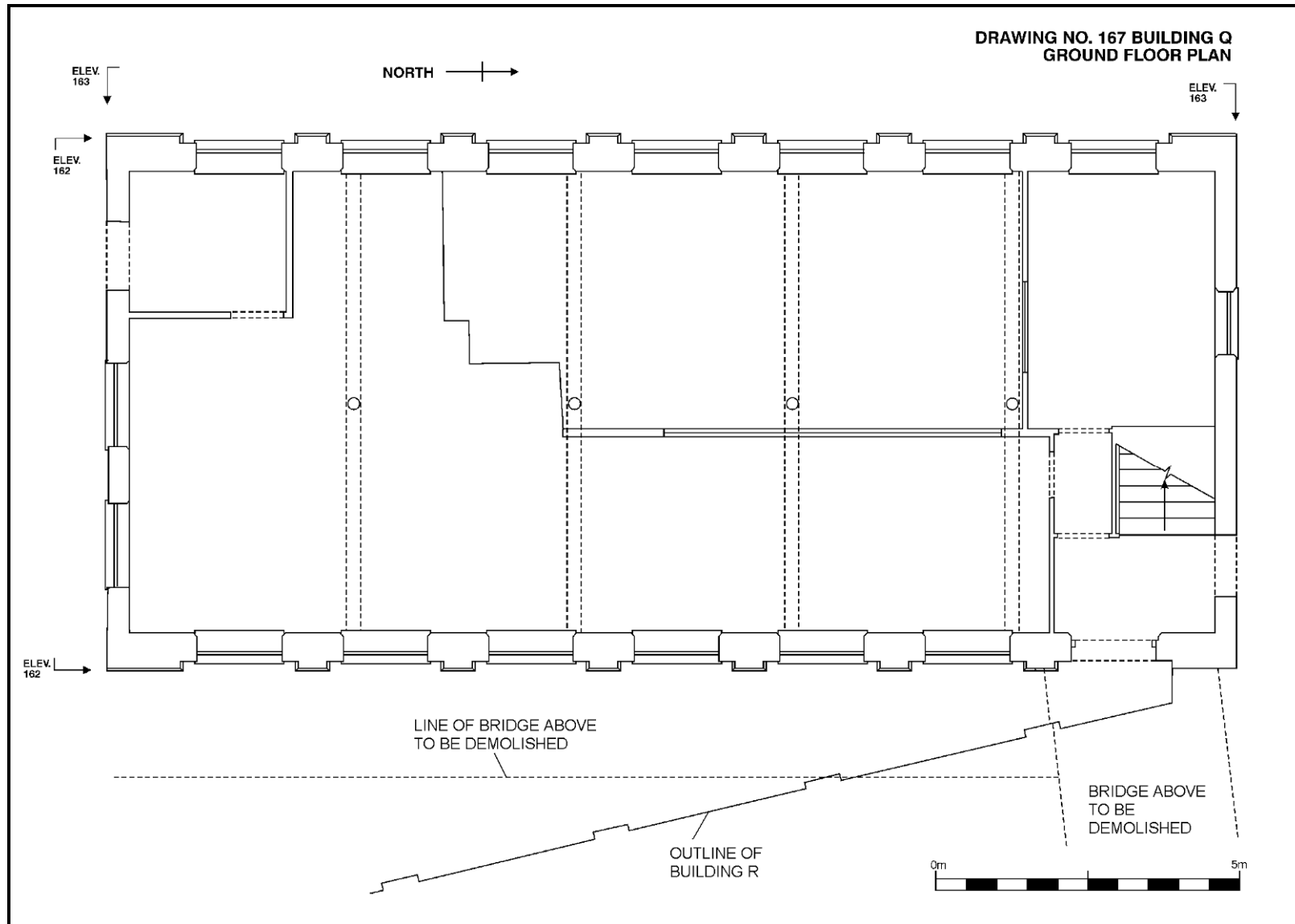
Figure 74: West wall of the ground floor of Building Q



Figure 75: Screen and cast-iron column



Figure 76: Staircase on the first floor



**Figure 77: Ground floor plan of Building Q (scale 1:100)**



### First floor (Figures 78 – 85)

The first floor is very similar to the ground floor and has the same layout and internal dimensions except for its height which is 3.35 metres. It is accessed from its primary staircase on the northern bay, and also from three bridges inserted on the north, east and west walls. There is an office on the western side which is built with lightweight stud partitions and has a suspended ceiling (2.88 metres high). This floor is also fairly bare and there is furniture piled up at the southern end of the workshop. The bridge inserted on the west wall is a vast structure lit by six large cast-iron windows and has a screened office and a corridor. This structure is to be demolished. The majority of the fenestration is equal to that of the ground floor except for the windows on the east and south walls which are later replacements. These have wooden frames with two lights, of which the lower is a large frosted pane and the upper is a clear awning opening pane. The lower pane of the window on the westernmost bay of the south wall has been modified slightly in order to create a fire escape exit. The general fabrics of the entire first floor are the same as the lower level apart from the floor itself which is made of timber boards over joists.

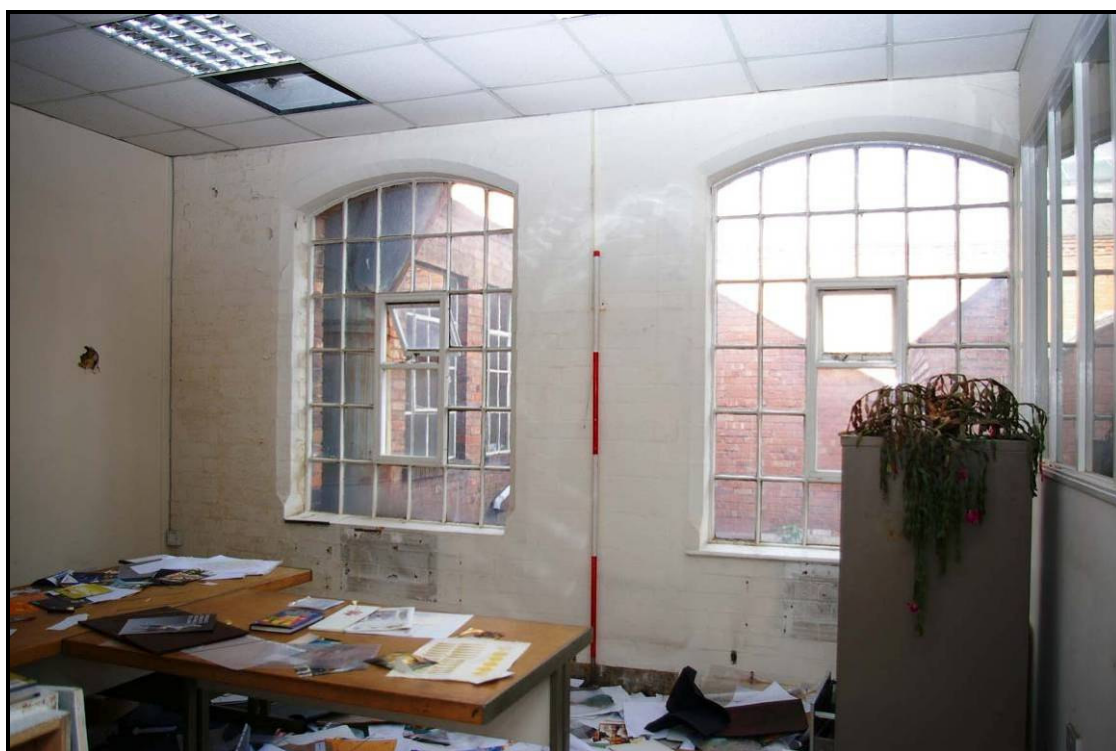


Figure 78: Office on the first floor of Building Q, looking west

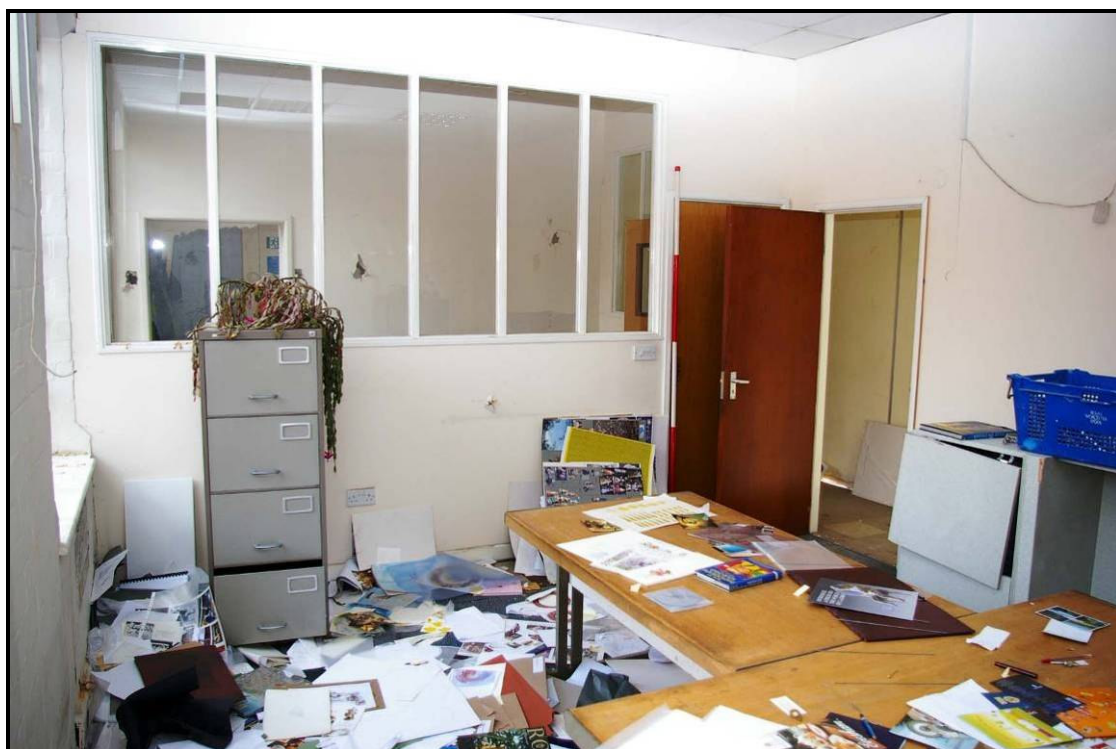


Figure 79: Office on the first floor of Building Q, looking north



Figure 80: Southern end of the first floor of Building Q

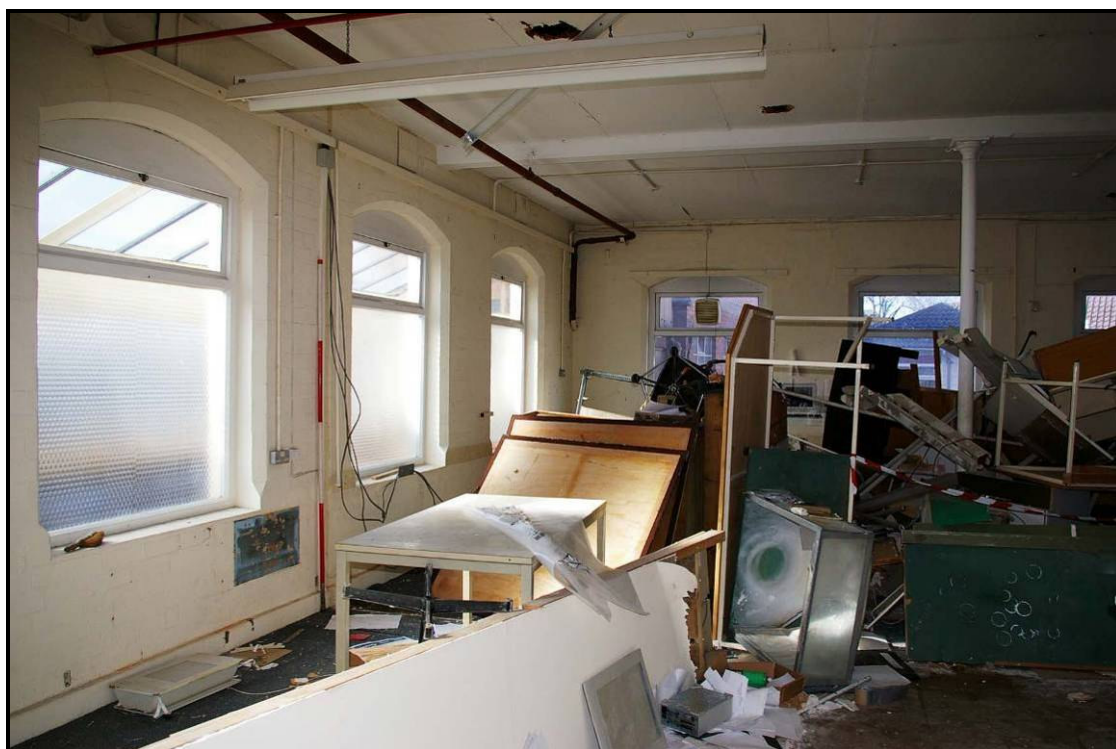


Figure 81: South-east corner of the first floor of Building Q



Figure 82: Southern bridge on the first floor of Building Q, looking west



**Figure 83: Windows of the southern bridge of Building Q, looking south**



**Figure 84: Detail of window on the bridge**



**Figure 85: Window on the first floor**

## Second floor (Figures 86 – 95)

The second floor is also a large open workshop similar to the lower levels. It is accessed from the primary staircase on the northern bay. The floor has later lightweight partition studs on the southern end which enclosed a computer room. The walls and floor are identical to the first floor but the fenestration differs slightly as the windows are shorter with thirty lights (5 rows x 6 columns) with central pivotal openings composed of four lights. The entire floor is used as an office which has desks, office chairs, computers, filing cabinets, etc. There are radiators on the walls, window blinds and modern lighting set on a suspended ceiling (2.7 metres high). The original roof structure can be seen over the suspended ceiling which consists of four timber king-post trusses which carry two tiers of trenched side purlins (one on each principal). The common rafters are notched over a wall plate with their upper ends set on a ridge piece. The tie beams stand 3.13 metres high and the underside height of the ridge is 6.1 metres high. The primary ceiling is extant and is also visible over the suspending ceiling. This has boarded slopes to underside purlins and the central section is flat (4.3 metres high) and has several hatches.



Figure 86: Southern office on the second floor of Building Q, looking north-west



**Figure 87: Southern office on the second floor of Building Q, looking east**



**Figure 88: Main workshop on the second floor of Building Q, looking east**



Figure 89: Detail of handle of window opening



Figure 90: Window sample, looking west



Figure 91: Second floor of Building Q with suspended ceiling under timber trusses

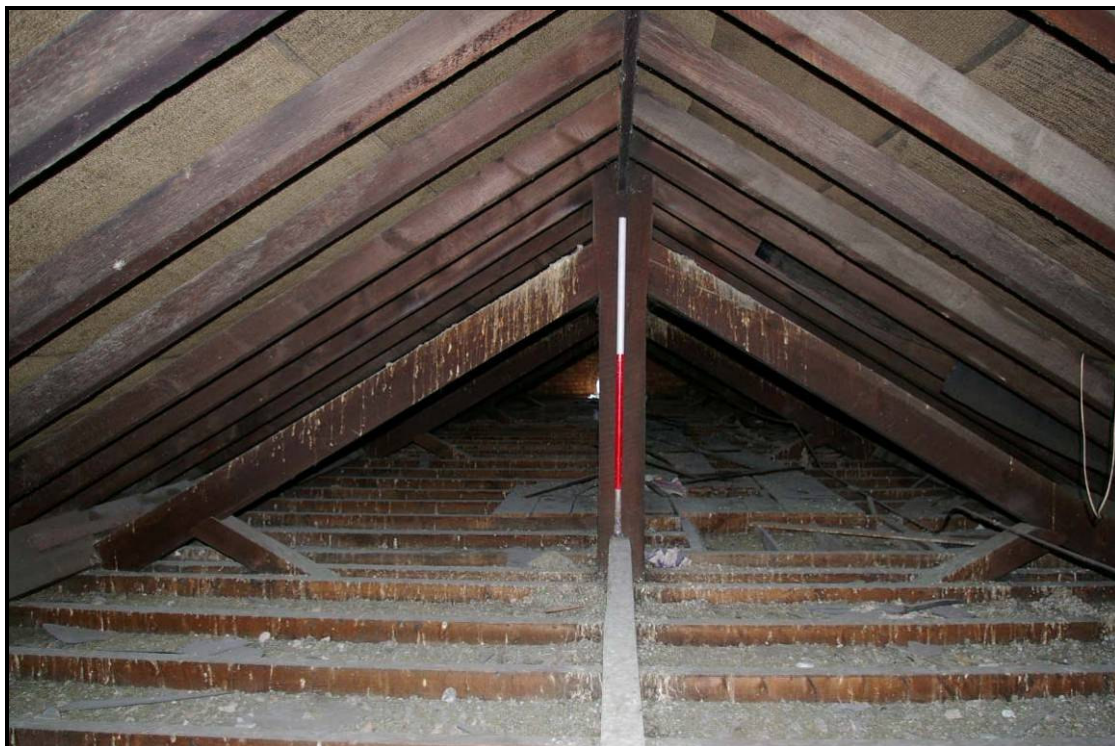


**Figure 92: Carpenter's marks on tie beam and principal rafter**

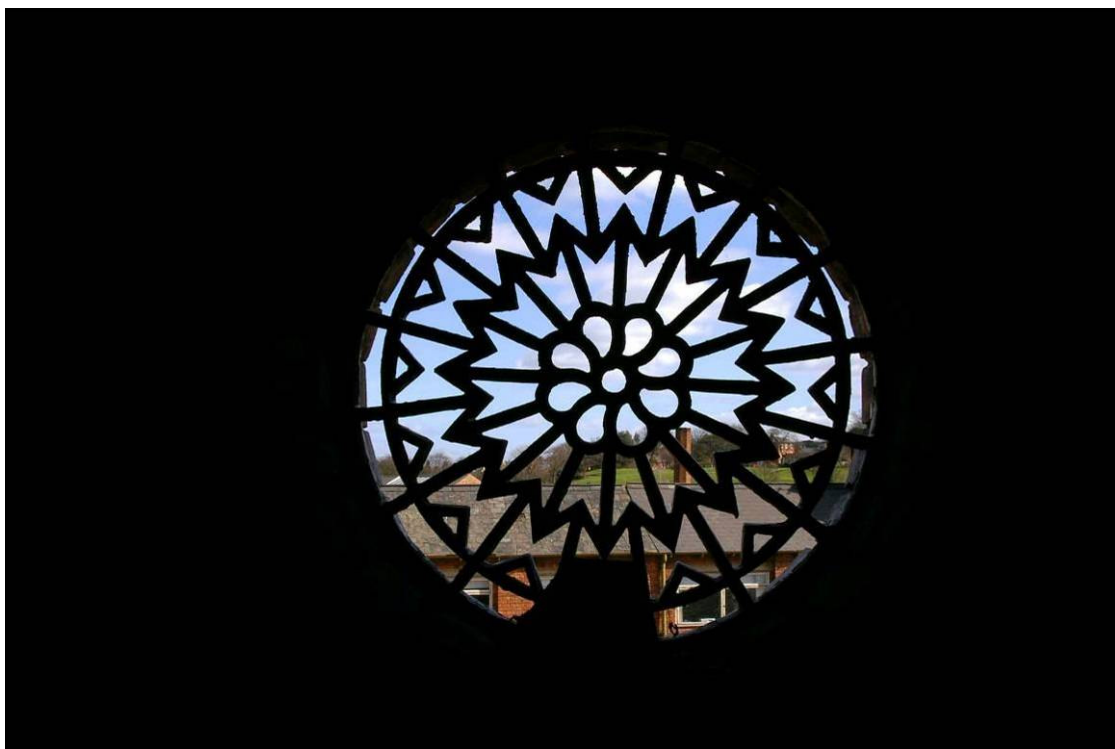


**Figure 93: King-post trusses over the suspended ceiling**





**Figure 94: Upper section of king-post trusses over original plasterboard ceiling**



**Figure 95: Cast-iron vent inside ceiling of Building Q, looking north**

## 5.4 Building R

This is the China Decorating and Warehouse Range, a large three-storey building of six bays with pairs of windows to each bay on the side elevations. This range is situated between Building T on the east and Building P on the west. It has an overall dimension of 22.6 metres long (north/south), 7.3 metres wide (east/west) and is 13.65 metres high. This building is constructed of mid reddish bricks (8¼" x 4¼" x 3") bonded with recessed light orangey grey gritty mortar (up to 10mm thick), laid to English bond and it has a slated pitched roof.

### 5.4.1 Exterior

North elevation (Figures 96 – 99)

The northern gable elevation has four window openings at each level with segmental brick arched heads and moulded brick sills, but some have been blocked. The gable has a moulded dentilled cornice topped by coping lias stones. In the centre of the gable is a brick-framed glazed roundel. There are two *cyma reversa* moulded kneeler sandstones forming a termination at the eaves of the coping. The lower and most of the central section is butted by later structures belonging to Building O.



Figure 96: North elevation of Buildings R (left) and Q (right)



Figure 97: North and west elevations of Building R

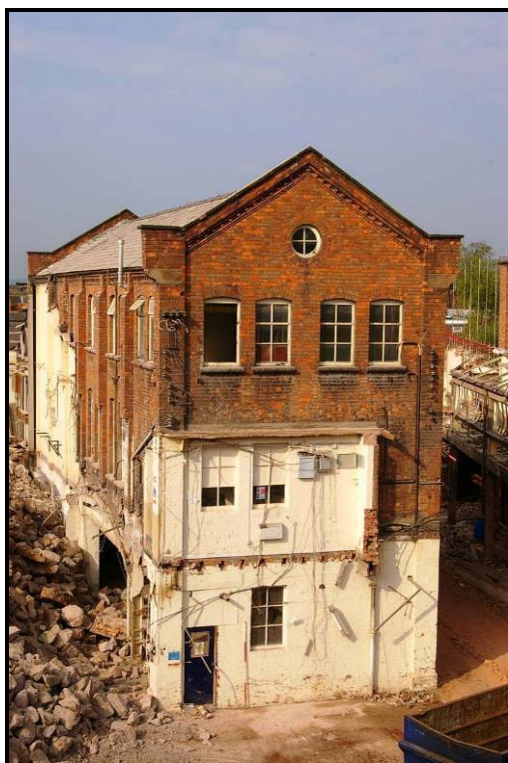


Figure 98: North elevation



Figure 99: Window on the second floor

### South elevation (Figures 100 – 102)

The south elevation, facing towards Mill Street, is equivalent to the northern gable wall. However, it is in better condition without any buildings attached to it. There are three windows blocked on the ground floor and an inserted doorway with a concrete lintel. The side pilasters are decorated with chamfered plinths. On the lower level there is an attached external dog-leg metal fire escape staircase.

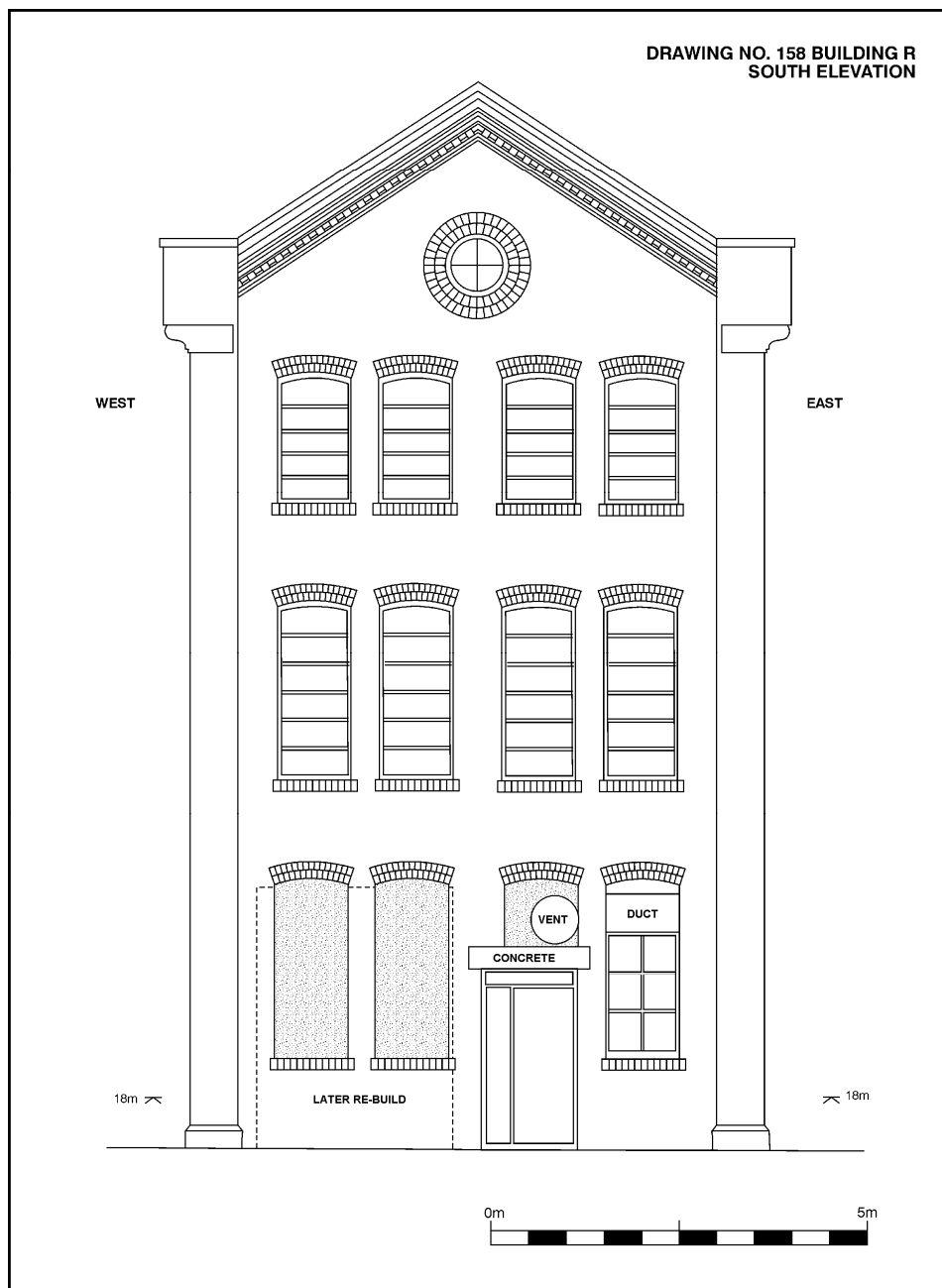


Figure 100: Survey drawing of the south elevation of Building R (scale 1:100)



**Figure 101: South elevation of Building R viewed from Building U**



**Figure 102: Southern gable end of Building R**

### East elevation (Figures 103 – 110)

The east elevation consists of six bays articulated by brick pilasters corbelled out for the upper storey and terminating with two courses of chamfered bricks just before the eaves. The recessed panels are topped by ornately moulded dentilled cornices and have pairs of windows on each level. The ground-floor level has been substantially altered with the insertion of a large opening on the northern half. This consists of a steel stanchion with a fire protective covering supporting a large steel beam bearing the upper wall. Most of the window openings on the southern half of the entire elevation have been blocked with bricks. There are cast-iron vents on the uppermost section of the pilasters and on the recessed panels between storeys. The pitched roof is made of natural slates topped with tile ridges. It has close eaves with cast-iron guttering and both of the gables have parapets at their verges.



**Figure 103: East elevation of Building R**



**Figure 104: Detail of windows and corbelling on the first floor of Building R**



**Figure 105: Detail of windows on the second floor of Building R**



Figure 106: Detail of windows and pilasters



Figure 107: Detail of pilaster and cornice

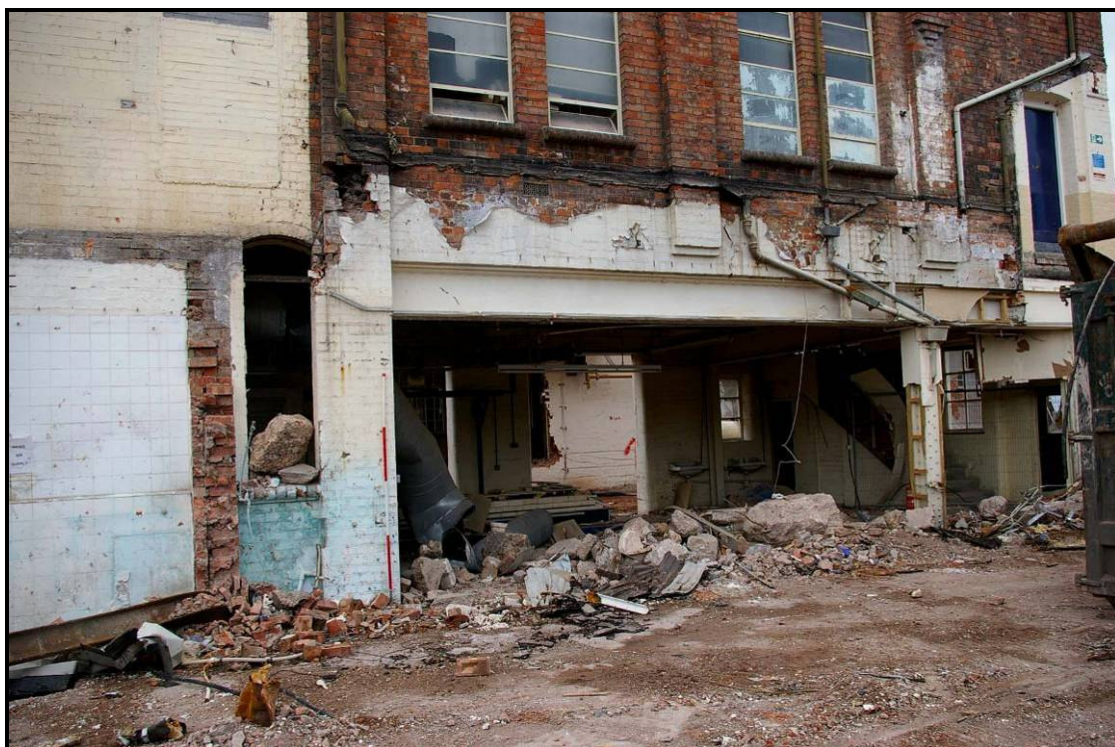


Figure 108: Northern end of the east elevation of Building R





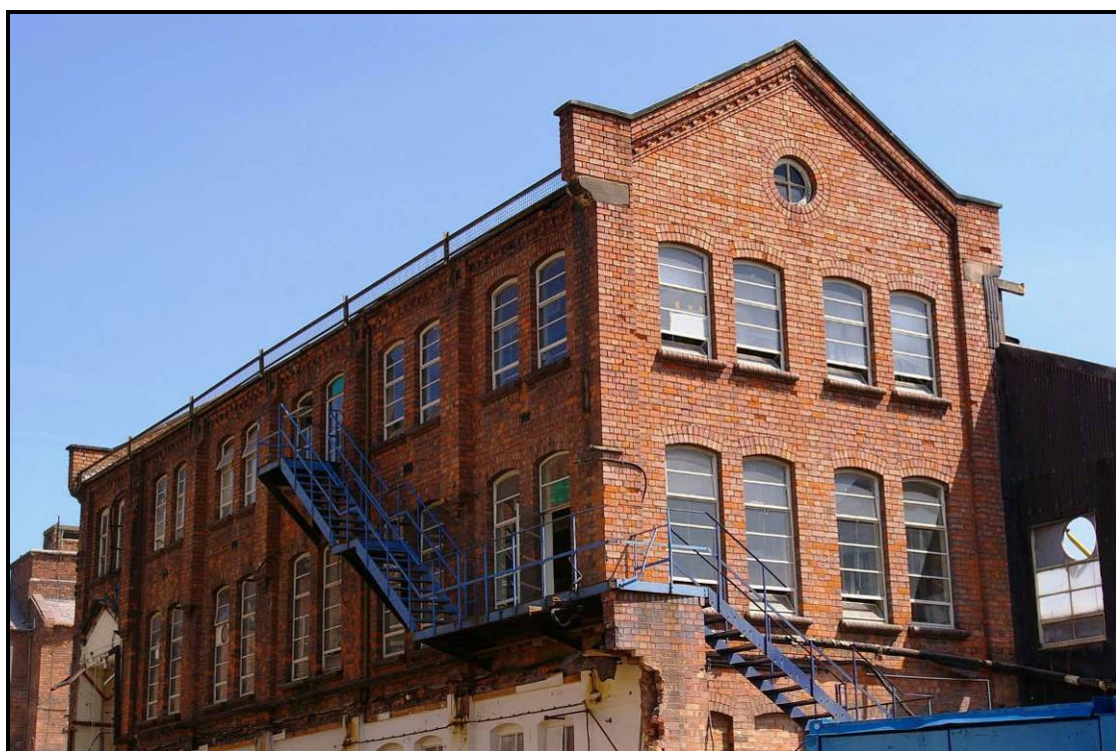
**Figure 109: East elevation of Building R after demolition of adjacent buildings**



**Figure 110: Large opening on the east elevation of Building R**

### West elevation (Figures 111 – 113)

The ground-floor level of this elevation is obscured by Building P but the upper levels are visible. This side elevation has the same arrangement as the eastern one although its fenestration survives in both the first and second floors except for the ones on the northernmost bay of the first floor which has an inserted opening for a bridge. The ground floor is rendered, and has been modified with the insertion of openings on the second and third bay from the north. The fourth bay has a similar opening but is currently blocked with breeze blocks. The first bay is also altered and the windows are blocked apart from the lower rows of one of them. The pilasters have chamfered plinths and are also rendered. The roof has a long glazed skylight in the middle of the slope.



**Figure 111: West and south elevations of Building R**

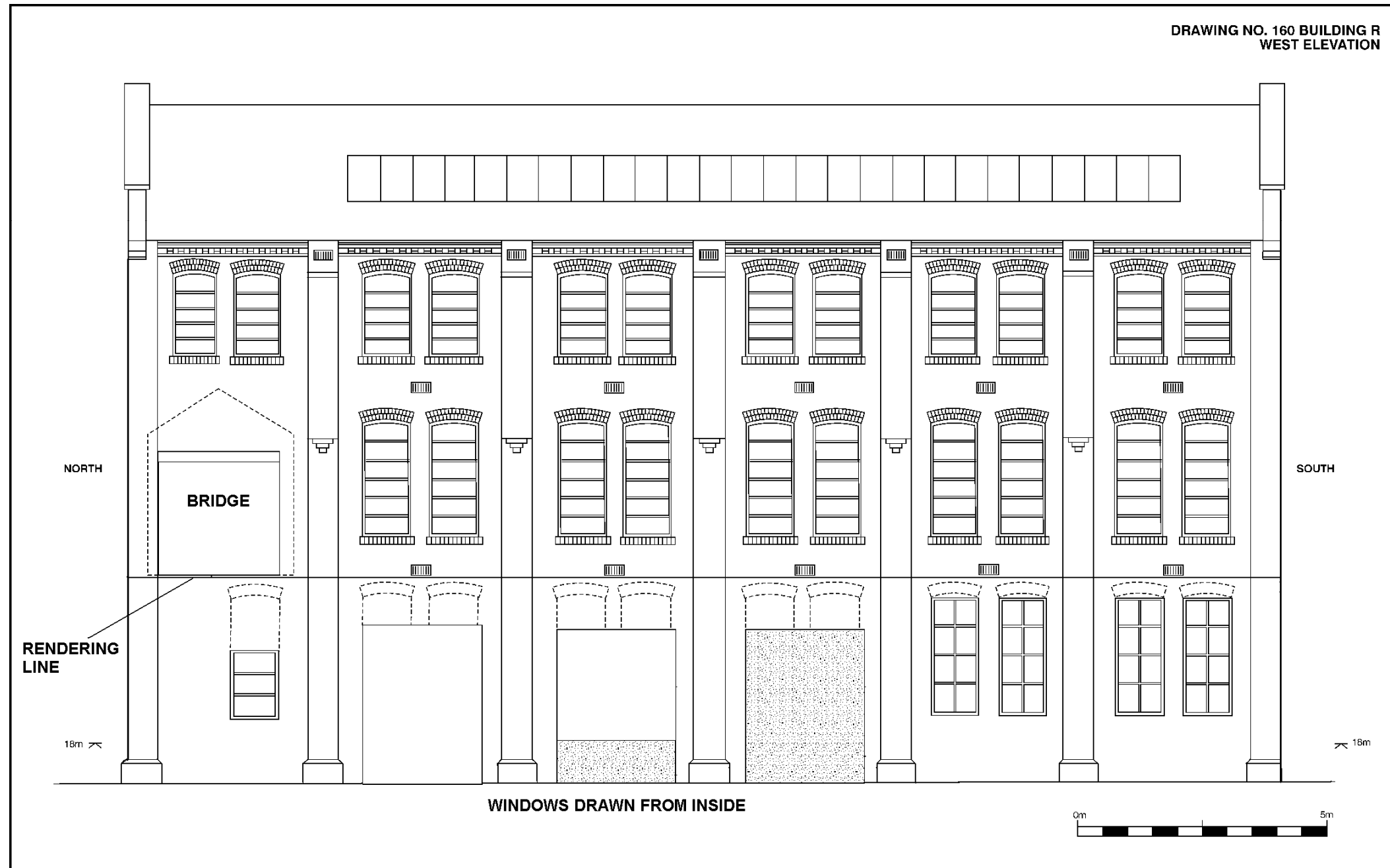


Figure 112: Survey drawing of the west elevation of Building R (scale 1:100)



**Figure 113: West elevation of Building R, after demolition of Building P**

#### **5.4.2 Interior**

Ground floor (Figures 114 – 118)

The ground floor is a large open room which measures 21.4 metres long (north/south), 6.2 metres wide and is 3.57 metres high. It has painted brickwork, a concrete floor and a plasterboard ceiling supported by four transverse timber beams with flat chamfered edges and plain chamfer stops. Most of the window openings have been removed or blocked. The surviving windows on the west, north and south walls have wooden frames with eight lights (4 rows x 2 columns). The top rows have pivotal openings with central hinges. Their inner jambs and arched heads are made of single bullnose bricks. There are inserted doorways and large openings on all walls but its primary doorway no longer exists. There is a riveted steel beam bearing the remains of a partition wall on the northernmost bay. An architect's plan for a new bridge towards Building Q in 1928 shows the partition wall with a doorway and the original staircase attached to it before it was moved against the north wall (see Figure 33 of the Appendix 1). The architect's drawing also indicates the positioning of the primary doorway on the northernmost bay on the east elevation. The present staircase is a dog-leg type, built with stone steps set between the north wall and an additional brick wall with lightweight studs covering the metal balustrade. There is a long electrical tunnel kiln on the southern side of the workshop.



Figure 114: Ground floor of Building R showing inserted RSJ and stairwell, looking north



Figure 115: Ground floor of Building R showing opening to Building P



Figure 116: Tunnel glost kiln on the ground floor of Building R, looking south-east

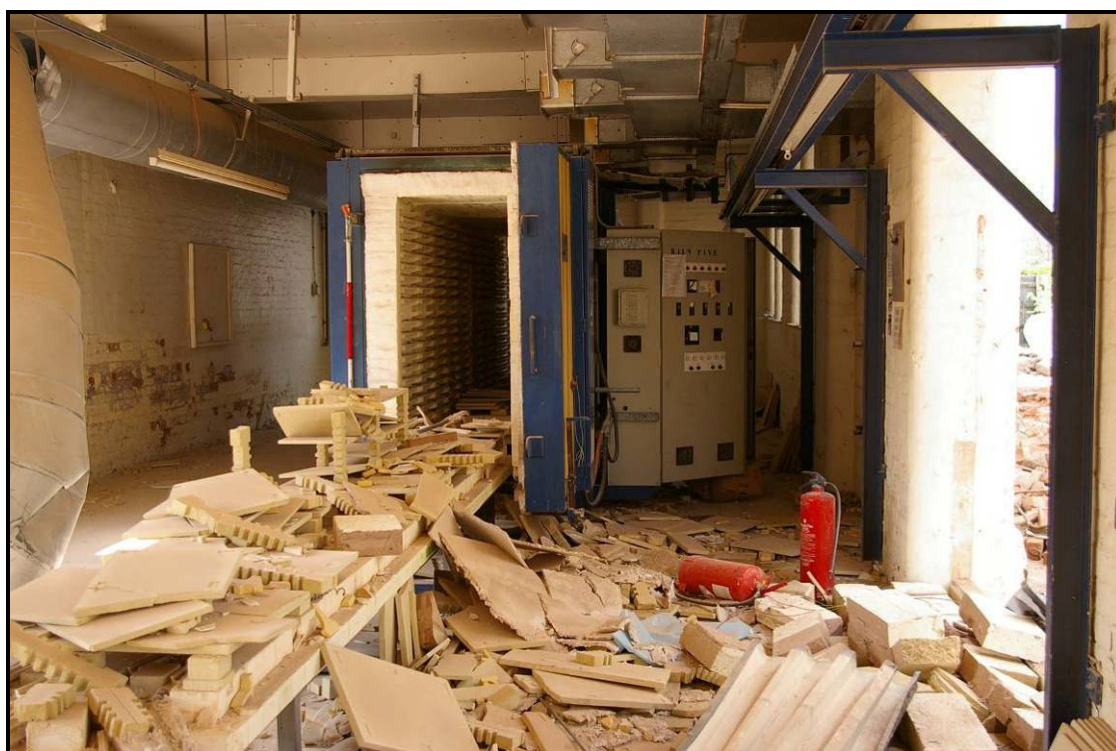


Figure 117: Southern aperture of tunnel kiln on the ground floor of Building R

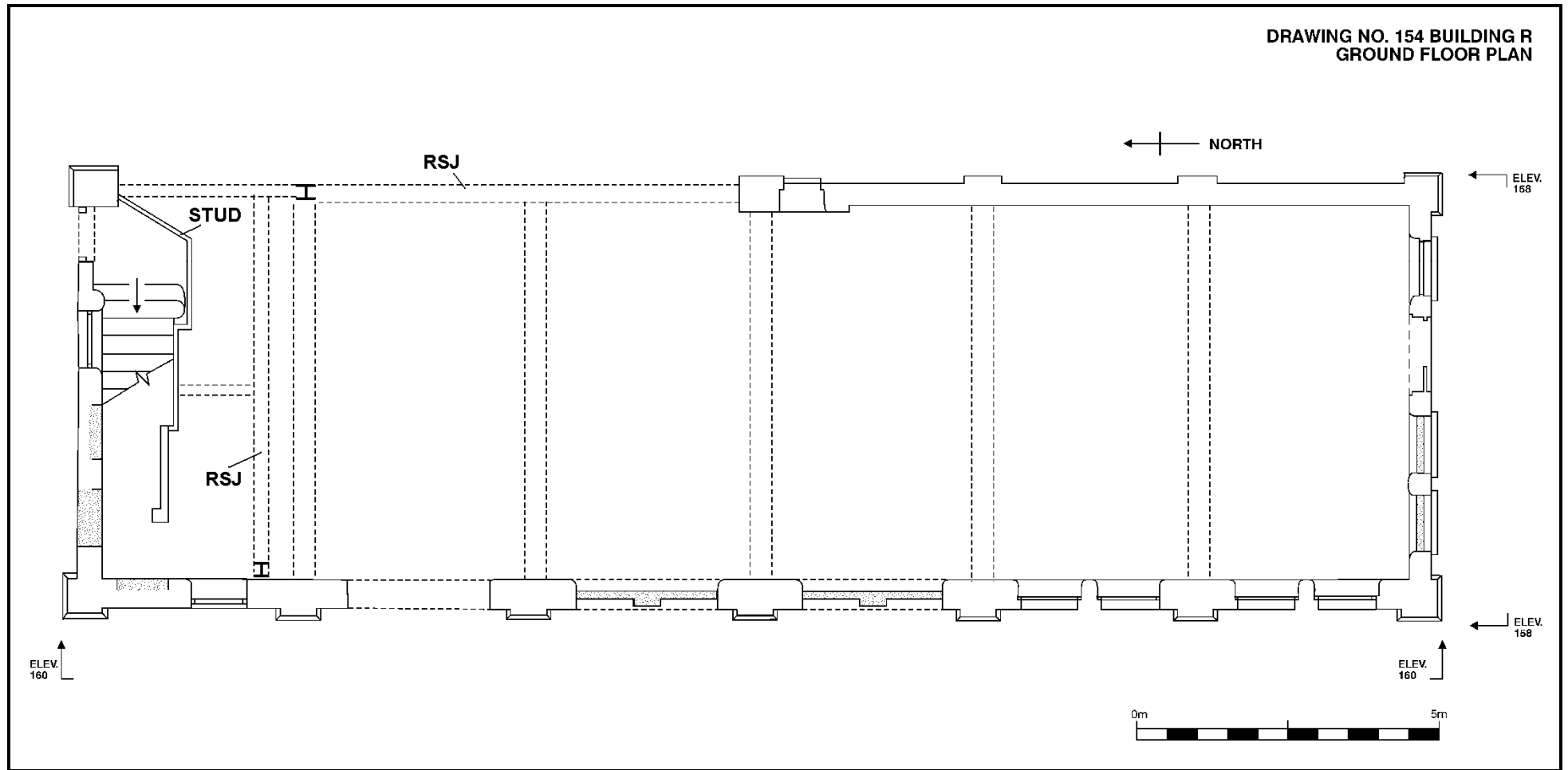


Figure 118: Ground floor plan of Building R (scale 1:100)

### First floor (Figures 119 – 126)

The first floor is very similar to the ground floor with the same layout and internal dimensions, except for the height which is 3.3 metres. It is accessed from the northern staircase which still has its original partition wall. This wall has its primary doorway blocked with bricks but there is an inserted doorway immediately to the eastern side of it. This floor is also accessed from the inserted bridges on the east and west walls. There is an office on the north-west corner built with lightweight studs, measuring 4.25 metres long (north/south) and 3.6 metres wide (east/west). The windows of the entire first floor are later replacements and consist of six rows of frosted lights within a steel frame. The lower rows are hopper openings and the two uppermost ones are pivotal openings with central hinges. The floor is made of timber boards covered with screed. Two of the ceiling beams have been replaced by RSJ beams. There are several long wooden shelves containing porcelain samples and design drawings.

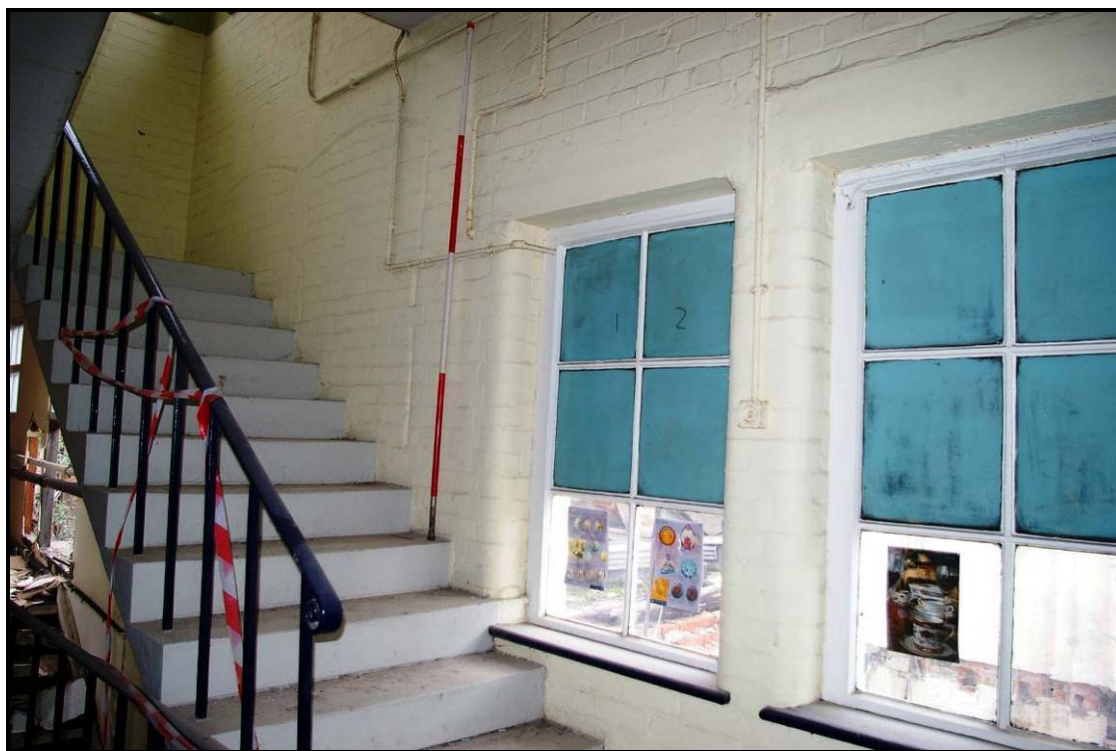


Figure 119: Staircase on the first floor of Building R, looking north-west



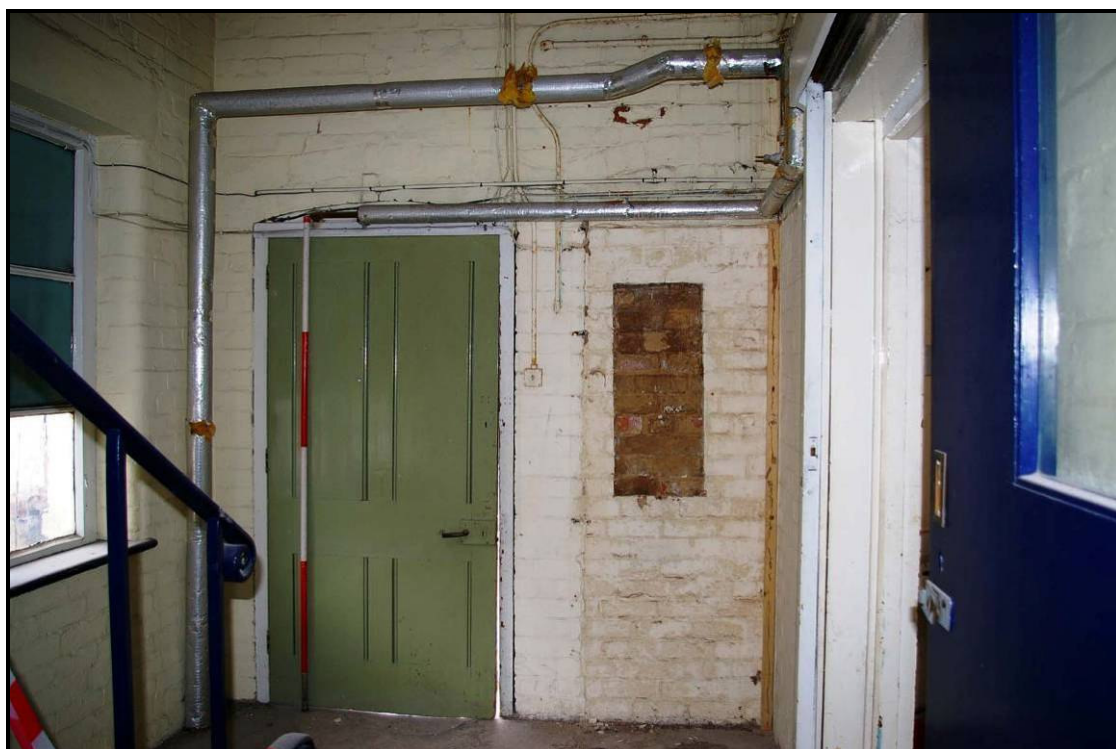


Figure 120: Doorway to roof of Building O on the east wall of the first floor of Building R

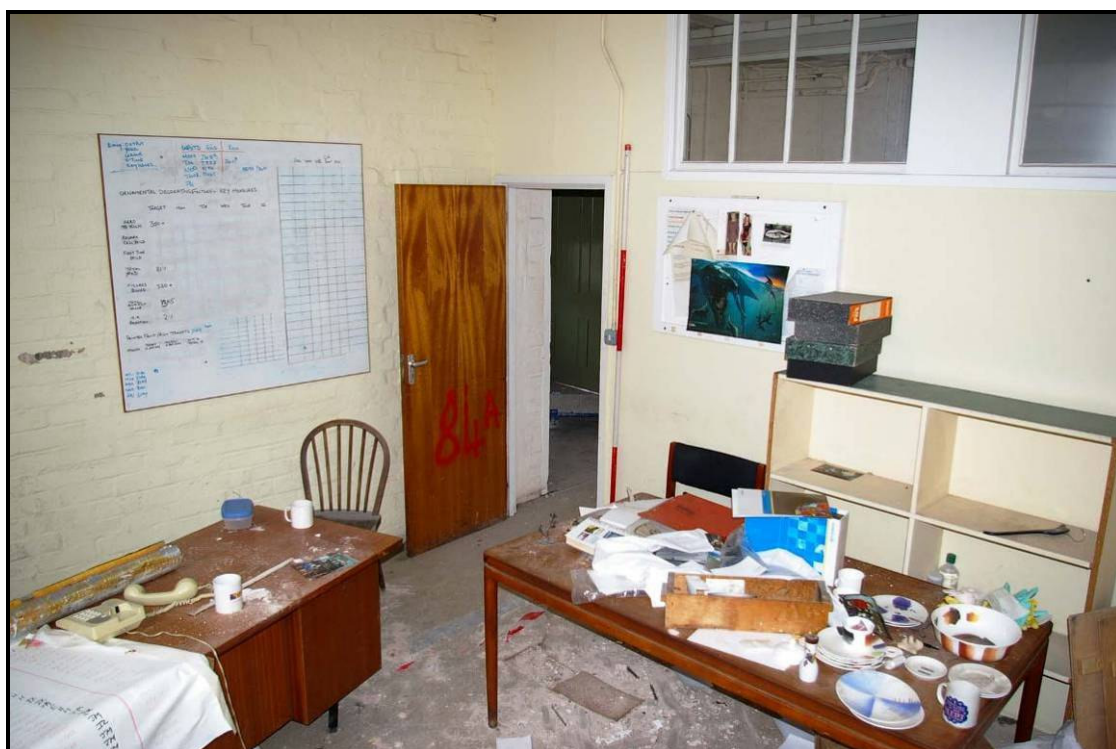
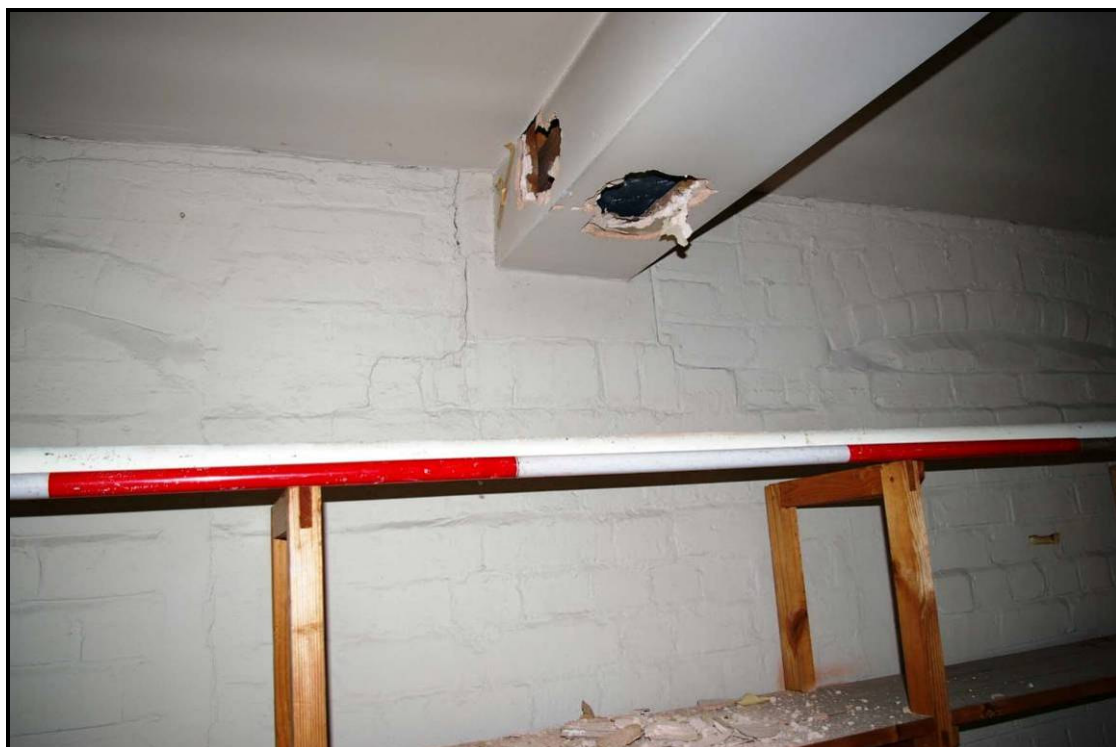


Figure 121: Office on the first floor of Building R, looking north-east



**Figure 122: Office on the first floor of Building R, looking west**



**Figure 123: Detail of blocked windows and RSJ with plaster boxing**



Figure 124: General view of the first floor of Building R, looking north



Figure 125: Detail of windows of the first floor of Building R, looking west



**Figure 126: South-west corner of the first floor of Building R**

#### Second floor (Figures 127 – 139)

The second floor is also a large workshop with the northern staircase separated by an original wall similar to the one on the first floor. This wall too has its primary doorway blocked with bricks and another one inserted next to it. There are some lightweight studs dividing the main room into three areas composed of one darkroom on the south, one storage area on the west and a corridor on the east. The darkroom measures 7 metres long (north/south) and 6.4 metres wide (east/west). Some of the windows are painted black and others have blinds. The room has several metal shelves, tables and desks containing film negatives.

The storage area is 11.6 metres long (north/south) and 3.5 metres wide (east/west). It has tall shelves, a filing cabinet and a map cabinet containing design drawings and stickers. On the eastern side of the store room there is a corridor which is 11.6 metres long (north/south) and 2.8 metres wide (east/west). The corridor has tables, chairs, plastic boxes and another map cabinet with drawings.

The majority of the windows are later replacements as those of the first floor but there are some on the north and east elevations which seem to be original. These have six lights (3 rows x 2 columns) within wooden frames. The upper rows are pivotal opening with central hinges. The floor is made of timber boards and the roof structure comprises five composite trusses. The principal rafters are of sawn timber with their ends housed in cast-iron shoes. From the upper shoe, a vertical wrought-iron suspension bolt drops to an interlocking and bolted junction that connects two further sections of wrought-iron that make up the tie beam and two wrought-iron raking struts. The principal rafters carry four tiers of trenched timber side purlins (two on each principal). The principal rafters have flat chamfered edges with plain stops. The ridge stands 5.22 metres high and the side walls 3.29 metres. On the western slope of the pitched roof there is a long glazed skylight.



Figure 127: Staircase



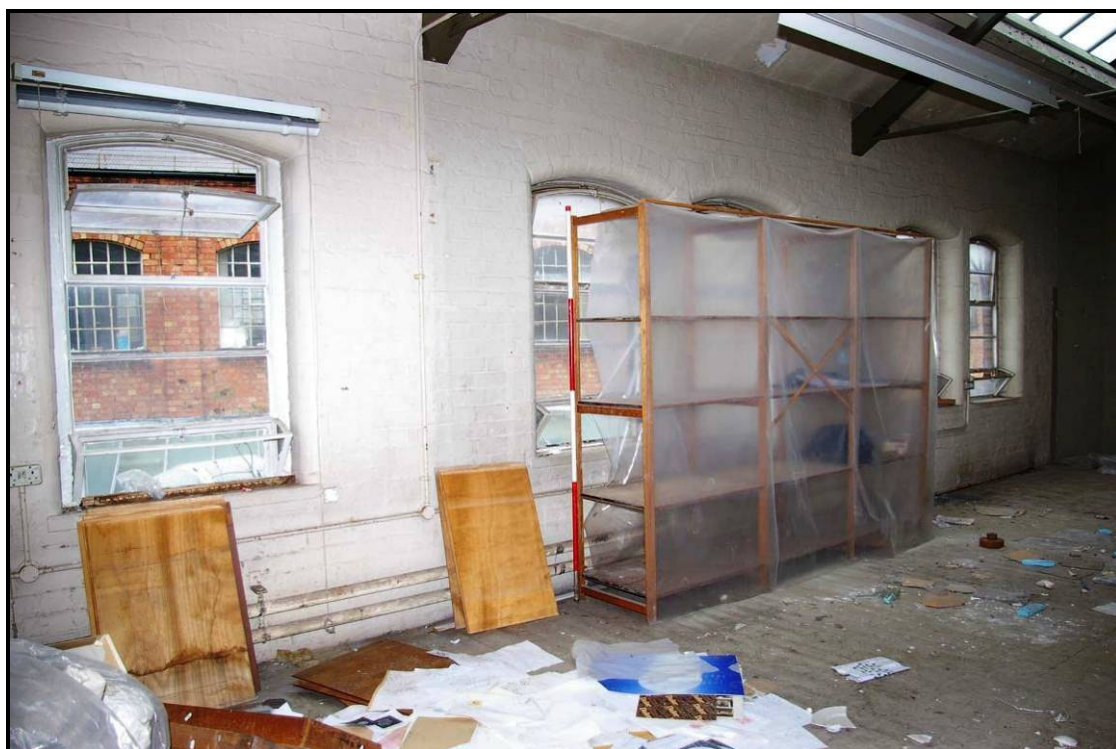
Figure 128: Northern gable wall



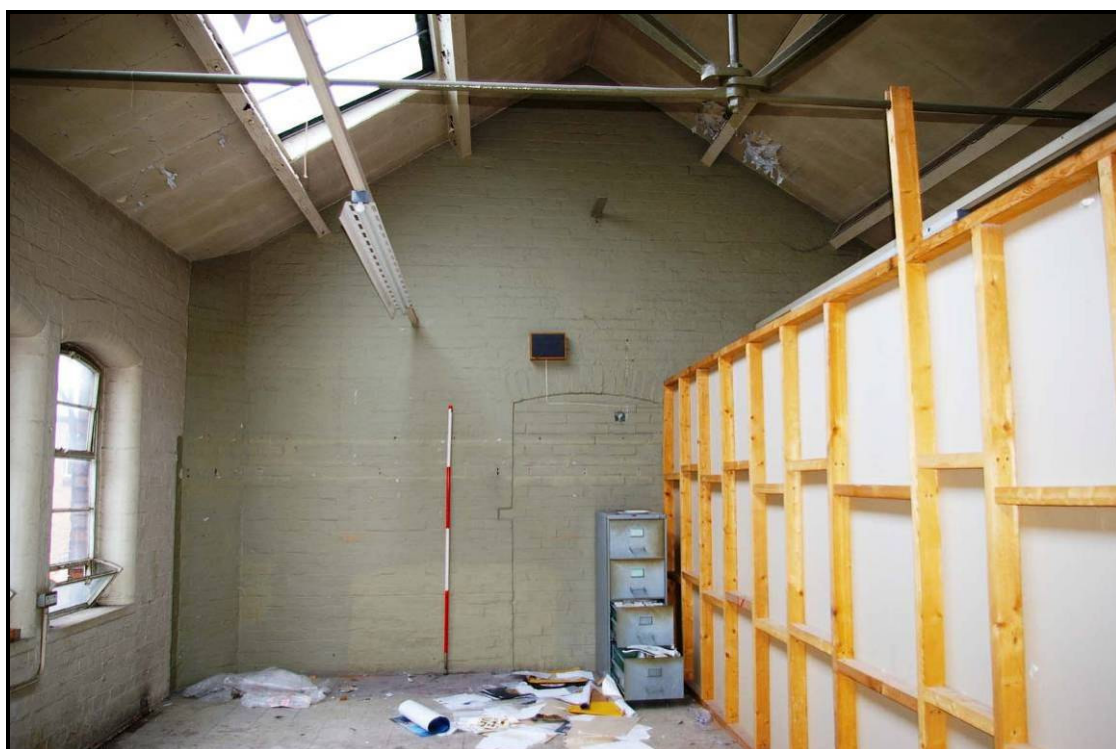
Figure 129: Landing of the second floor



Figure 130: Partition wall of staircase



**Figure 131: Second floor of Building R, looking north-west**



**Figure 132: Blocked doorway on the partition wall between the staircase and main workshop**



**Figure 133: Composite truss of Building R**



**Figure 134: Detail of interlocking bolt**



**Figure 135: Example of later window**

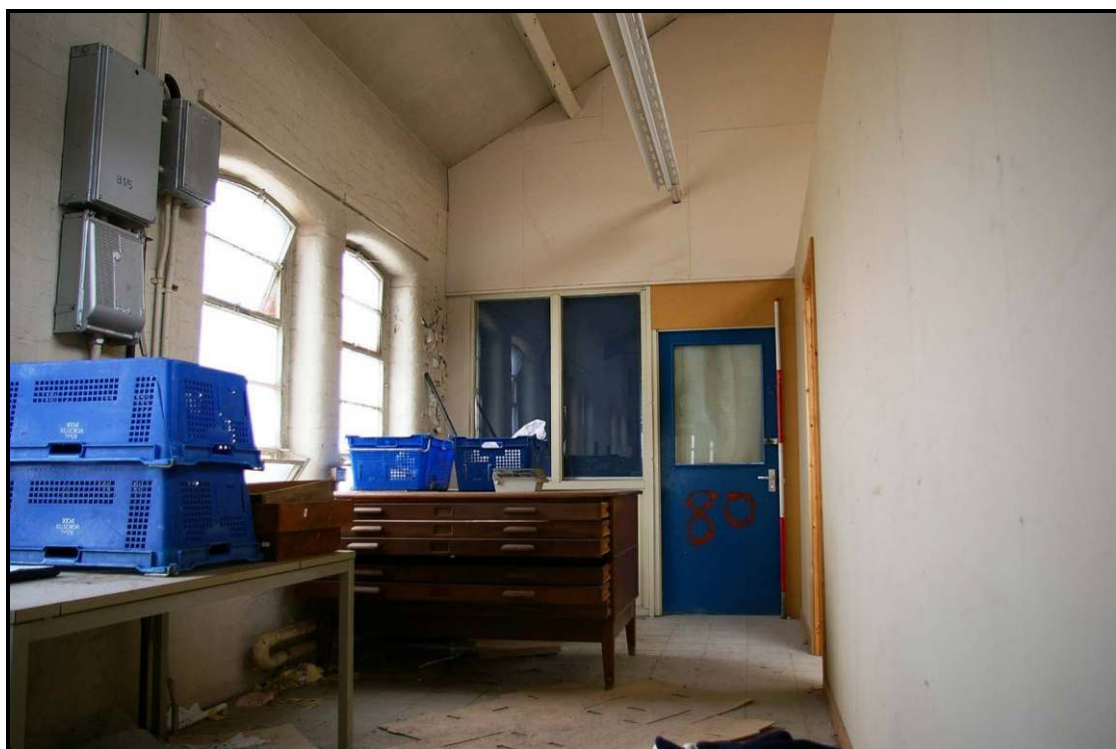


Figure 136: First floor of Building R, looking towards the darkroom in the southern end



Figure 137: Inside the darkroom on the second floor of Building R, looking north-east





Figure 138: Inside the darkroom on the second floor of Building R, looking west



Figure 139: Inside the darkroom on the second floor of Building R, looking south

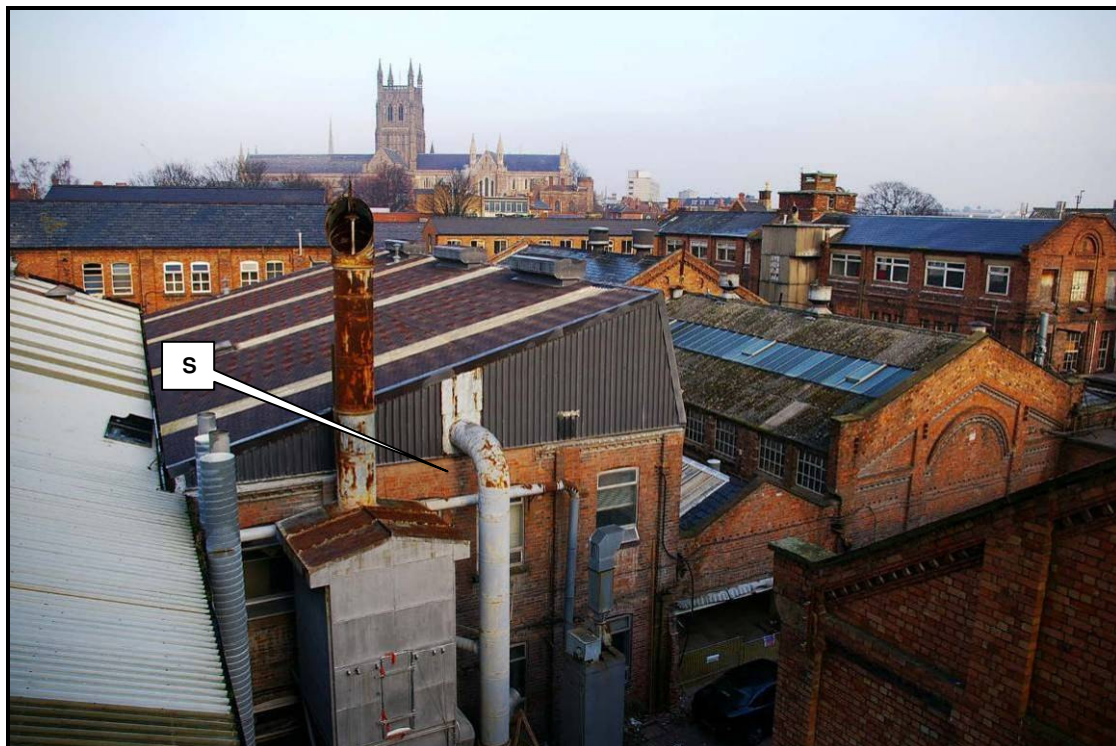
## **5.5 Building S**

This is the Glost Oven/Spray Glazing Range which is situated on the left-hand side of the central lane of the Works between Building O on the north and Building T on the south. It is a large two-storey brick-built range, originally with a decorative eastern gable end facing Prince's Drive. It has an overall dimension of 25.1 metres long (east/west), 11.6 metres wide (north/south) and is 10.65 metres high. It is built of pale orangey brown bricks (9" x 4½" x 3") bonded with flush light greyish beige coarse lime mortar laid to English bond and it has a metal north-light roof. The building has been radically altered and has lost its original coped gables. It is possible that the original roof structure was damaged by fire. The present utilitarian roof is completely out of character with the fragmentary remains of the original surviving fabric.

### **5.5.1 Exterior**

East elevation (Figures 140 – 144)

The main eastern elevation is of three bays articulated by pilasters with blue engineering chamfered basal plinths. The central bay is of double width with two window openings on each level and the side bays have single windows on both levels. A dentilled brick cornice, interrupted by the bay pilasters, is taken up to a semi-circular lunette above the central pair of windows but only its lower section survives as its original gable has been replaced by a north-light roof. The modern roof is made of metal sheeting and projects from the cornice and the base of the lunette. The window openings have segmental arched heads and moulded projecting sills except for the window on the first floor of the southernmost bay which has a later cement flush sill. The present windows are later replacements with aluminium frames. Part of the northernmost bay has been rebuilt, including the window sills which are blue engineering chamfered bricks. There are two cast-iron vents on the recessed panels and a fire insurance plate (Norwich Union) on one of the pilasters which is partially obscured by a primary drain pipe that extends beyond the top of the roof.



**Figure 140: Building S facing the central lane of the Works, viewed from Building W1**



**Figure 141: East elevation of Building S**

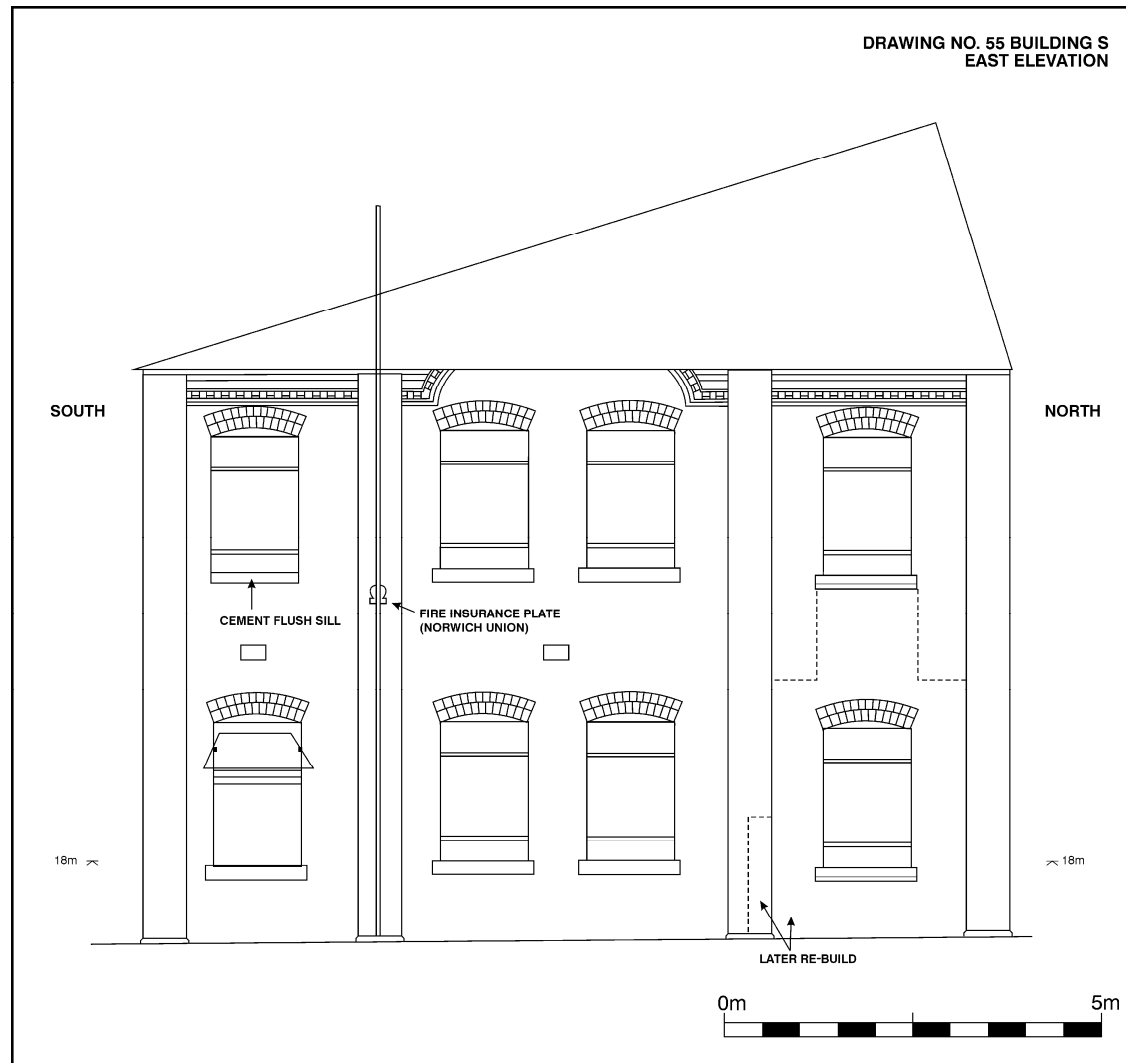


Figure 142: Survey drawing of the east elevation of Building S (scale 1:100)



**Figure 143: Later re-build**



**Figure 144: Fire insurance plate**

#### West elevation (Figure 145)

The west elevation, facing towards Building R, is very similar to the eastern one, but is partially obscured by adjacent structures. The ground-floor level has been opened up linking it to the interior of a north/south wing of Building O. In contrast to the opposite gable wall only the central bay of the first-floor level has a single window in the middle of the recessed panel.



**Figure 145: West elevation of Building S**

#### North elevation (Figures 146 – 148)

The ground-floor level of this side elevation has been removed and is opened up to the adjacent Building O. The resultant opening has an RSJ structure, composed of girders supported by four stanchions, bearing the upper wall. The first-floor level is extant and consists of seven bays articulated by brick pilasters. Each of the recessed panels between the pilasters is topped by dentilled moulded brick cornices. There are window openings on each bay which are equivalent to the rest of the building. The windows on the first and second bay from the west have been blocked with bricks. On the first bay from the west there is an inserted doorway with a concrete lintel set on a bricked-up window. This doorway leads to a walkway on the roof of Building O. The metal roof has three large glazed skylights.



**Figure 146: North and east elevations of Building S**



**Figure 147: North elevation of Building S, looking south-east**

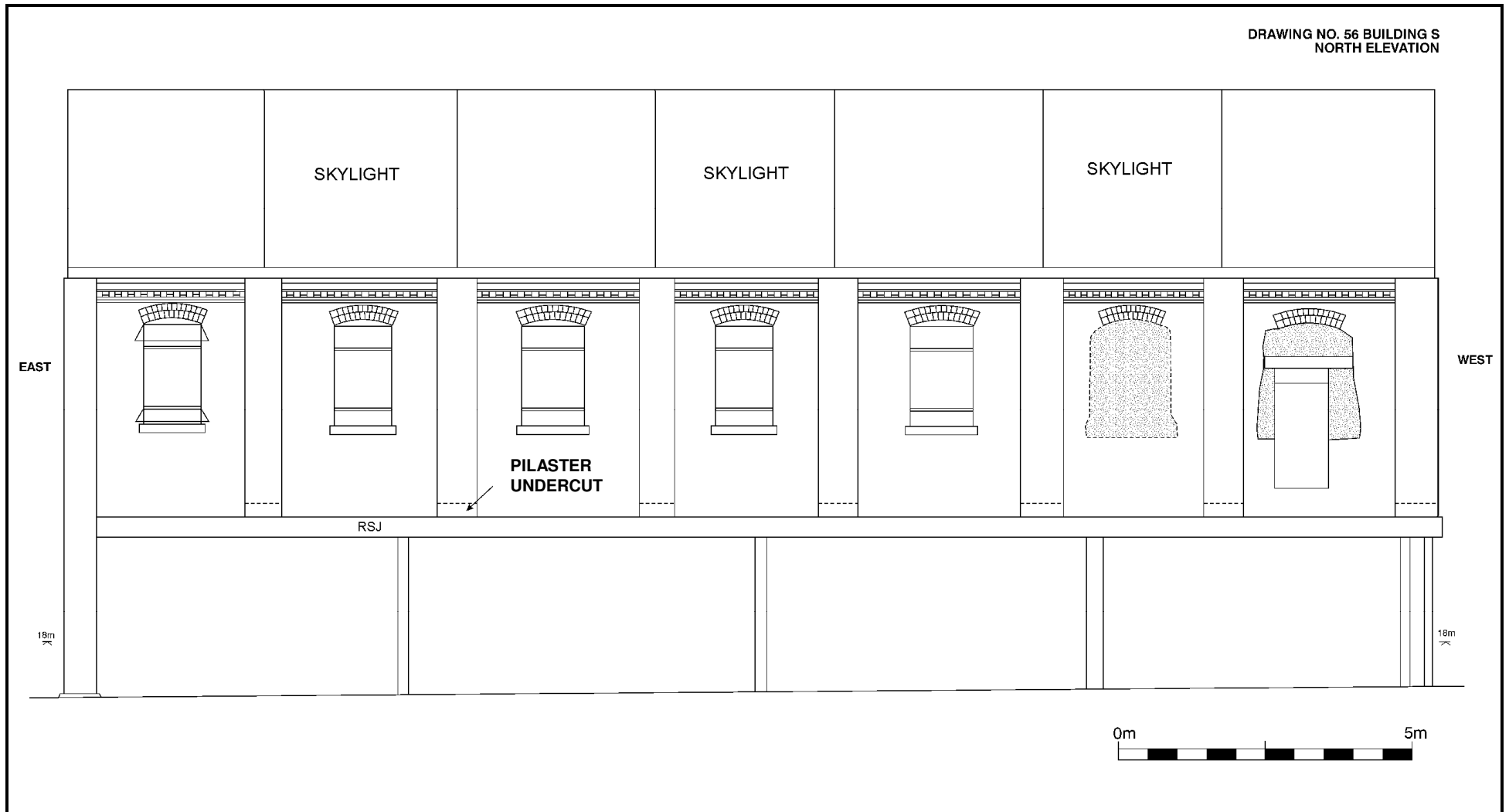


Figure 148: Survey drawing of the north elevation of Building S (scale 1:100)



### South elevation (Figures 149 – 150)

The ground-floor level of the south elevation has also been removed and is opened up to the adjacent Building T. The resultant opening consists of an RSJ structure similar to that of the north elevation. The first-floor level is extant but was modified when it became a partition wall between the interior of Building S and the first floor of the attached Building T. As a result, all the windows have been blocked with bricks and three doorways were inserted on the recessed panels. One of these doorways is now blocked with bricks. The entire elevation is painted white.



**Figure 149: Western side of the south elevation of Building S viewed from inside Building T**



**Figure 150: Blocked windows on the south elevation of Building S**

### **5.5.2 Interior**

Ground floor (Figures 151 – 155)

It is a single large workshop which measures approximately 24 metres long (east/west), 11 metres wide (north/south) and is 3 metres high. The interior has been radically altered and much of the original fabric has been lost, except for the east wall which has four window openings with bullnose brick jambs and arched heads. The windows are later replacements with aluminium frames. Each window has three lights of which the ones on the top and bottom rows are narrower than the central pane and have awning openings. The window on the southernmost bay is slightly different and only has two lights. The upper pane is a pivotal opening with central hinges. The workshop has a concrete floor and a plasterboard ceiling supported by an RSJ structure composed of four longitudinal beams, five transverse beams and fourteen stanchions with fire protective coverings. There is an east/west row of original cast-iron tapered columns with Tuscan capitals in close proximity to the south wall. On the southern side there is a lift made of bricks which is connected to the floor above. The workshop is fairly bare apart from some tables, trolleys and shelves.



Figure 151: Ground floor of Building S, looking north towards Building N



Figure 152: Ground floor of Building S, looking east



**Figure 153: Ground floor of Building S, looking south towards Building T**



**Figure 154: Row of cast-iron columns**



**Figure 155: RSJ stanchions and I-beams**

### First floor (Figures 156 – 161)

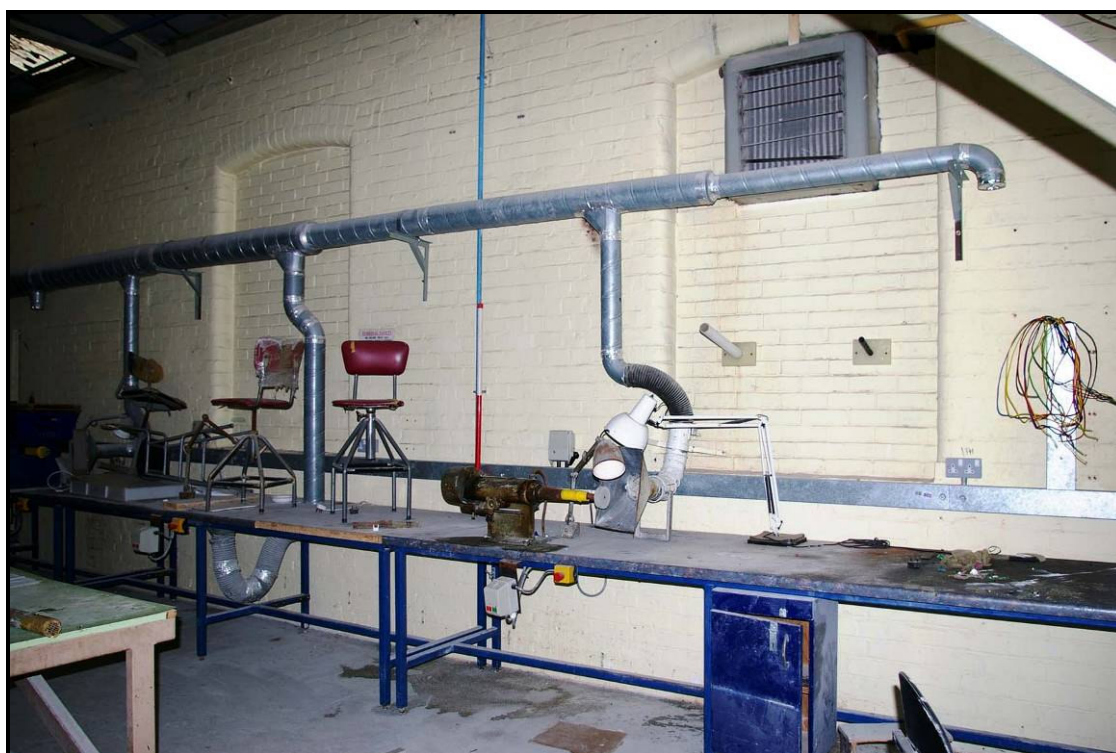
The first floor is accessed from the adjacent Building T through several inserted doorways. This floor is also a large workshop with the same length and width. The interior has painted brickwork and a wooden floor covered with screed. The positioning of its original staircase was not identified, but it is possible that it may have been attached to the west wall, as the central bay of the first-floor level has only a single window which would have provided the space for it. The roof structure is composed of six lightweight steel asymmetric trusses which provide an approximate internal height of 7 metres. The side walls are 4.5 metres high. This floor survives better than the ground one and its plan is a better representation of the building's original footprint than at the lower level. The windows are the same as the ones on the ground floor and their openings also have inner jambs and segmental arched heads made of single bullnose bricks. The workshop has long worktop tables against the walls and a long double one running along the centre of the entire room.



**Figure 156: Roller shutter and lift on the first floor of Building S, looking south-west**



**Figure 157: First floor of Building S, looking north-west**



**Figure 158: South-west corner of the first floor of Building S**

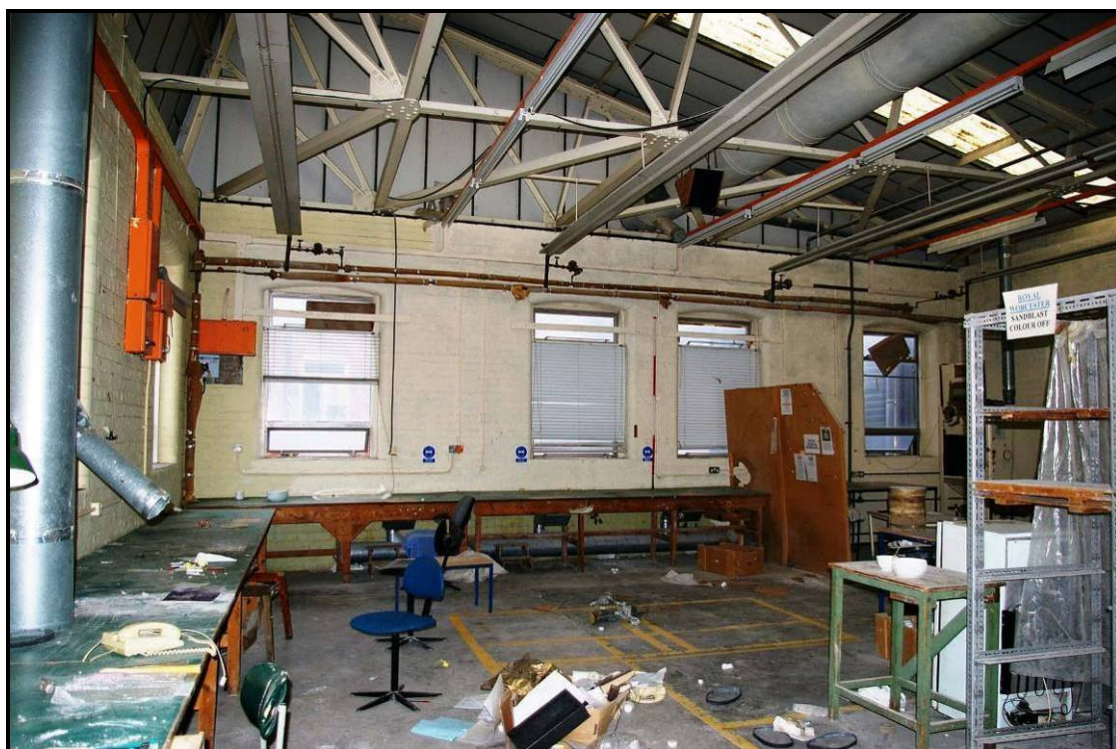


Figure 159: Eastern wall of the first floor of Building S



Figure 160: Similar view with original gable and roof structure before their replacement (WPM)

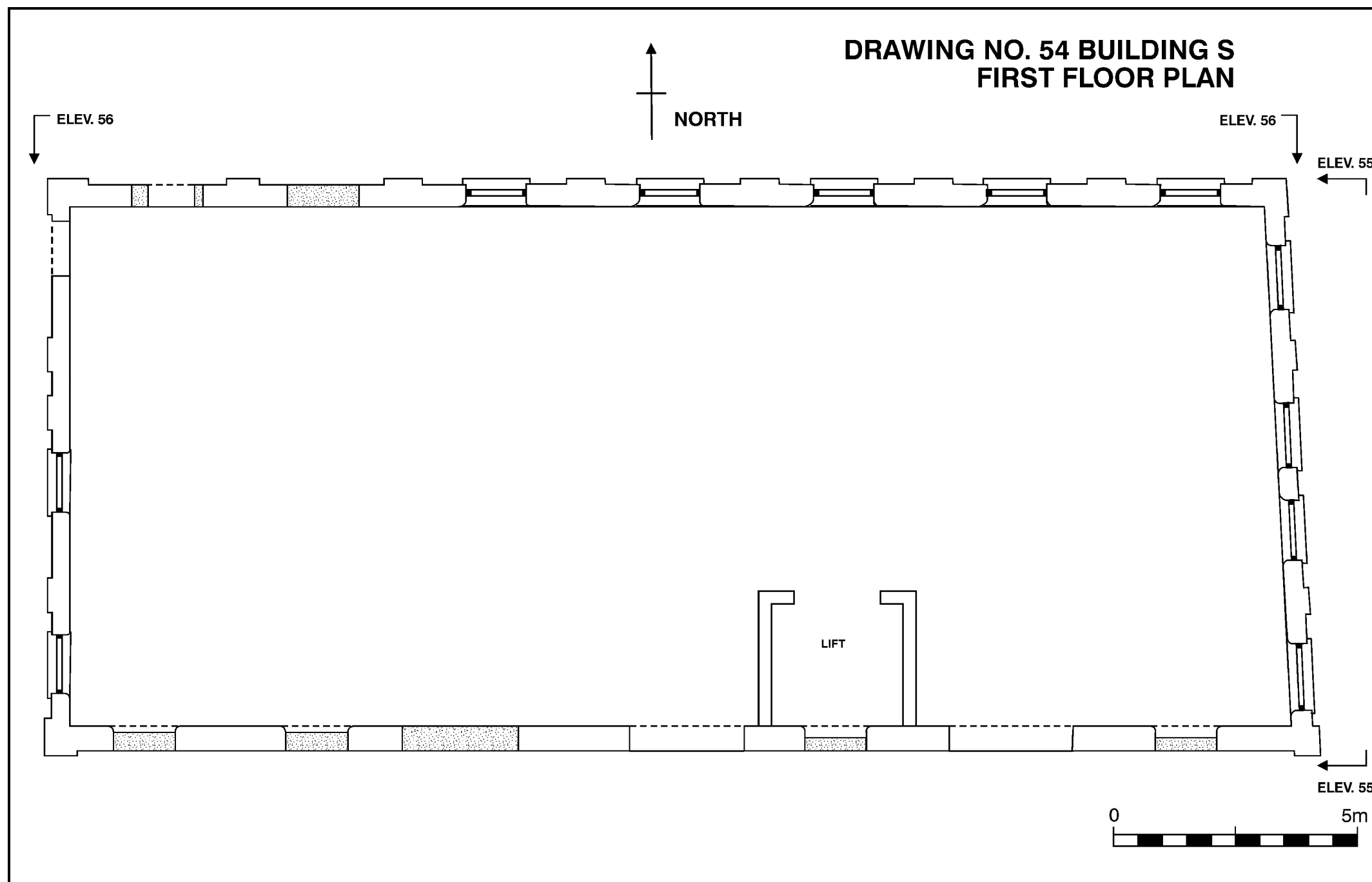


Figure 161: First floor plan of Building S (scale 1:100)



## 5.6 New Mould Shed (Buildings Y and Z) (Figures 162 – 177)

On the south-east corner of the Works the remains of an earlier building were identified within Buildings Y and Z. This corresponds to the New Mould Shed built in 1875 against the Mill Street boundary wall (see Appendix 3). The remains consist of a single-storey gable wall with pilasters and a cornice with moulded dentilled brickwork. Although this wall has been extended upright and is painted, the original gable shape is still visible. Internally this structure seems to have more surviving early features, such as the timber roof structure which consists of four queen-post trusses which carry five tiers of trenched side purlins (two on the northern side and three on the other). The straining beams, queen posts and upper ends of principal rafters are reinforced with metal straps. The structure is supported by later RSJ stanchions and externally is covered with slate topped by tile ridge, although the western end has been modified with asbestos sheeting. The roof space has currently a loft floor which is accessed from a straight timber staircase situated on the western end of Building Z. On the boundary wall there are former openings for chutes blocked with bricks. The original building extended towards Prince's Drive but the section within Building Y has been completely rebuilt.

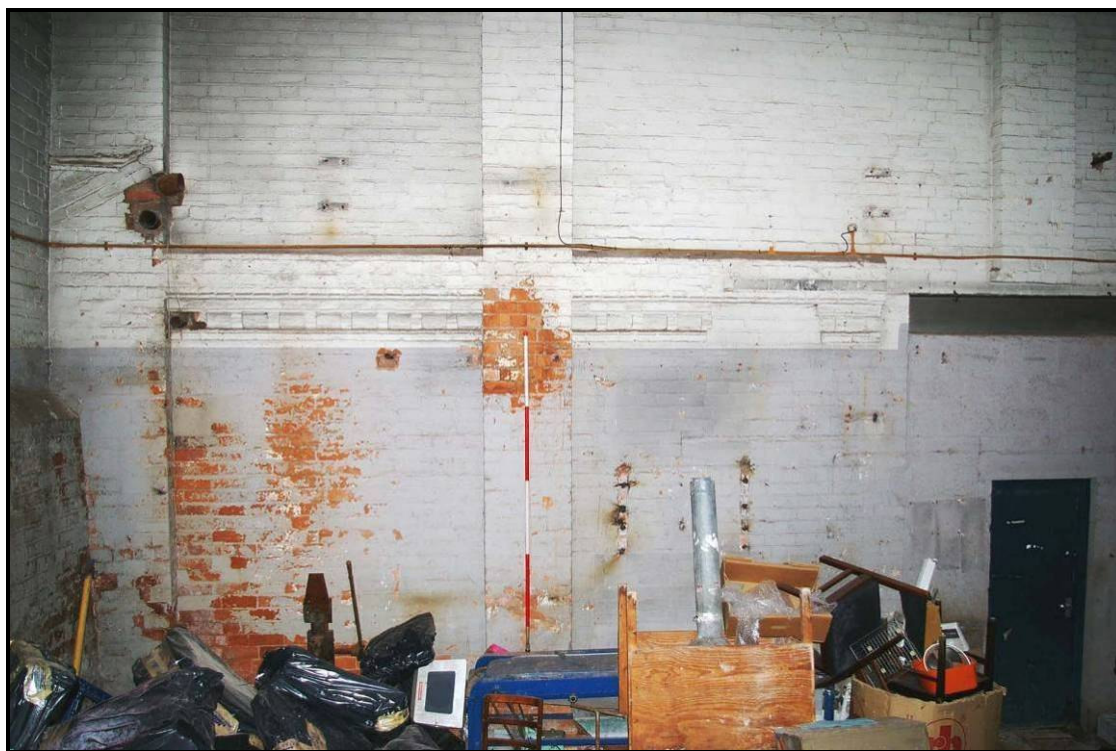


Figure 162: East elevation of the New Mould Shed



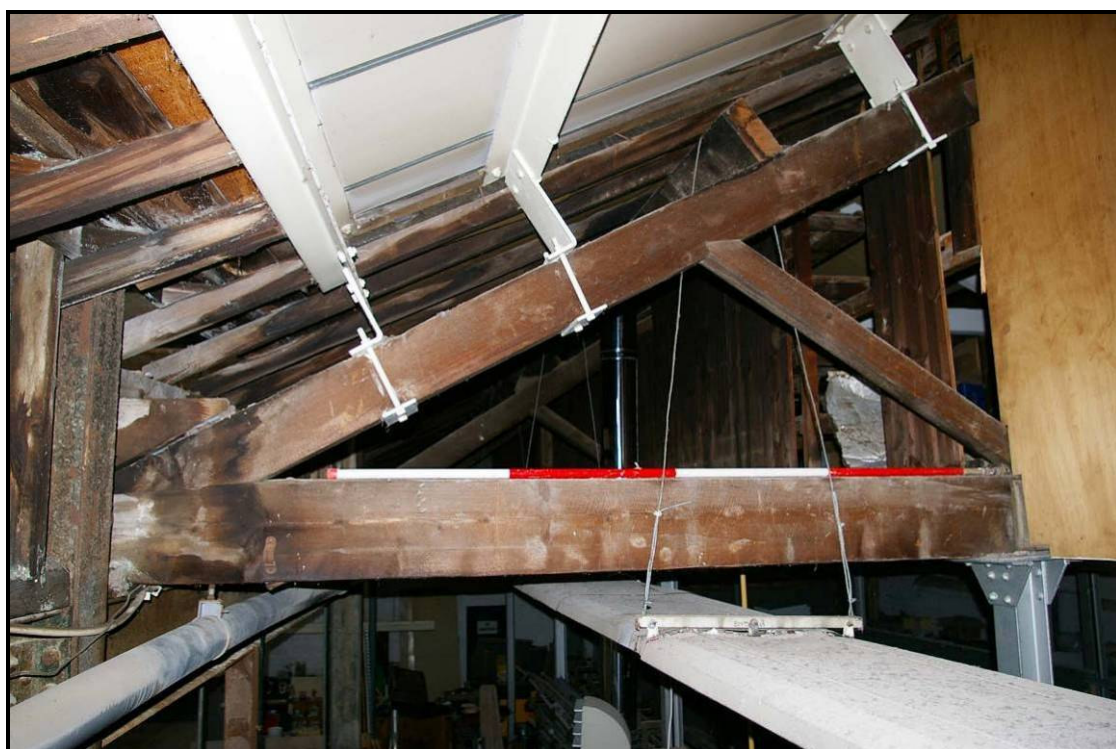
**Figure 163: Detail of the dentilled cornice, looking south**



**Figure 164: Ghost gable of the New Mould Shed**



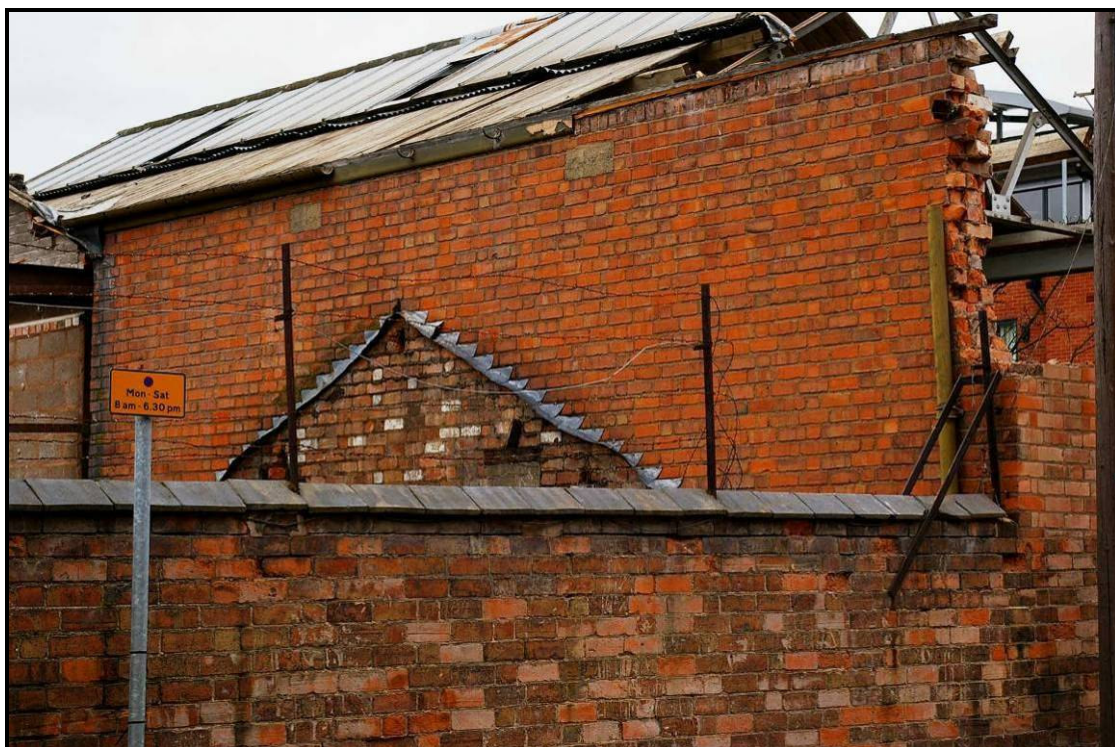
**Figure 165: Loft inside the New Mould Shed**



**Figure 166: Northern end of original timber truss supported by later RSJ stanchions**



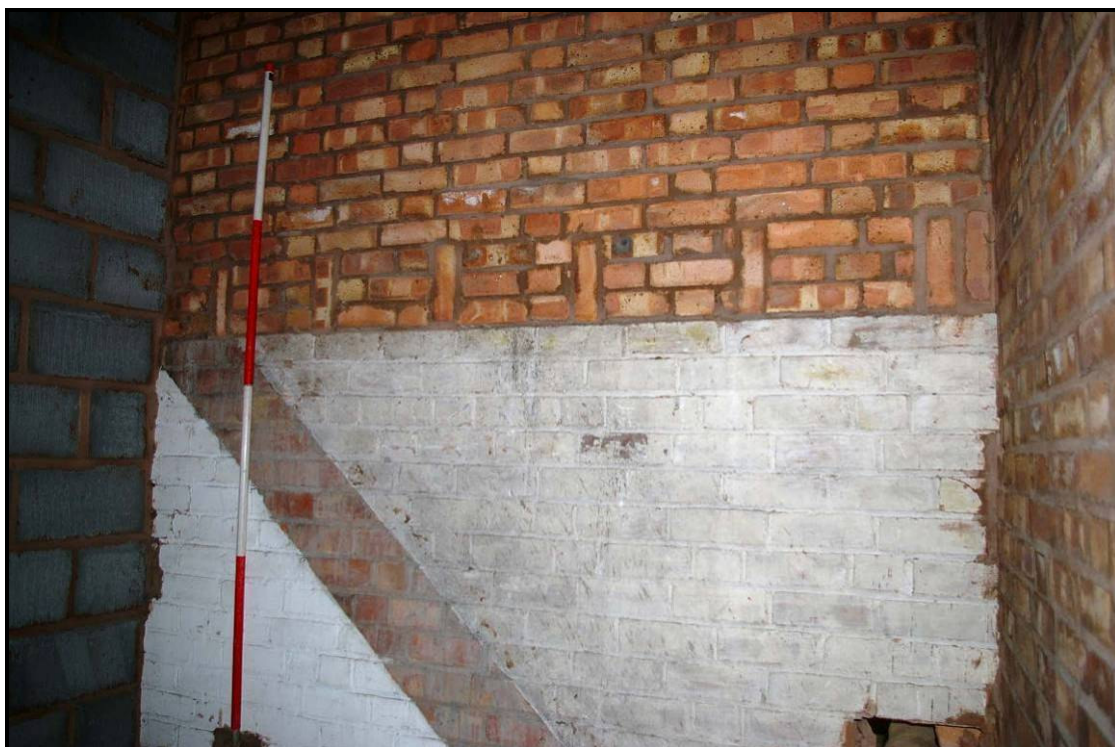
**Figure 167: Southern end of original timber truss set on later brickwork**



**Figure 168: Original eastern gable of the New Mould Shed revealed during demolition work**



**Figure 169: Mill Street boundary wall with blocked chutes on earlier brick courses**



**Figure 170: Scars of loft's floor joists and stairs on later partition wall of the New Mould Shed**



**Figure 171: Boundary wall with blocked chutes, looking south-east**



**Figure 172: Original roof structure supported by RSJ I-beams and stanchions**

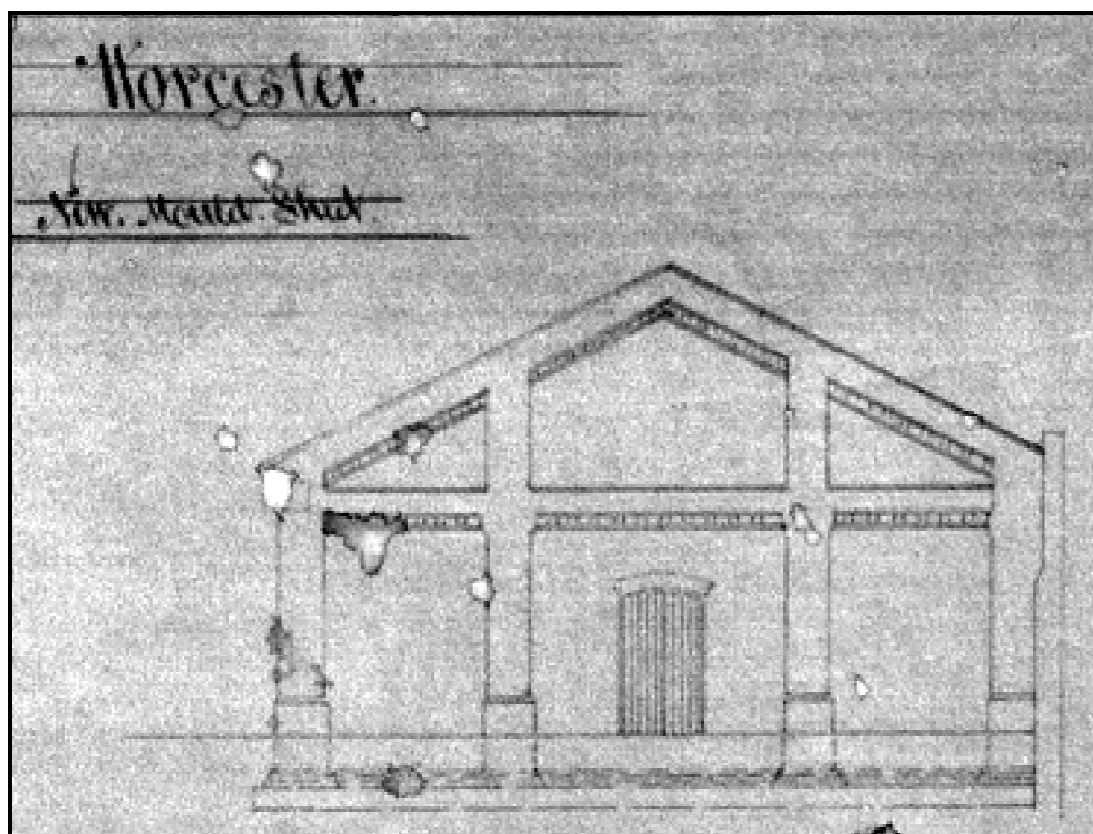


Figure 173: West elevation of the New Mould Shed in September 1875 (WPM)

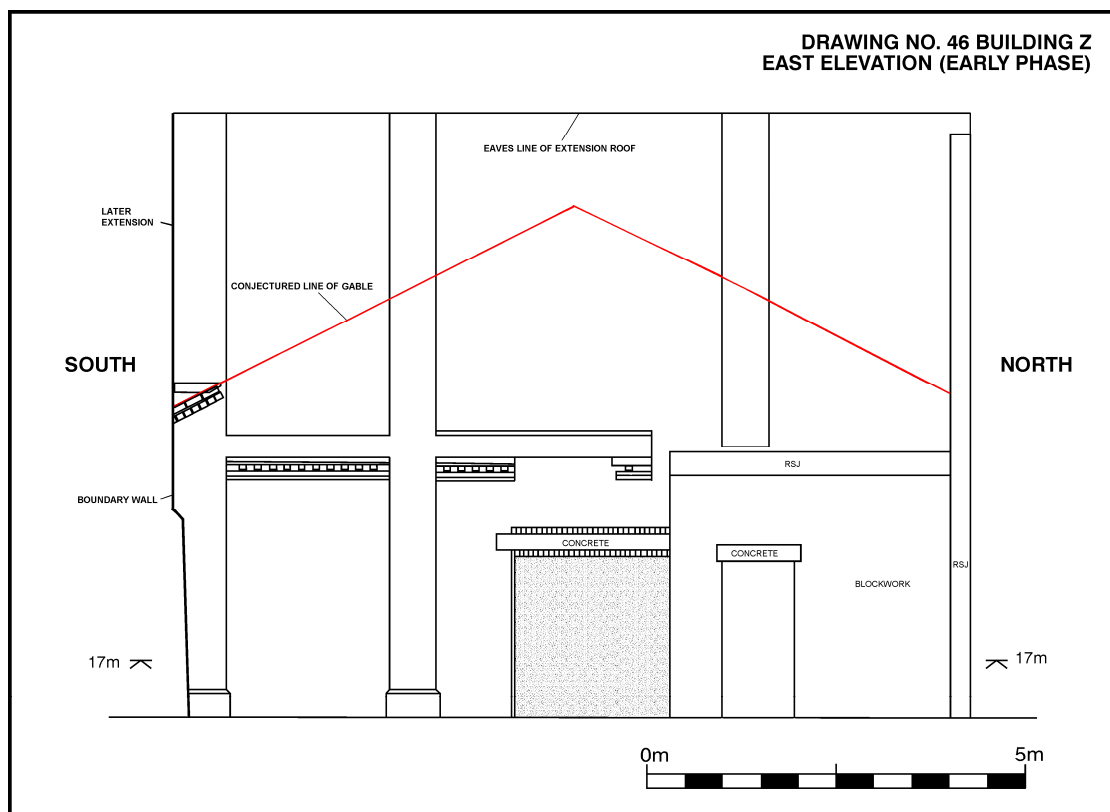


Figure 174: East elevation of the New Mould Shed in Building Z (scale 1:100)

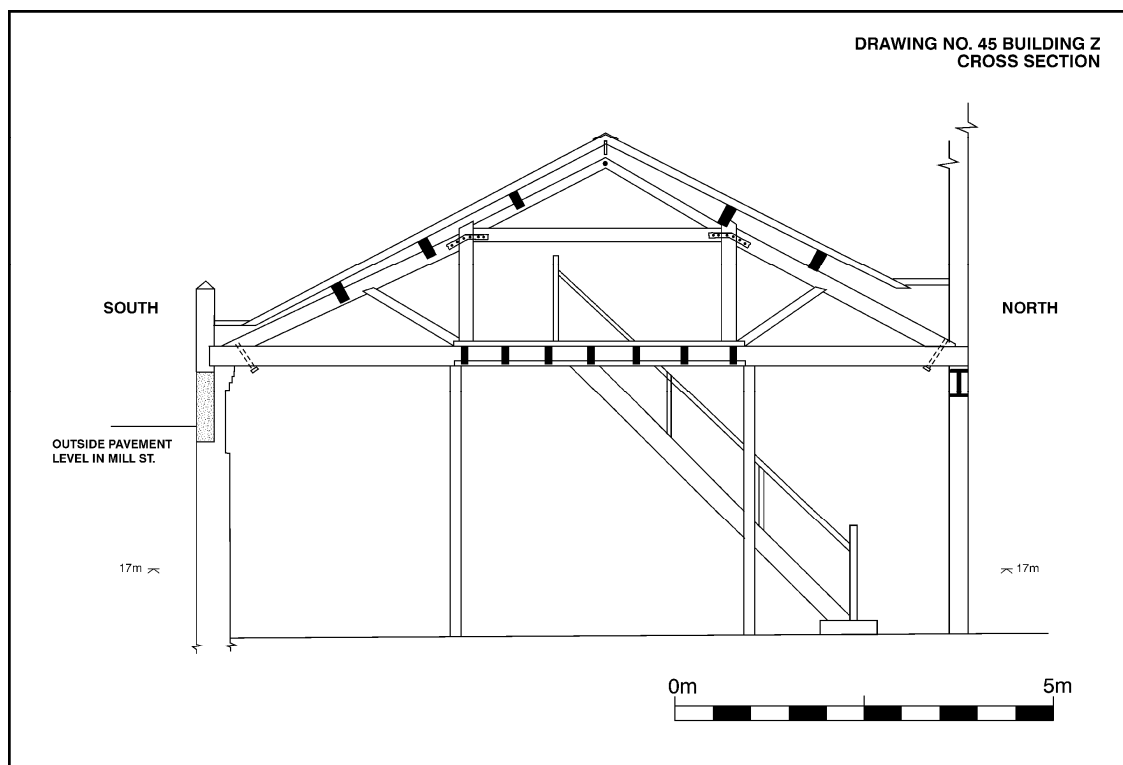


Figure 175: East facing cross-section of the New Mould Shed in Building Z (scale 1:100)

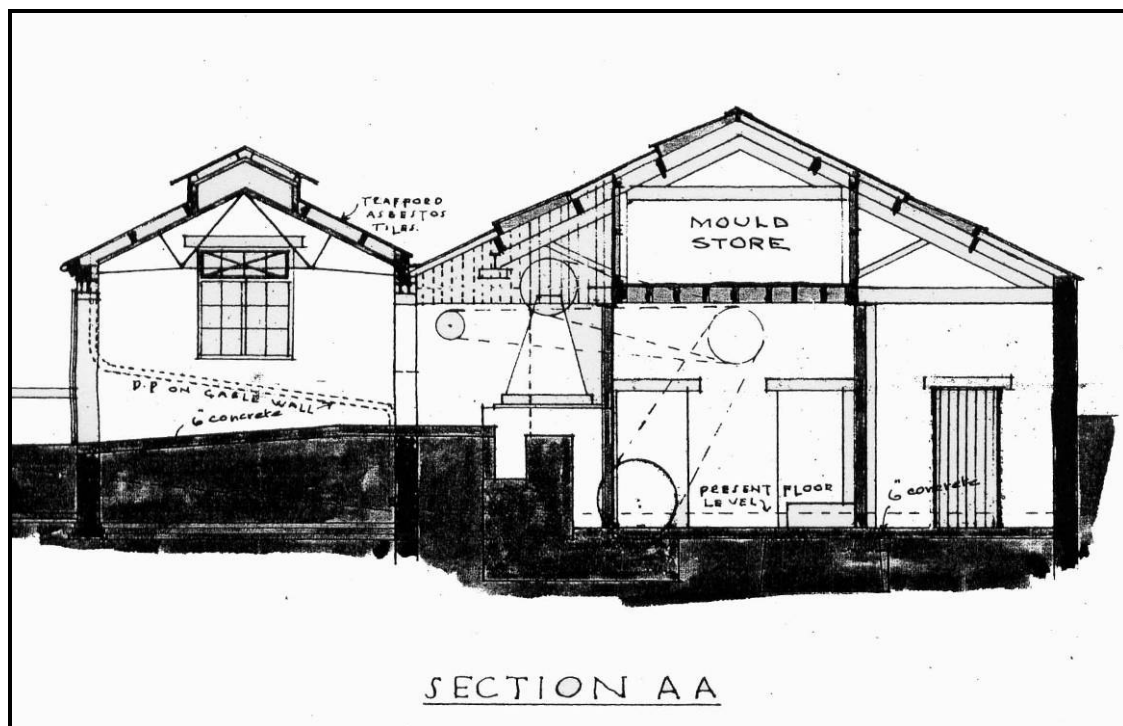


Figure 176: West facing cross-section of the New Mould Shed in Building Y in 1929 (WPM)



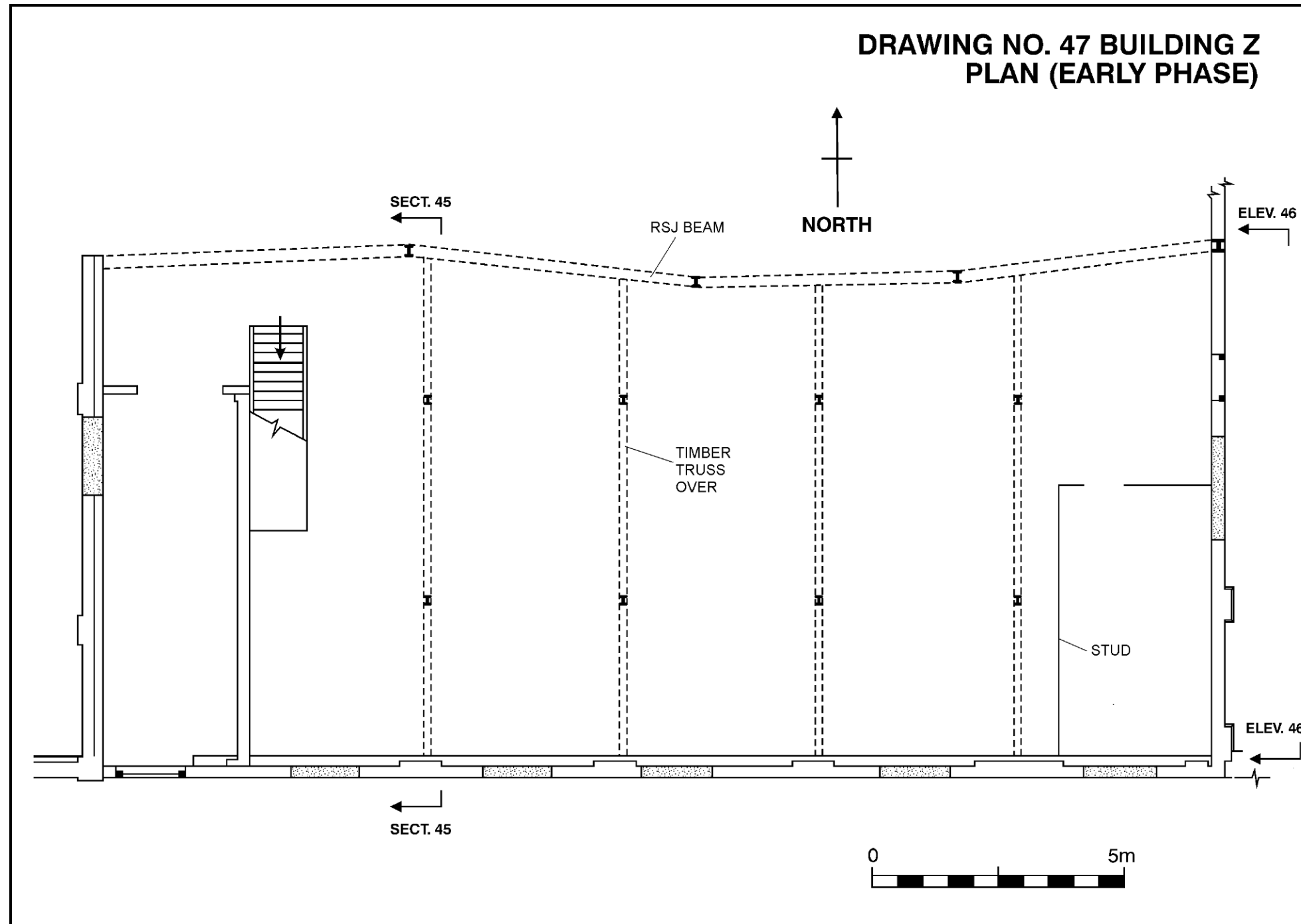


Figure 177: Plan of the New Mould Shed in Building Z (scale 1:100)

## 6 Discussion

An outline of the historical development of the factory can be found in *The Severn Street Factory 1788 – 1900* (Cook 2007) and also in the *Porcelain in Worcester 1751 – 1951: An Illustrated Social History* (Jones 1993). In order to further our knowledge of the factory, Archenfield Archaeology Ltd commissioned John van Laun Associates (Industrial Archaeologists) to carry out an historical and industrial research of the site. The research is included with this report in three appendices. The result of the research, together with previous archaeological desk-based assessments (prepared by Archenfield Archaeology Ltd), available cartographic material, historical photographs and illustrations and the archaeological building survey, successfully identified clear evidence of different phases of construction. This is represented mainly by changes in the building plan, with additional extensions, and construction breaks of building materials. The sequential development of Buildings M, N, Q, R, S and the New Mould Shed (within Buildings Y and Z) is summarised below.

### 6.1 Phase 1 (1860 – 1870s)

Building M was built in the early 1860s to hold enamelling kilns. It is likely that the building was constructed around the mid 1860s as it is not shown on the plan of the Works dating to July 1863 (Figure 178) but its present footprint is shown on the 1867 Board of Health plan of the Works (Figure 179). The 1867 plan exhibits a narrow wing on the north side of Building M which links up to Building J through a bridge. The earliest construction equated to the present Building M is also shown on an early illustration of the Works in 1871 (Figure 180) which shows a chimney stack projecting from the centre of the pitched roof. The illustration includes the date 1871 in the title, but the book has a date of 1865. This chronological anomaly may be the result of producing the book's binding prior to its completion.

Building N was built in 1874 as an eastern extension of Building M (Figure 181). It was built as the Additional Shed for Enamelling Kilns with a narrow lean-to on the northern side which corresponds to the Placing Shed. Building N was originally built as a single-storey range facing onto Prince's Drive. The lean-to was built against an existing boundary wall on the north side which can be seen on the 1867 Board of Health plan of the Works (Figure 179). The 1874 architect's drawing of the proposed Building N shows its footprint and cross-section in red and the existing Building M and the boundary wall in black (Figure 181).

The 1875 plan of the Works shows further developments which include the addition of Buildings R and S (Figure 182). Building R is labelled as the Finishing Range and is situated at the south-west corner of the Works. Building S is divided into two rectangular east/west blocks: the Glost Placing Room on the southern side and the Dipping House &c [etc] on the north. Buildings M and N appear as the Enamelling Kilns with a Placing House on the northern narrow block of Building M. There is an additional L-shaped bridge which links Buildings M, R and S. Plot number 17 is shaded in red and classified as Land apartment thereto where it was planned to construct the New Mould Shed. Indeed, the architect's drawing for the proposed New Mould Shed dates to September 1875 (Figure 173).

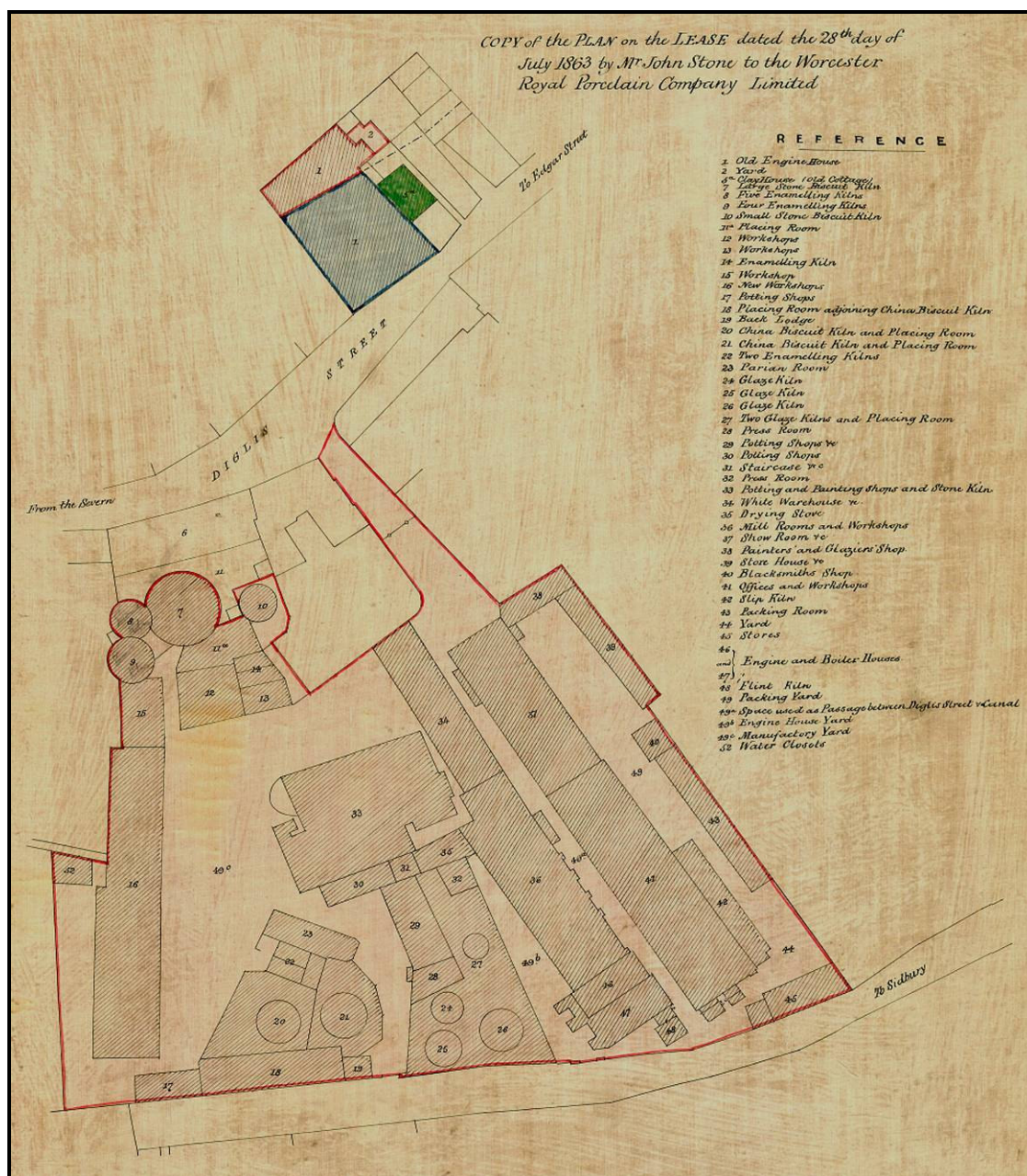


Figure 178: Plan of the Works in July 1863 (WPM)

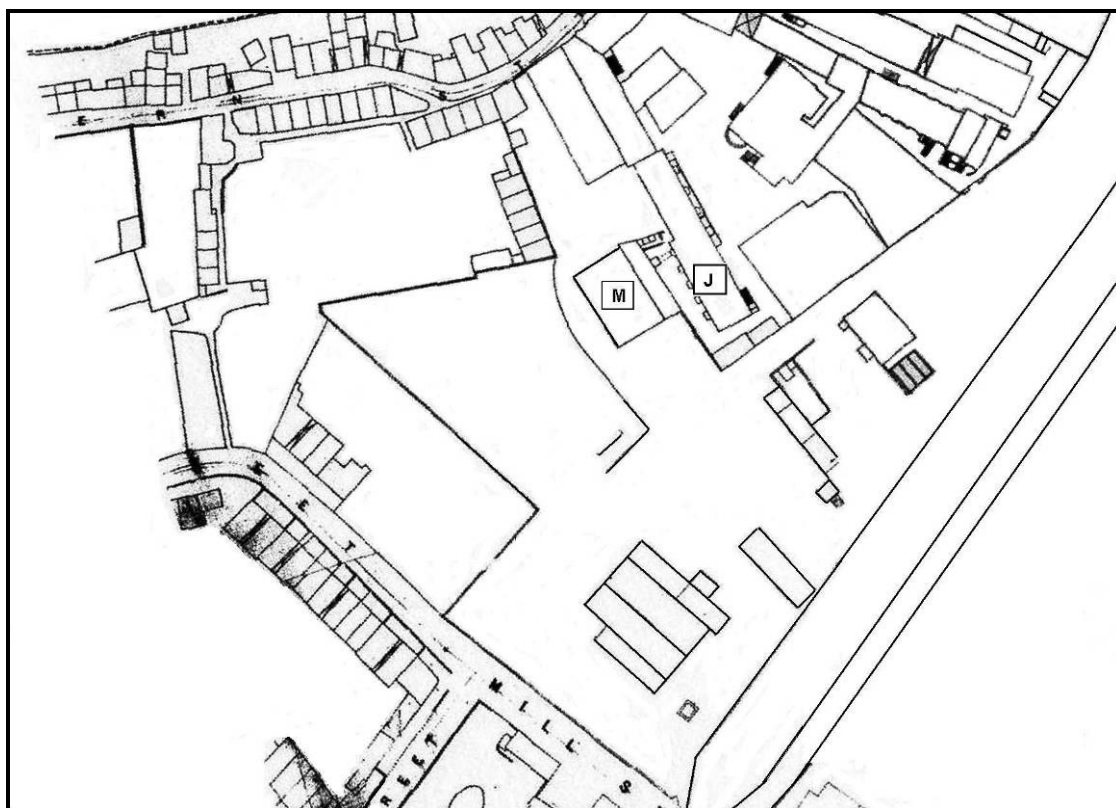


Figure 179: Board of Health plan of the Works in 1867 (WPM)

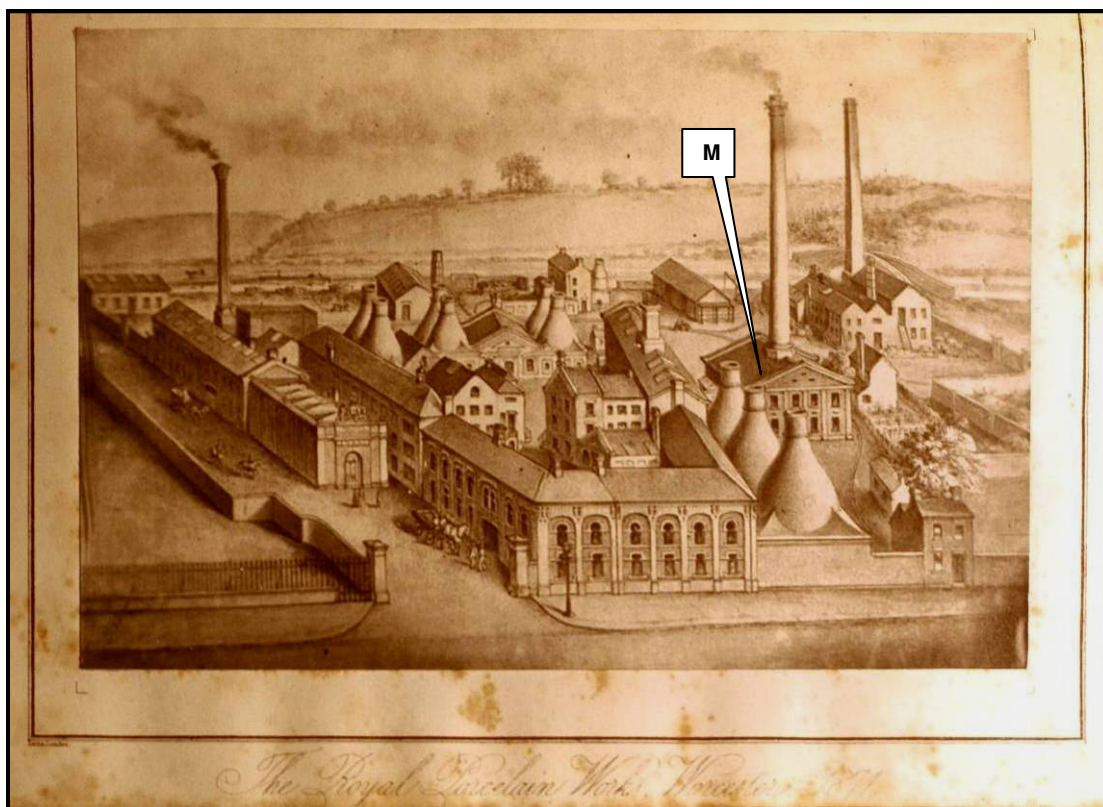


Figure 180: Illustration of the Works in 1871 (Binns 1865)



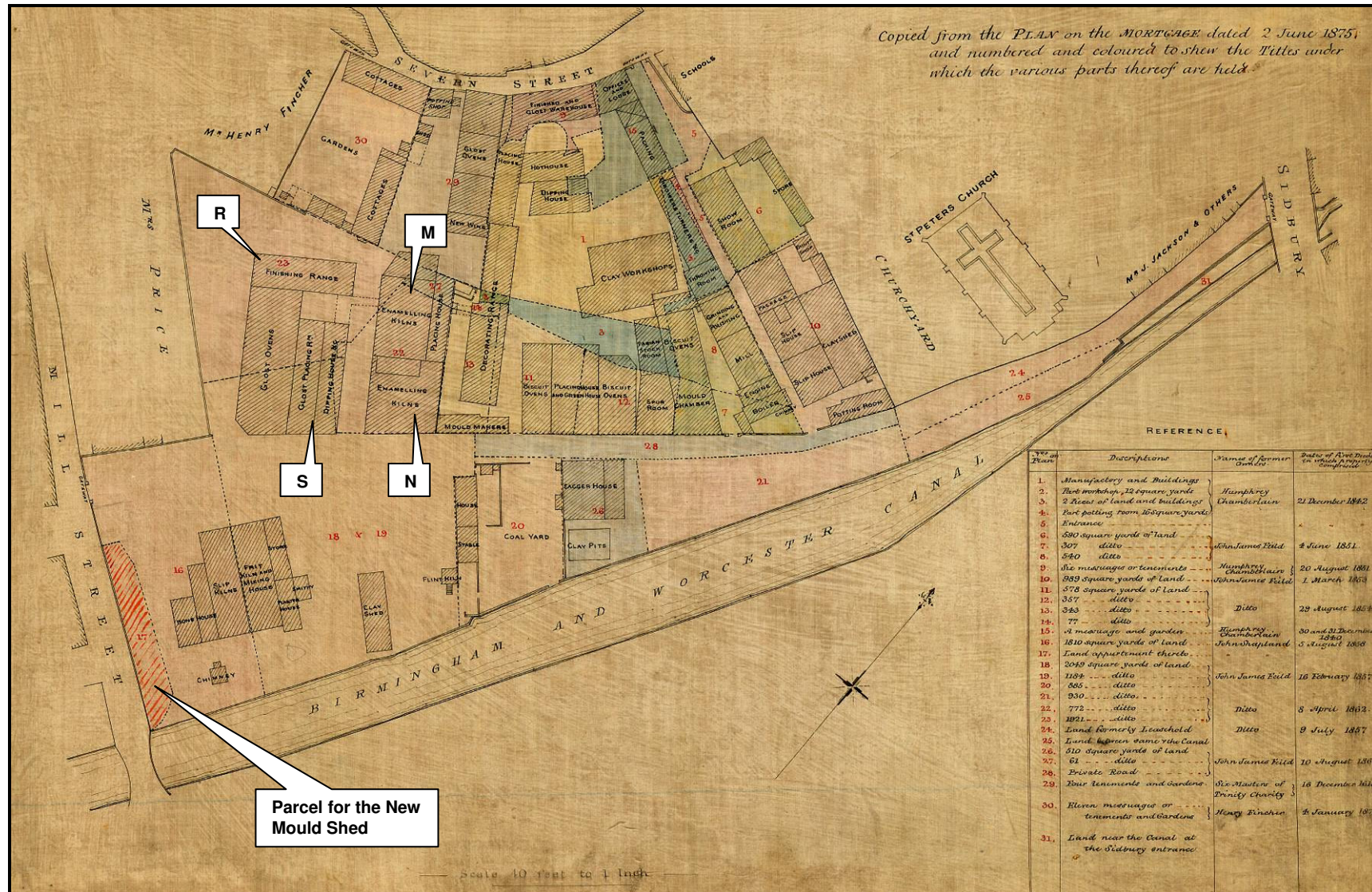


Figure 182: Plan of the Works in 1875 (WPM)

## 6.2 Phase 2 (1880 – 1900s)

The 1884 Ordnance Survey map shows the footprint of the New Mould Shed which is positioned within the present Buildings Y and Z (Figure 183). An illustration of the Works shows that the building was single storey with a pitched roof and gables on the eastern and western sides (Figure 184).

The historical research identified that Building Q was built in 1888 which can be seen in Figures 2 and 3 of Appendix 2. The earliest cartographic evidence for Building Q is illustrated in the 1898 plan of the Works where it appears situated opposite the west side of Building R (Figure 185). This plan shows a further development, consisting of an extension to the west of the New Mould Shed.

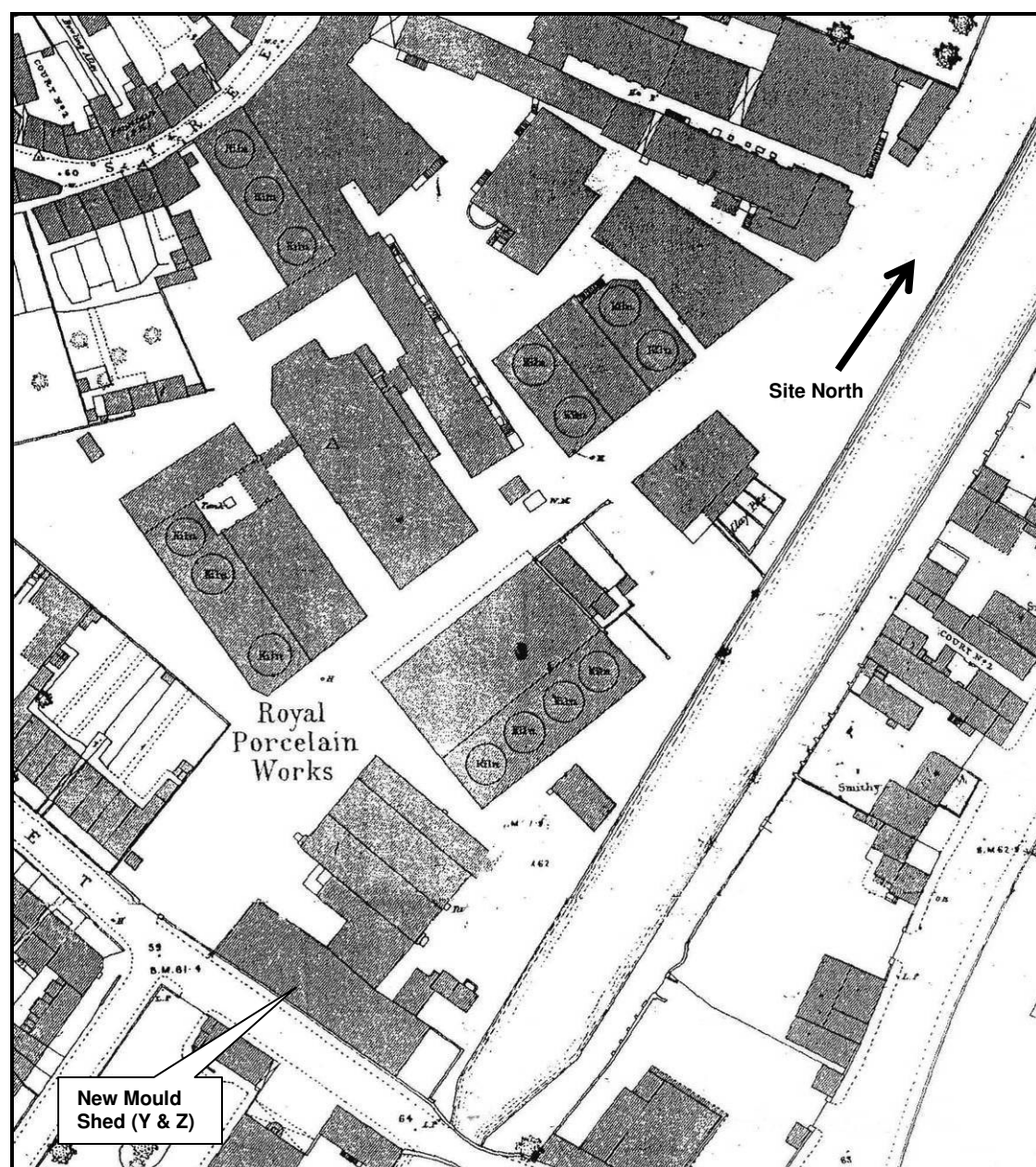


Figure 183: Plan of the Works in 1884 (OS map)

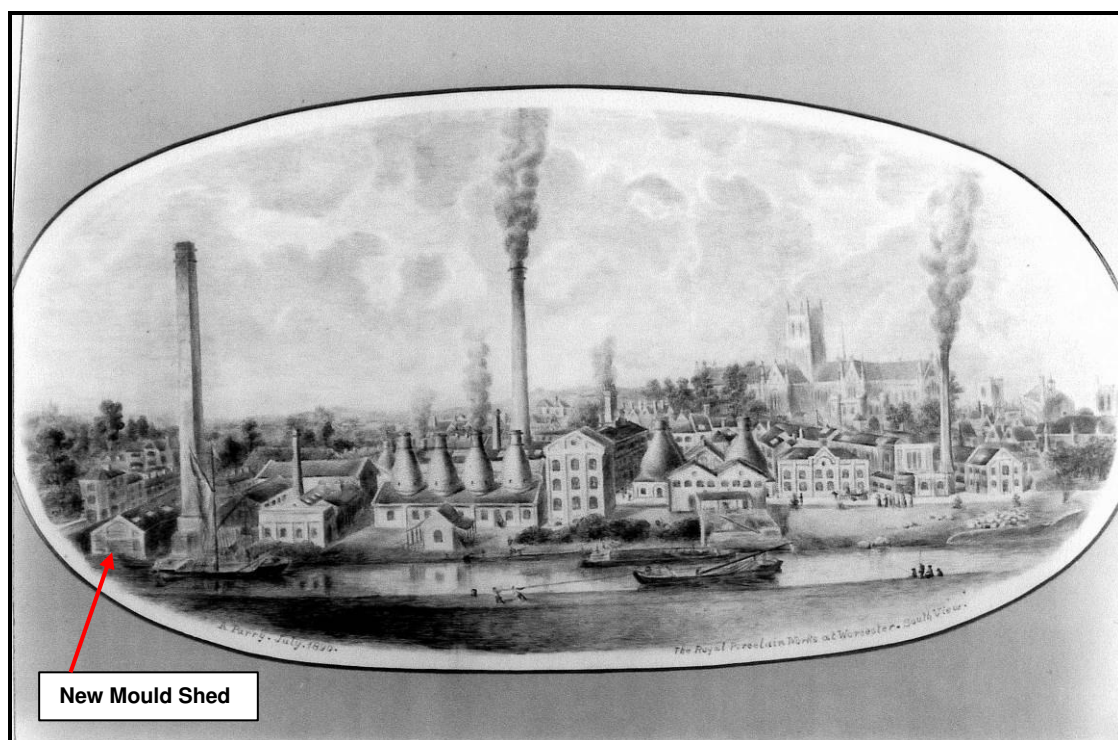


Figure 184: Illustration of the Works in 1890 (WPM)

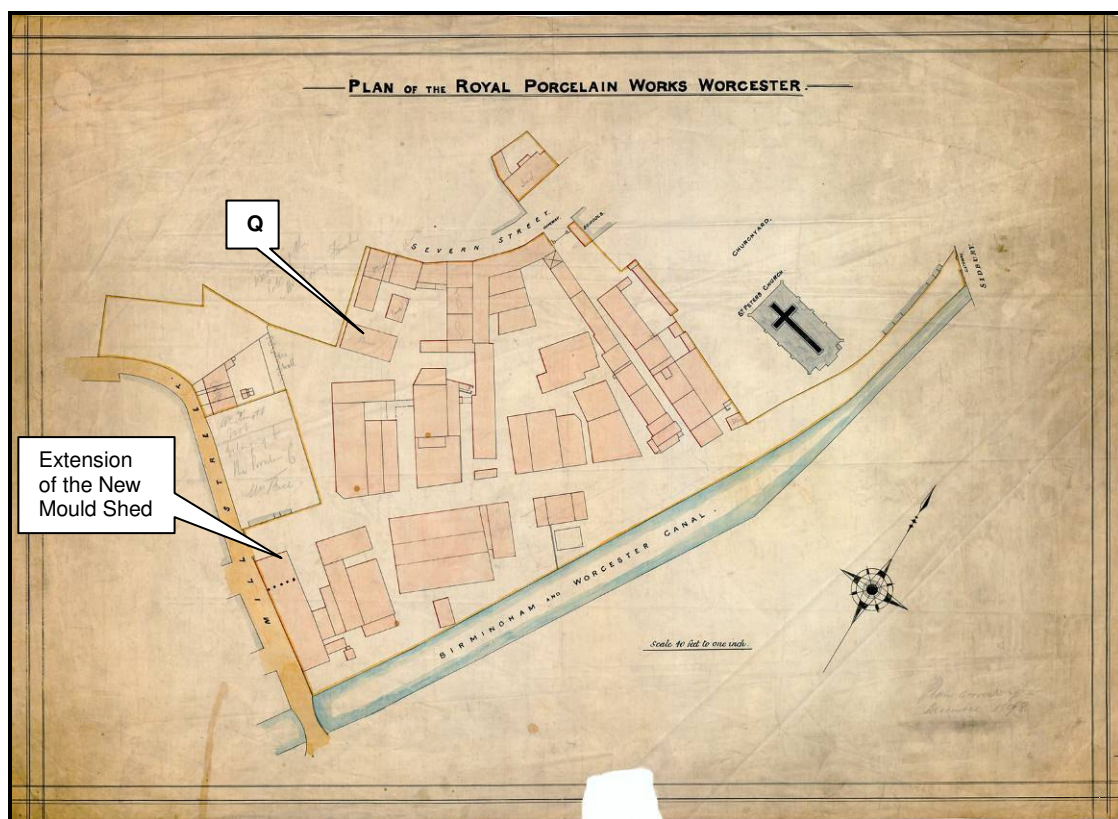


Figure 185: Plan of the Works in 1898 (WPM)



### 6.3 Phase 3 (1910 – 1940s)

No discernable changes can be identified from the Ordnance Survey maps dating to 1902 and 1928 (Figures 186 and 187). However, further development took place in the late 1920s when the chimney of Building M was demolished in 1928 (see Appendix 1). Moreover, a new bridge linking Building R and Q was constructed in 1928. This work involved widening the staircase of Building R towards its northern wall and blocking some of the window openings (see Figure 33 of Appendix 1).

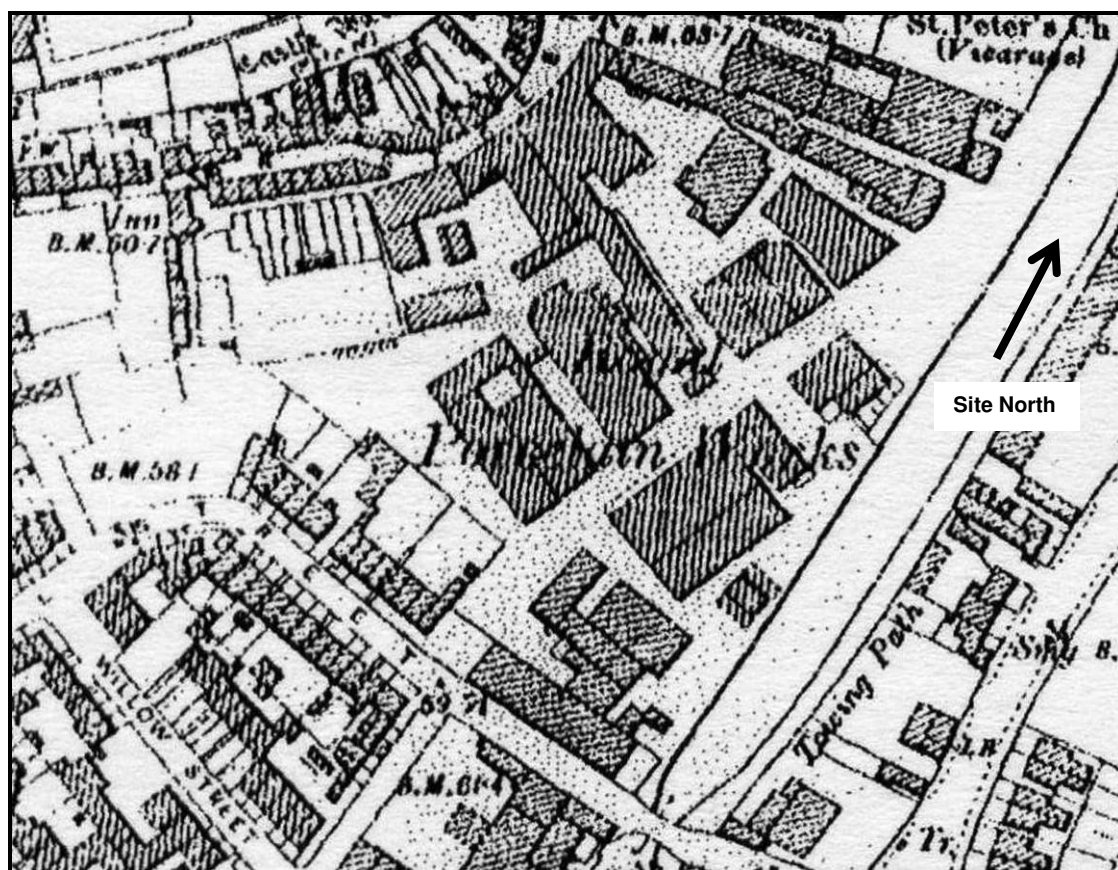


Figure 186: Plan of the Works in 1902 (OS map)

In 1929 the New Mould Shed was modified to form a Saggars Makers Place (Figure 35 of Appendix 3). Further alterations occurred in 1937 when a new cross-wing was erected over the existing east gable elevation of the New Mould Shed, part of its northern wall was removed and replaced by a series of RSJ stanchions (Figure 188). Despite considerable alterations on the New Mould Shed, the roof structure still survived as it is exhibited on two sections of the proposed alterations and extensions (*ibid*). The 1940 Ordnance Survey map shows the new bridge between Buildings R and Q built in 1928 (Figure 189). The 1941 plan of the Works shows also these new arrangements (Figure 190). It also illustrates Building M with a straight staircase on the northern block (plot number 19).

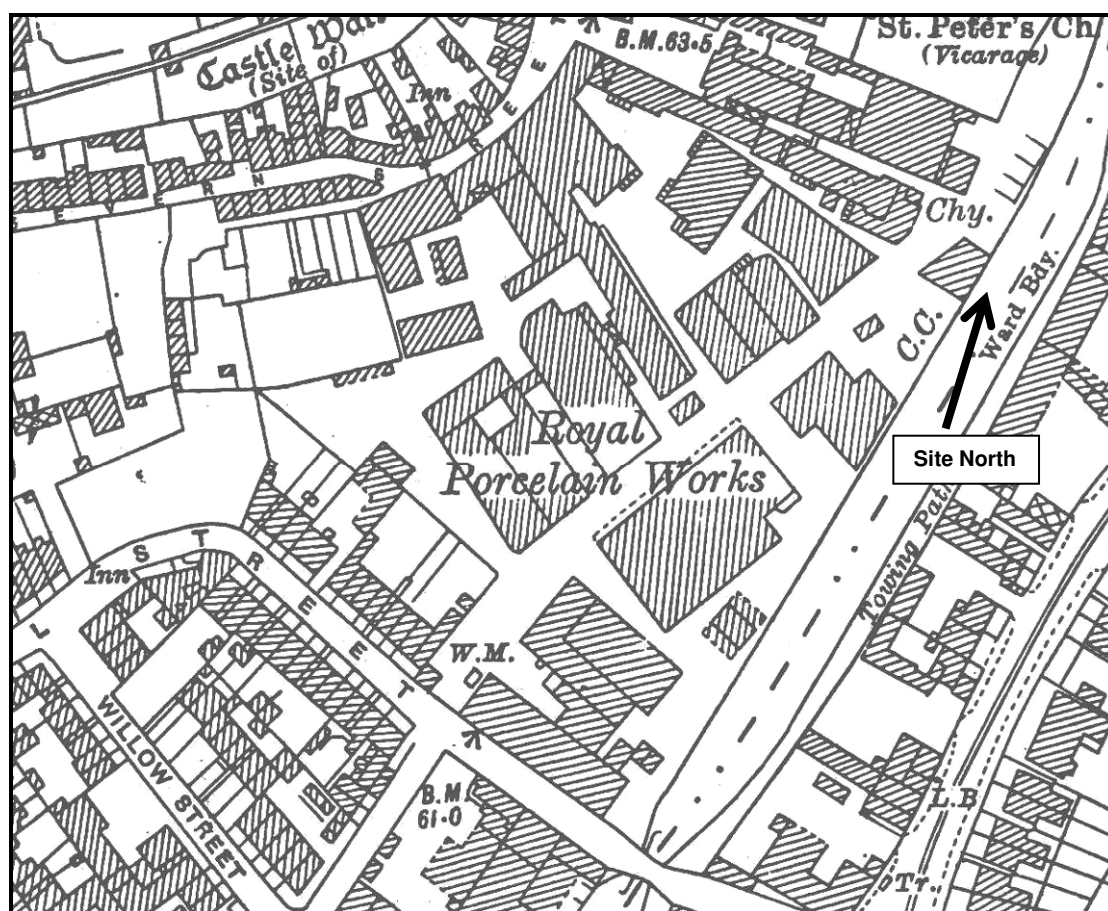


Figure 187: Plan of the Works in 1928 (OS map)

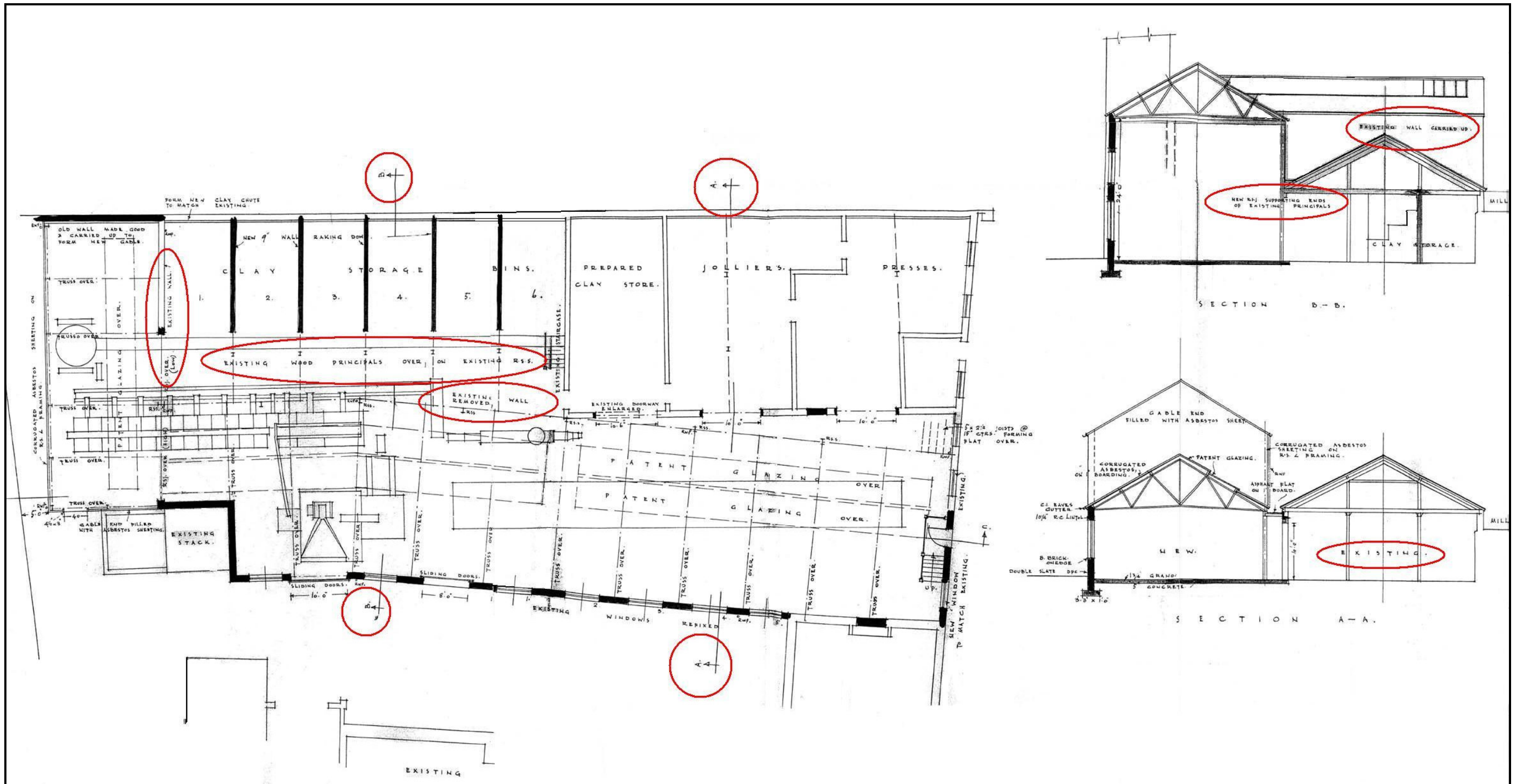


Figure 188: Architect's drawings of proposed additions and alterations of the New Mould Shed in 1937 (City of Worcester Planning Application 7025)

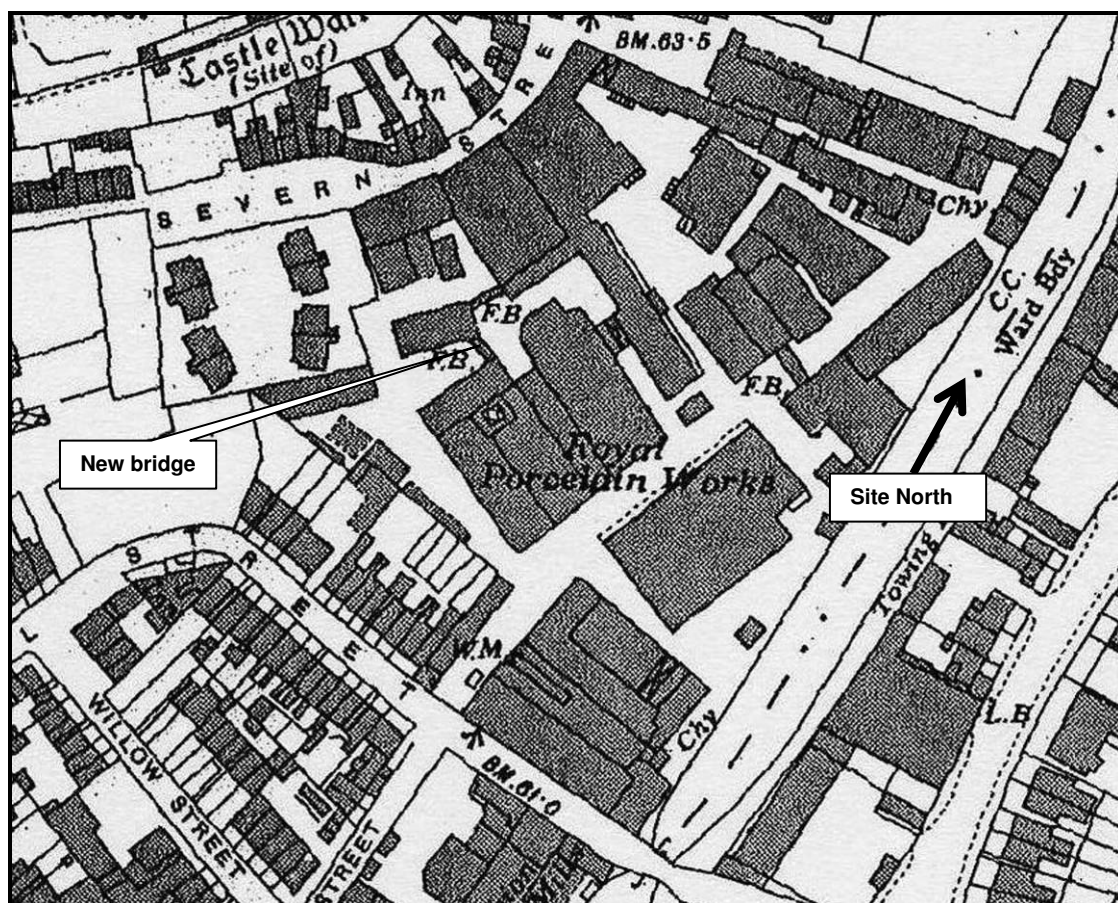


Figure 189: Plan of the Works in 1940 (OS map)



An architect's drawing of a proposed tunnel kiln between Buildings M and N on the north and R and S on the south issued in June 1941 shows that Building N is still a single-storey range (Figure 191). In 1947 further redevelopment took place and the present Building T was constructed (see Figure 27 of Appendix 1). This addition entailed blocking windows of Buildings R and S and inserting new doorways on the first floor of Building S. Around the mid 1940s the eastern gable end of Building N was raised in order to accommodate an upper storey. This can be seen on an illustration of the Works in 1948 with the new roof of Building N (Figure 192) and also on a photograph of the Works taken around 1950s (see Figure 11 of Appendix 1).

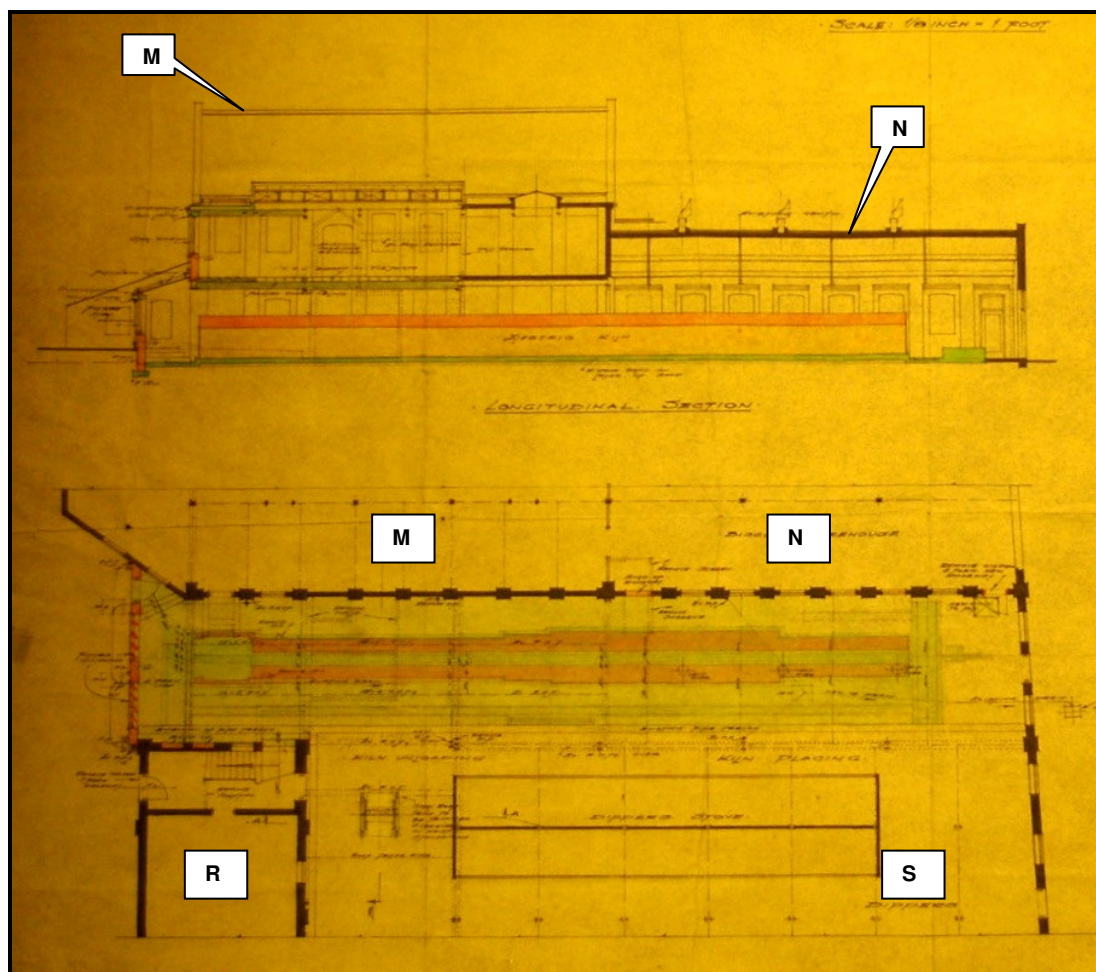


Figure 191: Architect's drawing of proposed kiln (between M – N and R – S) in June 1941 (WPM)

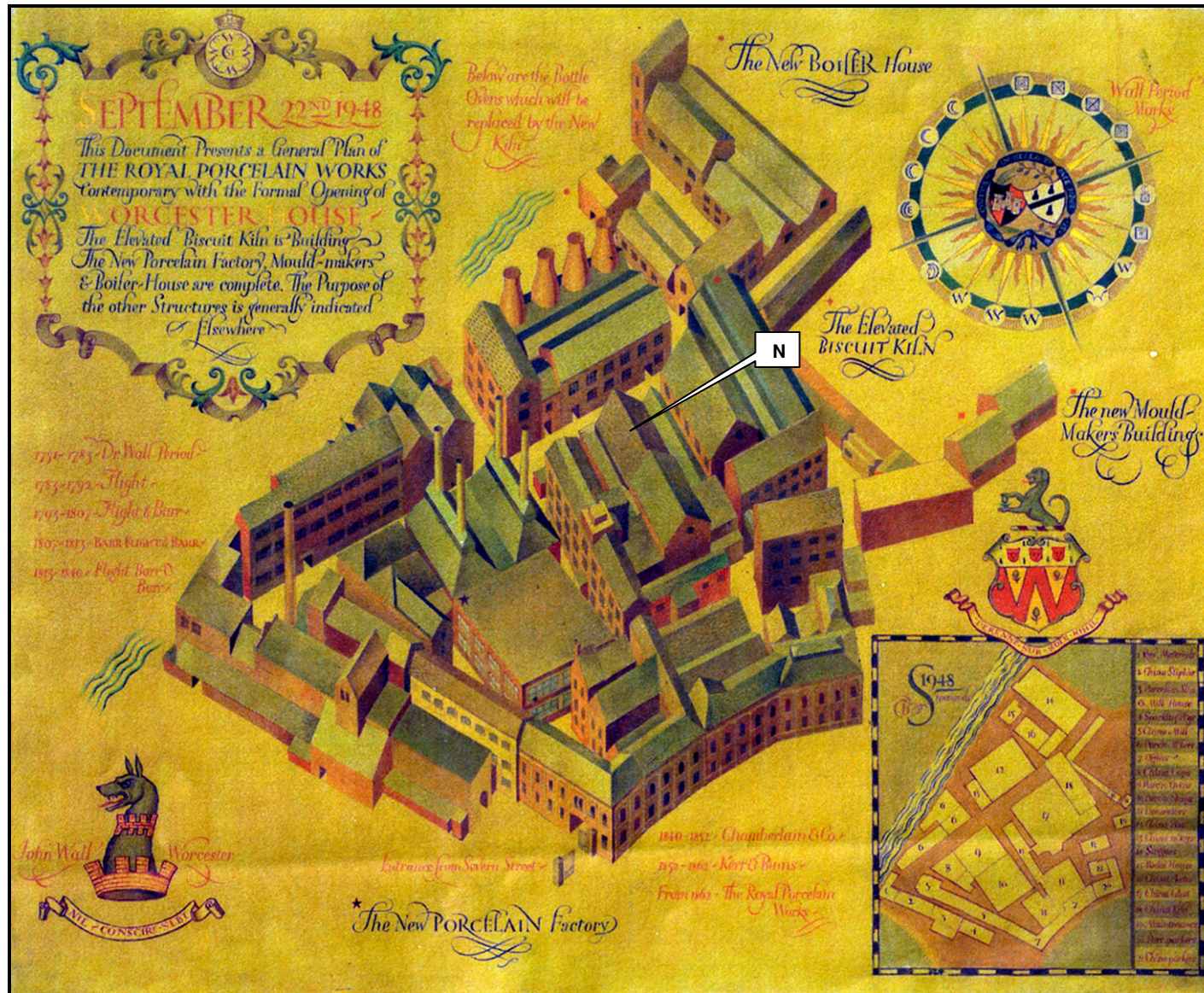


Figure 192: Plan of the Works in 1948 (WPM)

#### 6.4 Phase 4 (1950 – 1970s)

The 1950 architect's drawings of proposed alterations and additions to the Works show the additional upper storey of Building N already built (Figure 193). The first floor plan shows eight windows on the south wall and an oculus facing Prince's Drive. The former lean-to on the north side had been raised by an extra floor with windows on both side walls, but in 1950 the windows facing the interior of the upper storey of Building N were commissioned to be removed and their openings bricked-up. The architect's drawings also show further additions, including two bathrooms and a kitchen on the western area of Building M. Further changes took place in most of the buildings, including modernisation to the interior, removing most of the historic fixtures and fittings. In 1951 the northern wall at ground-floor level of the former lean-to of Building N was removed to accommodate a tunnel kiln (see Figure 46 of Appendix 1) and the whole new structure became a separate range (Building L) linking it with Building J on the north. The new agglomeration of buildings can be seen on the 1963 Ordnance Survey map (Figure 194) which also includes additional bridges connecting Building Q with adjacent buildings. In the 1970s Building S might have been affected by a fire as a new roof replaced the entire original pitched structure in 1978 (Figure 195).

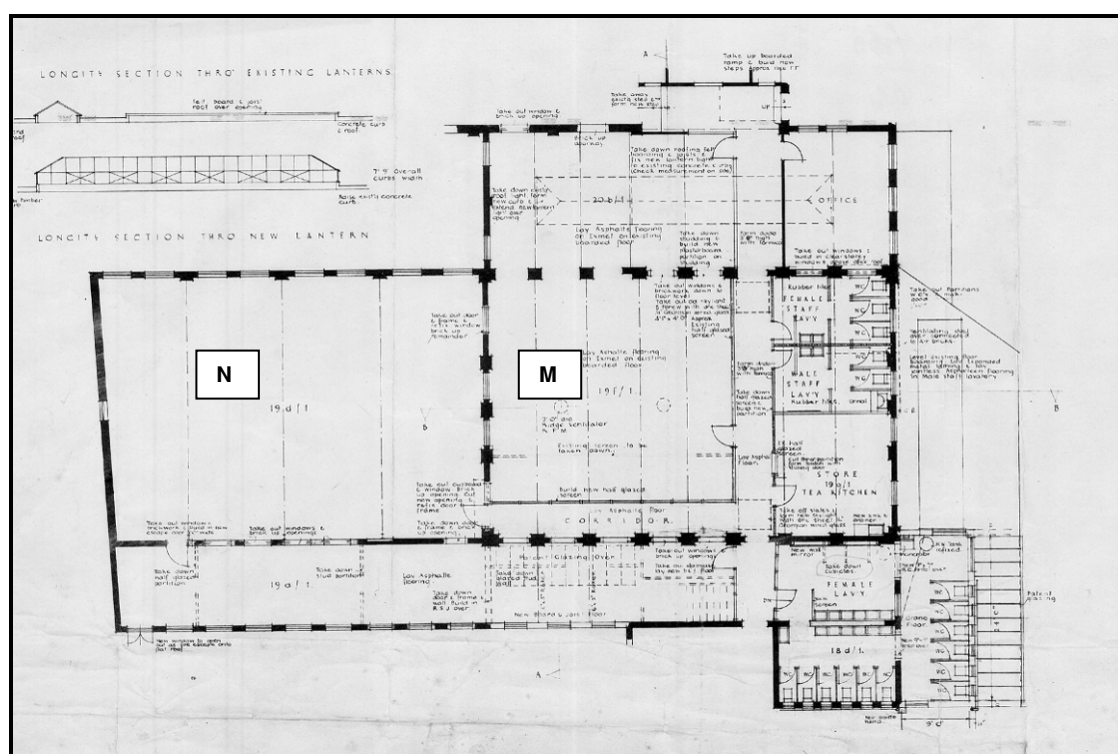


Figure 193: Architect's drawings of proposed alterations and additions to the Works in 1950 (WPM)



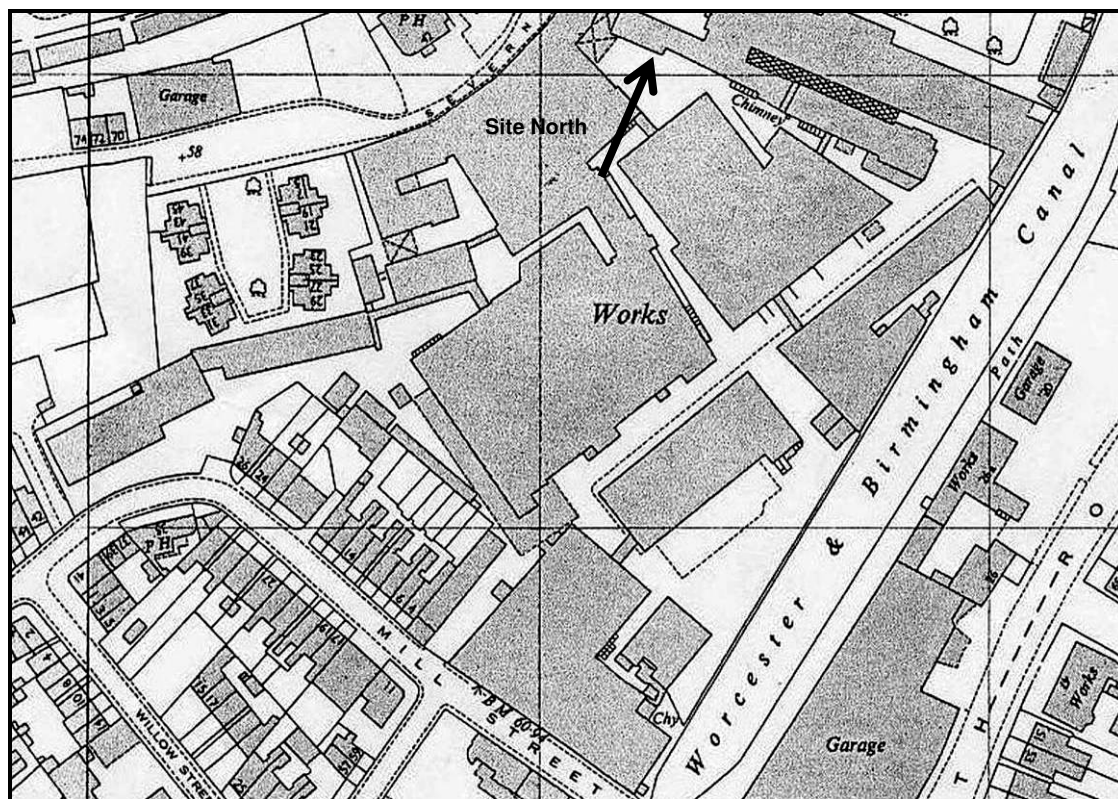


Figure 194: Plan of the Works in 1963 (OS map)

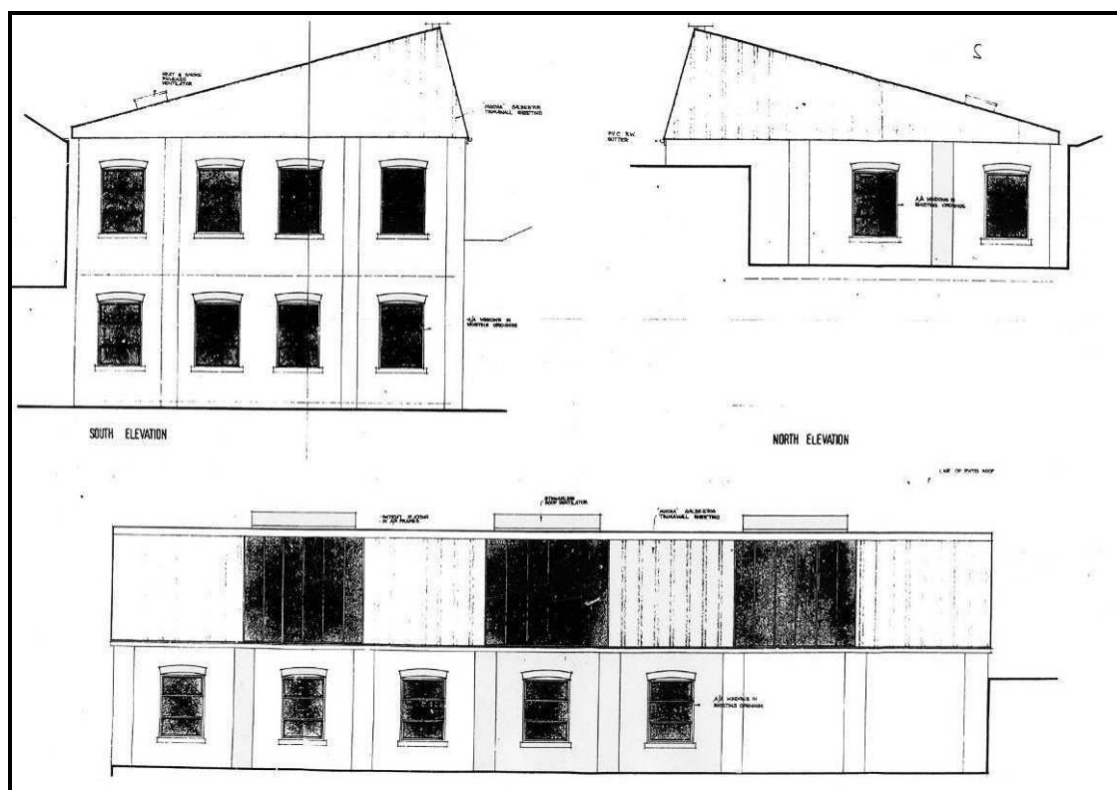


Figure 195: New roof for Building S in 1978 (City of Worcester Planning Application 78/1262)

## 7 Conclusion

This report deals with an archaeological investigation and recording of the Grinding and Polishing West and East Ranges (Buildings M and N), the Aerographic Block (Building Q), the China Decorating and Warehouse Range (Building R), the Spray Glazing Range (Building S) and the New Mould Shed (within Buildings Y and Z). The buildings were recorded in detail with scale drawings, photographs and written descriptions. Historical and industrial research was also undertaken in great detail and is included in three appendices.

The results indicate that Building M was established in the early 1860s. Further arrangements were made when Building N was built in 1874 as an extension of Building M. Later redevelopment entailed the removal of the eastern and western walls on the ground-floor level in order to link Building M to the adjacent buildings. Moreover, a central chimney stack was demolished in 1928. Most of the original external fabrics still survive but a high proportion of its primary fittings no longer exist.

Building N was built against the east elevation of Building M and a boundary wall in 1874. It was originally built as a single-storey annex of Building M, extending towards Prince's Drive. It has an elegant coped gable end which was slightly raised in the 1940s in order to accommodate an upper storey. An original lean-to on the northern side also was heightened with windows on its side walls.

In 1875 Buildings R, S and the New Mould Shed (within Buildings Y and Z) were erected. Building R is a tall three-storey range with most of its original fabrics extant. It has suffered some alteration including the almost total replacement of its original fenestration and the insertions of several openings. Internally it has been modernised and a high proportion of primary fittings have been removed. However it retains its roof structure which is in good condition.

Building S is an elegant two-storey range built with elaborate gables. The walls on the ground-floor level have been removed and replaced by steel stanchions. Its original fenestration has been substituted by modern windows. Some of their openings are now bricked-up. In 1978 the upper gables and the entire slated roof with its composite trusses were replaced by a modern north-light steel structure. Despite considerable alterations, the building retains some of its external original fabrics which are of historical and architectural importance.

The New Mould Shed was built as a single-storey long range with elegant gables on the east and west elevations. In the late 1890s it was extended towards the southern gateway of the Works. Further alterations occurred in 1937 when the majority of its original external fabrics were removed.

Building Q was added to the Works in 1888. In 1928 a bridge was built at the north-east corner leading to the opposite Building R. Further bridges were inserted around the 1950s. The present building is in excellent condition and the majority of its primary fabrics are extant including its cast-iron fenestration and roof structure. However, some of the internal original fittings, including carpentry and masonry detailing, no longer survive.

These buildings constitute an interesting example of 19th century factory construction and are of historical and architectural importance nationally.

## 8 Archive deposition

The project archive, consisting of scaled drawings, digital photographs, photographic records, building recording sheets and computer discs will be prepared and stored in accordance with the guidelines laid down in the Institute of Field Archaeologists' guidelines for the preparation and storage of archives. The archive will be placed at Worcester City Museum.

The archive of the entire project consists of:

- 41 Building record sheets
- 7 Context register sheets
- 212 Photographic record sheets
- 3495 Digital photographs
- 30 35mm colour prints
- 14 Computer discs
- 11 Drawing register sheets
- 262 Scaled drawings

The drawing survey comprises 42 scaled drawings of which 20 are included in the report. The drawings are listed below:

No	SCALE	BUILDING	DESCRIPTION	STATE IN REPORT
43	1:50	N	Ground floor plan (northern side)	
44	1:50	N	First floor plan (northern side)	
45	1:50	Z	East facing cross section of the New Mould Shed	Included @ 1:100
46	1:50	Z	East elevation of the New Mould Shed	Included @ 1:100
47	1:100	Z	Ground floor plan of the New Mould Shed	Included @ 1:100
48	1:50	N	Ground floor plan	Included @ 1:100
49	1:50	N	First floor plan	
50	1:50	N	South facing internal elevation of north elevation	Included @ 1:100
53	1:50	S	Ground floor plan	
54	1:50	S	First floor plan	Included @ 1:100
55	1:50	S	East elevation	Included @ 1:100
56	1:50	S	North elevation	Included @ 1:100
57	1:100	Y	Ground floor including boundary wall	
58	1:50	Y	East elevation	
59	1:50	N	South elevation	Included @ 1:100
60	1:20	S	Cast-iron column	
154	1:50	R	Ground floor plan	Included @ 1:100
155	1:50	R	First floor plan	
156	1:50	R	Second floor plan	

No	SCALE	BUILDING	DESCRIPTION	STATE IN REPORT
157	1:50	R	North elevation	
158	1:50	R	South elevation	Included @ 1:100
159	1:50	R	East elevation	
160	1:50	R	West elevation	Included @ 1:100
161	1:50	Q	East elevation	
162	1:50	Q	South elevation	Included @ 1:100
163	1:50	Q	West elevation	Included @ 1:100
164	1:50	Q	North elevation	
165	1:50	Q	Second floor plan	
166	1:50	Q	First floor plan	
167	1:50	Q	Ground floor plan	Included @ 1:100
175	1:50	N	East elevation	Included @ 1:100
234	1:50	M	East elevation	
235	1:50	M	West elevation	Included @ 1:100
236	1:50	M	North elevation	Included @ 1:100
237	1:50	M	South elevation	
238	1:50	M	Ground floor plan	Included @ 1:100
239	1:50	M	First floor	
240	1:100	M	Cross section	Included @ 1:100
255	1:100	Q	Roof plan (indicative)	
256	1:50	Q	Cross section	
261	1:100	R	Roof plan (indicative)	
262	1:100	M	Roof plan (indicative)	

## 9 Publication and dissemination proposals

Paper copies of this report will be lodged with the Archaeological Adviser to Worcester City Council, Worcester Sites and Monuments Record and Worcester City Library. A short note on the project will be prepared for publication.

CDs of this report, together with the supporting archival material will be available from Archenfield Archaeology Ltd. Information will also be available on OASIS, after completion of the report and an OASIS form (<http://ads.ahds.ac.uk>).

The complete photographic record and database will be retained by Archenfield Archaeology Ltd and a digital copy will be included in the archive.

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- Worcester City Museum Archaeology Section 2006 *Brief for archaeological building investigation and recording, Royal Worcester Porcelain Works, Severn Street, Worcester*. No. 06/22.

## 11 Cartographic material

Ordnance Survey 1884	1st edition 1:500 plan. County Series, Worcestershir XXXIII.8.11
Ordnance Survey 1902	County Series, Worcestershire Sheet XXXIII NE
Ordnance Survey 1928	County Series, Worcestershire Sheet XXXIII NE
Ordnance Survey 1940	County Series, Worcestershire Sheet XXXIII NE
Ordnance Survey 1963	County Series, Worcestershire Sheet XXXIII NE
Ordnance Survey Superplan Data 2007	Licence Ref. number HEMC 00495300

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## **APPENDIX**