



**STONE BRIDGE
MILL,
KESTOR LANE,
LONGRIDGE,
LANCASHIRE**

**Archaeological Building
Investigation**



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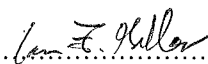
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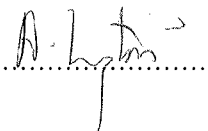
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Prepared by: Chris Wild
Position: Project Officer
Date: October 2012

Checked by: Ian Miller
Position: Senior Project Manager
Date: October 2012

Signed... 

Approved by: Alan Lupton
Position: Operations Manager
Date: October 2012

Signed... 

Oxford Archaeology North

Mill 3
Moor Lane Mill
Moor Lane
Lancaster
LA1 1GF
t: (0044) 01524 541000
f: (0044) 01524 848606

w: www.oxfordarch.co.uk
e: info@oxfordarch.co.uk

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Janus House
Osney Mead
Oxford
OX2 0EA
t: (0044) 01865 263800
f: (0044) 01865 793496

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CONTENTS

SUMMARY	2
ACKNOWLEDGEMENTS.....	3
1. INTRODUCTION	4
1.1 Circumstances of the Project.....	4
1.2 Site Location	4
2. METHODOLOGY	6
2.1 Building Investigation.....	6
2.2 Archive.....	6
3. BACKGROUND	7
3.1 The Textile Industry in Longridge and Stone Bridge Mill	7
4. BUILDING INVESTIGATION	14
4.1 Description	14
BIBLIOGRAPHY	27
ILLUSTRATIONS	28
List of Figures	28

SUMMARY

Singleton's Dairy Ltd has obtained approval from Ribble Valley Borough Council to demolish a former weaving shed to enable an expansion of their dairy premises on Preston Road in Longridge, Lancashire. The weaving shed forms the southern part of the former Stone Bridge Mill complex (centred on NGR 360145 437000), a steam-powered weaving factory that was established in 1850.

Stone Bridge Mill was the first steam-powered mill to be built in Longridge, and represented the introduction of the factory-based textile industry to the town. The mill was designed as a purpose-built weaving factory, which was probably powered by a single-cylinder beam engine supplied by Musgraves of Bolton. The number of looms at Stone Bridge Mill was increased to 614 in c 1910, when a new weaving shed was added to the site. A series of building plans deposited by Thomas Dryden show the intended layout of the new weaving shed, and indicate that it was designed to house 84 looms. The mill closed in 1961, and the site was used subsequently for engineering purposes.

In order to secure heritage interests, Singleton's Dairy Ltd commissioned Oxford Archaeology North (OA North) to carry out an archaeological building investigation of the weaving shed prior to its demolition to ensure that an archival record of the building was compiled. The work was commensurate with an English Heritage Level I/II-type building investigation, and was undertaken in October 2012.

The building investigation has enabled a detailed record to be compiled of the weaving shed, which was evidently built in two principal phases of construction. The earliest elements of the weaving shed were of stone construction, and may have formed part of the original mill complex in 1850. It seems possible that it was adapted subsequently for use as a weaving shed, or was fitted with a replacement roof in the later nineteenth century, as indicated by the use of steel beams to support the roof. The weaving shed was extended in c 1910 with the addition of seven bays to the south, constructed with hand-made brick bonded in a pale lime mortar.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) is grateful to Tilly Carefoot of Singleton's Dairy Ltd for commissioning the project, and to Peter Bamber of PGB Architectural Services Ltd for his support. OA North is also grateful to Doug Moir of the Lancashire County Archaeology Service for his advice and guidance. Thanks are also expressed to Emma Hewitt, the Heritage Officer at Longridge Heritage Centre, for her assistance with the documentary research.

The building investigation was undertaken by Chris Wild, and the documentary research was carried out by Ian Miller. The illustrations and report were compiled by Chris Wild, and were edited by Ian Miller, who was also responsible for project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Singleton's Dairy Ltd has obtained approval from Ribble Valley Borough Council to demolish a former weaving shed to enable an expansion of the dairy premises on Preston Road in Longridge, Lancashire. The weaving shed forms part of the former Stone Bridge Mill complex, a steam-powered weaving factory that was established in 1850 and remained in production until 1961, after which date it was used for engineering purposes. Whilst the historic core of the weaving mill lies to the north, within the boundary of the Longridge Conservation Area, the weaving shed that forms the focus of the present study dates to c 1910, and lies beyond the boundary of the Conservation Area.
- 1.1.2 In order to secure heritage interests, Singleton's Dairy Ltd commissioned Oxford Archaeology North (OA North) to carry out an archaeological building investigation of the weaving shed prior to its demolition to ensure that an archival record of the building was compiled. The work was commensurate with an English Heritage Level I/II-type building investigation, and was undertaken in October 2012.

1.2 SITE LOCATION

- 1.2.1 Stone Bridge Mill lies on the south-western fringe of Longridge town centre (Fig 1). The mill complex lies parallel and to the east of Preston Road, and is bounded to the north by Kestor Lane. Singleton's Dairy is situated immediately adjacent to the south-eastern corner of the site, with residential development along Beech Drive forming the north-eastern boundary (Plate 1).
- 1.2.2 The oldest part of the mill complex occupies the northern part of the site, fronting Kestor Lane. The weaving shed that formed the focus of the present study (centred on NGR 360145 437000) forms the southern part of the mill complex (Plate 1). This part of the former mill complex lies immediately beyond the southern edge of the Longridge Conservation Area.



Plate 1: Recent aerial view of Stone Bridge Mill and its environs, with red line marking the location of the north-light shed that forms the focus of the present study

2. METHODOLOGY

2.1 BUILDING INVESTIGATION

- 2.1.1 The building investigation was intended to be commensurate with an English Heritage Level 1-type survey, which comprises a detailed photographic record. However, the photographic record has been enhanced with some measured survey to enable the production of an accurate plan of the weaving shed and a cross-section across the north-light roof. The photographic record was also coupled with a written description of the building, commensurate with an English Heritage Level 2-type survey.
- 2.1.2 **Descriptive record:** written records using OA North *pro-forma* record sheets were made of all principal building elements, both internal and external, as well as any features of historical or architectural significance. Particular attention was also paid to the relationship between the earliest and latest parts of the weaving shed, especially those that would show their development and any alterations. These records are essentially descriptive, although interpretation was carried out on site as required. All work carried out was consistent with the relevant standards and procedures provided by the Institute for Archaeologists (IfA), and their code of conduct.
- 2.1.3 **Site drawings:** measured survey floor plans of the weaving shed was produced in order to show the form and location of structural features and/or features of historic interest. Several cross-sections were also produced through the weaving shed, where they were deemed suitable, using a reflectorless total station. The hand-annotated field drawings were digitised using an industry standard CAD package to produce the final drawings.
- 2.1.4 **Photographs:** photographs were taken in high-resolution digital format (15MP). The photographic archive consists of both general shots of the complex, as well as shots of specific architectural details.

2.2 ARCHIVE

- 2.2.1 A full archive of the work has been prepared to a professional standard in accordance with current English Heritage guidelines (1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The archive will be deposited with the Lancashire Record Office on completion of the project. In addition, a copy of the report will be forwarded to the Lancashire Historic Environment Record (HER).

3. BACKGROUND

3.1 THE TEXTILE INDUSTRY IN LONGRIDGE AND STONE BRIDGE MILL

- 3.1.1 Longridge was little more than an agricultural village until the second quarter of the nineteenth century, although hand-loom weaving became important locally from the later eighteenth century onwards. This branch of the domestic textile industry remained a key part of Longridge's economy until the middle of the nineteenth century (Rothwell 1990, 76).
- 3.1.2 The completion of a railway connection to Preston acted as a catalyst for the expansion of Longridge into a town, which was based largely on the growth of the textile industry and the adoption locally of the factory-based system. The Preston & Longridge Railway Company (P&LR) was established in 1836 to build a tramway from Tootle Heights Quarry in Longridge to Preston (Suggitt 2003, 49). A single-track line for horse-drawn wagons was opened in May 1840, with basic passenger facilities at Longridge, Grimsargh and Deepdale Street in Preston (Welch 2004, 21).
- 3.1.3 Plans to improve the rail connection between Longridge to Preston were drawn up in 1846, when the Fleetwood, Preston & West Riding Junction Railway Company (FP&WRR) was formed with an ambitious scheme to link Fleetwood in Lancashire to Leeds and Bradford in Yorkshire. It was intended that the existing Preston & Wyre Joint Railway would be linked to the Longridge line in Preston. The P&LR was duly leased to the FP&WRR, and the line was adapted for steam. The first steam-hauled service entered Longridge in Whit Monday 1848 (Pattinson 1999, 5), signalling the viability of Longridge as a textile-manufacturing centre.
- 3.1.4 Local entrepreneur George Whittle was quick to realise the advantages afforded by the new rail connection. A native of Withnell near Chorley, George Whittle had moved to Longridge in 1838, where he worked as a 'putter-out', supplying materials to the local hand-loom weavers. He soon established several 'proto-factories' for weavers in Longridge and outlying settlements of Hurst Green, Ribchester and Copster Green. In 1850, he established Stone Bridge Mill on a green-field site adjacent to the railway on the south-western fringe of Longridge.
- 3.1.5 Stone Bridge Mill was the first steam-powered mill to be built in Longridge, and represented the introduction of the factory-based textile industry to the town. The success of the mill was dependent on the railway, and its design incorporated a platform for the transhipment of goods (Till 1993, 105). The mill was designed as a purpose-built weaving factory, which was probably powered by a single-cylinder beam engine supplied by Musgraves of Bolton (Rothwell 1990, 76). The engine and boiler houses were integral to a two-storey preparation block, which formed the southern part of the mill complex, fronting onto a narrow mill yard that was accessed from Silver Street (now Preston Road).

- 3.1.6 A second two-storey block extended to the north, parallel to Silver Street, and is likely to have been used originally as a warehouse. The original weaving shed lay immediately to the east of this warehouse, and to the north of the preparation and steam-power plant. The steam plant was supplied with water from reservoirs situated to the south of the mill complex. A gasometer was also built to the south of the mill, supplying the gas required for lighting the buildings.
- 3.1.7 A two-storey watch and counting house was built adjacent to the main gate, with additional offices and storage buildings along the south side of the mill yard. The eastern end of this range of buildings was formed by a block that is shown on historical mapping to have been set back slightly to the south, with another building abutting its north-eastern corner (Plate 2). The intended function of these buildings remains unclear.
- 3.1.8 A second steam-powered mill was built in Longridge in 1852 by the partnership of Marsden & Hayhurst. Known as Cramp Oaks Mill, this had also been intended as a weaving mill, although it was expanded in the late 1860s to include a capacity for cotton spinning. This venture appears to have been short-lived, and spinning had been abandoned by the end of the 1880s (Rothwell 1990, 77).
- 3.1.9 Victoria Mill was the third cotton mill to be established in the town. This was erected in 1862 by Robert Smith, a nephew of George Whittle (Till 1993, 106). This was also intended as a weaving mill and was designed to house 360 looms, although it had been enlarged by 1880, and again in the 1890s, to increase the capacity to 690 looms (Rothwell 1990, 77).
- 3.1.10 The fourth and last steam-powered textile mill in Longridge was established by the Longridge Manufacturing Company in 1875-6. It was situated a short distance to the south-west of Stone Bridge Mill, and was designed to house up to 704 looms.
- 3.1.11 In 1877, the original steam engine at Stone Bridge Mill was replaced by a 350hp cross compound engine, manufactured by Joseph Clayton & Company of Preston. The later engine and boiler houses were added to the eastern gable of the original engine and boiler house. By that date, the mill housed 540 looms. The layout of the buildings is depicted on the Ordnance Survey map of 1893 (Plate 2), which provides the earliest plan of the site. The mill complex is shown in block outline, although the large structure forming the northern part of the site clearly represents the weaving shed. The narrow mill yard, and the ancillary buildings on the southern side of the yard can also be discerned. The map also shows the railway siding, and the warehouse adjacent to the railway on the western side of Silver Street (Plate 3). The same layout is shown on the next edition of Ordnance Survey mapping, which was surveyed in 1909 and published in 1912.

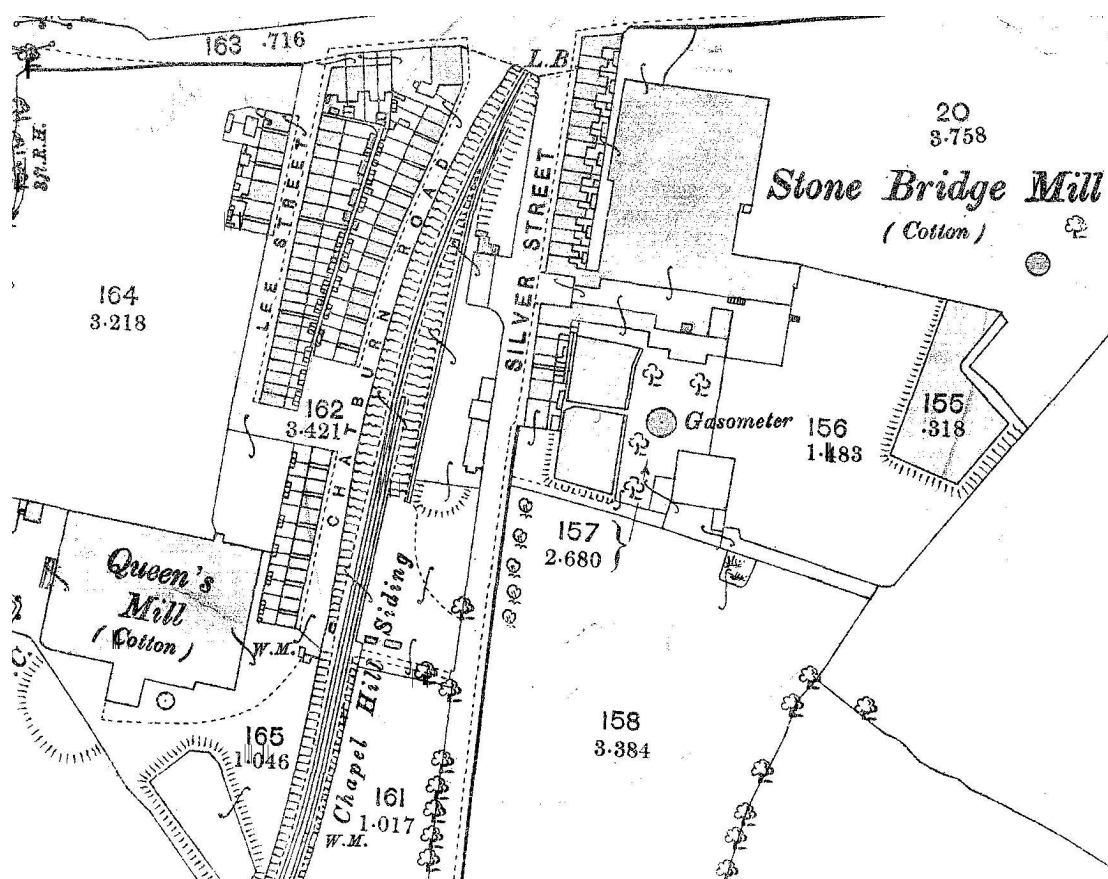


Plate 2: Extract from the Ordnance Survey 1:2500 map of 1893 (Sheet 80.12, surveyed 1892)



Plate 3: George Whittle's warehouse adjacent to the railway siding on the western side of Silver Street

- 3.1.12 The number of looms at Stone Bridge Mill was increased to 614 in *c* 1910, when a new weaving shed was built. This was designed by Thomas Dryden & Sons, millwrights and engineers at Grimshaw Street Foundry in Preston. A series of building plans deposited by Thomas Dryden show the intended layout of the new weaving shed, and indicate that it was designed to house 84 looms. The plans are undated, although were probably deposited in 1909-10. The new building was evidently placed against the southern wall of an existing weaving shed, as annotated on the building plans (Plate 4). This will have been that part of the range of buildings to the south of the mill yard that was set back to the south, as shown on the Ordnance Survey map of 1893.
- 3.1.13 Toilets for the workers are shown to have been located in the south-western corner of the new weaving shed, and provided for both male and female operatives. The deposited plans also include several elevation drawings of the new weaving shed, which include detail of the exterior guttering (Plates 5 and 6).

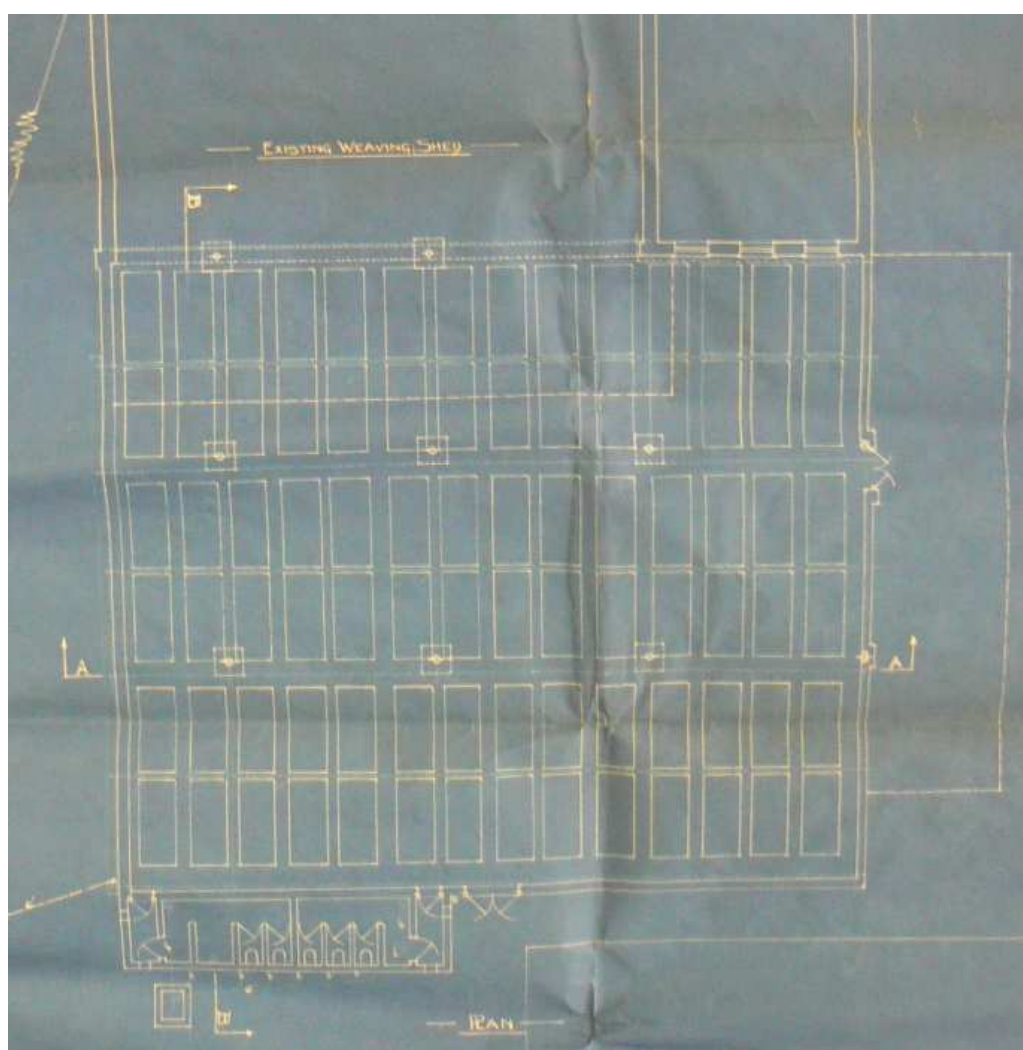


Plate 4: Deposited building plan, showing the intended layout of the new weaving shed

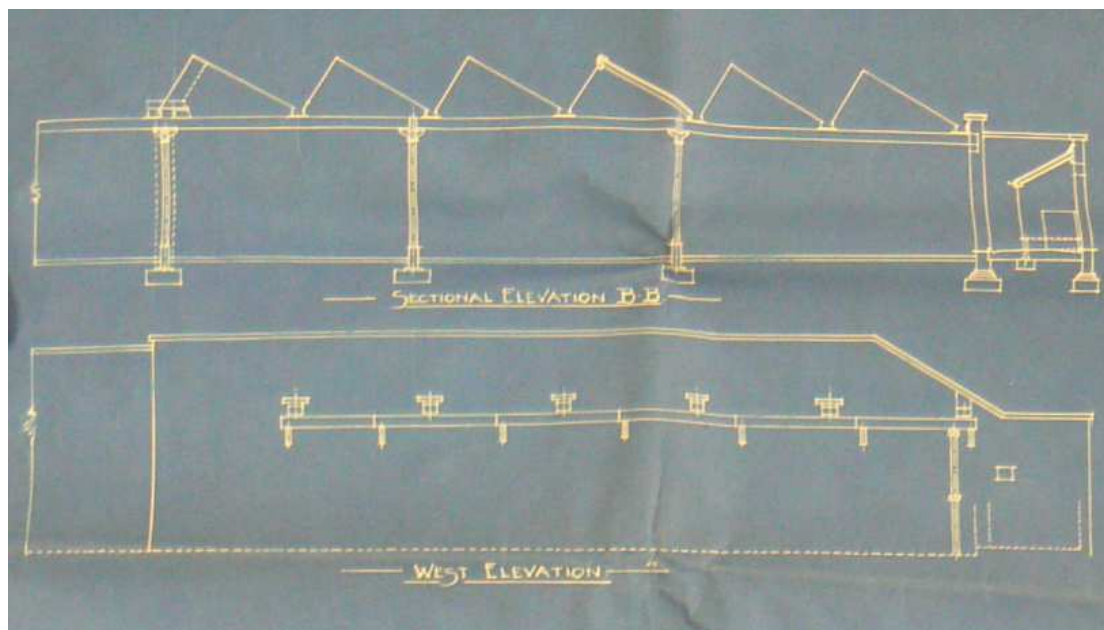


Plate 5: Deposited building plan, showing a sectional elevation and the west elevation of the new weaving shed

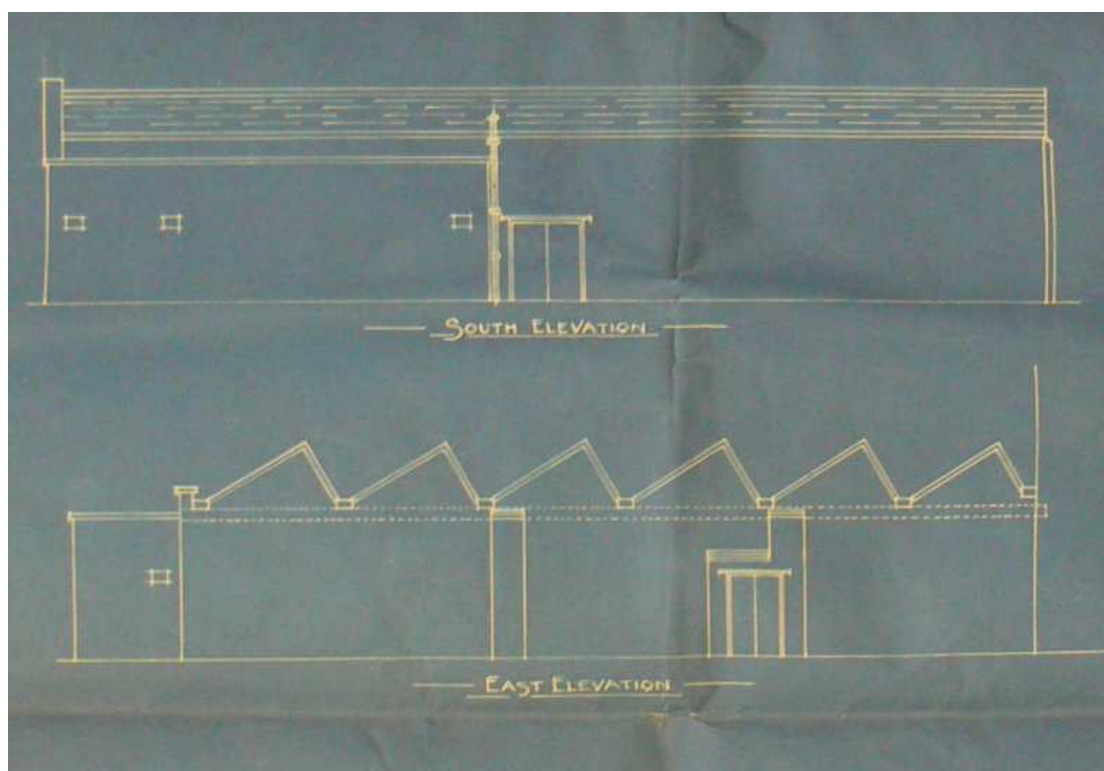


Plate 6: Deposited building plan, showing the south and east elevations of the new weaving shed

- 3.1.14 The layout of the mill complex following the addition of the new shed is shown on the Ordnance Survey map of 1932 (Plate 7). The new shed abutted the rear elevation of the buildings forming the south-eastern part of the mill yard. These existing buildings also appear to have been extended slightly to the north, encroaching into the yard area. The new shed also subsumed the site of the gasometer, which had presumably been superseded by an external supplier of gas.

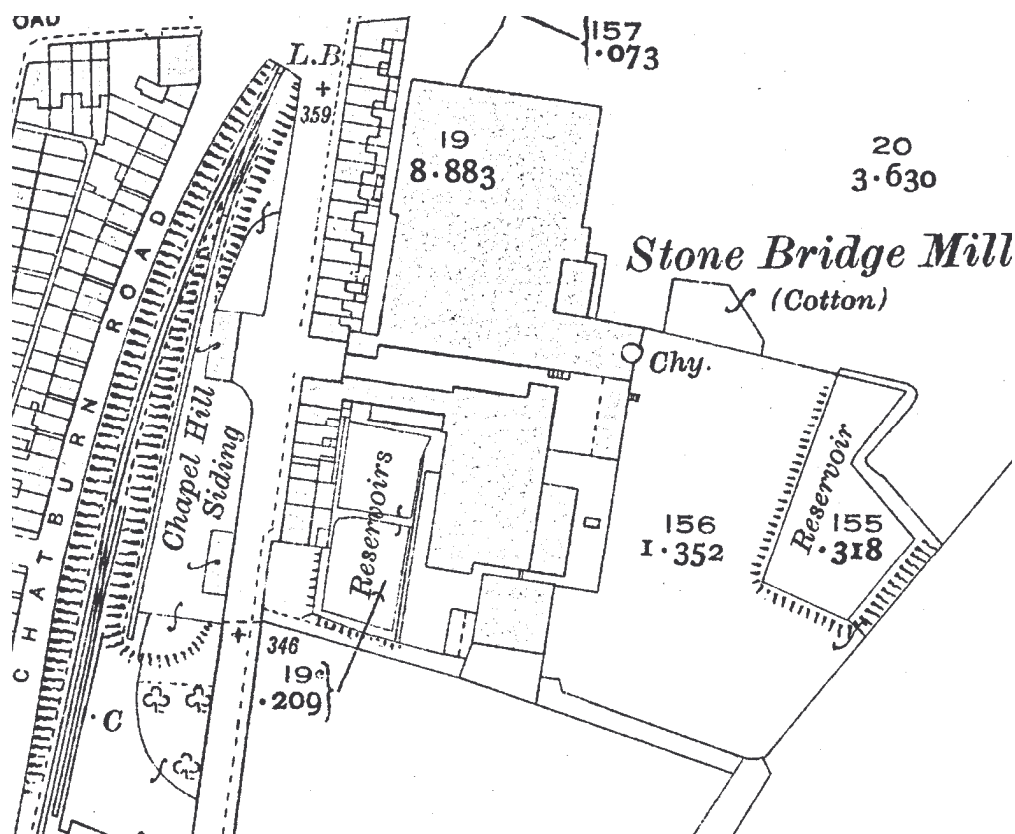


Plate 7: Extract from the Ordnance Survey 1:2500 map of 1932

- 3.1.15 The mill at its largest extent is also captured on an aerial view taken in c 1950 (Plate 8). This clearly shows the chimney on the eastern edge of the mill complex, and the original weaving shed and two-storey warehouse block. The weaving shed of c 1910 is also visible, but the definition is unclear.
- 3.1.16 The mill closed in 1961, and the site was used subsequently for engineering purposes. The original weaving shed in the northern part of the site was demolished shortly after the site closed as a textile mill, and is not shown on the Ordnance Survey map of 1967. This part of the site was used subsequently as an open yard area.

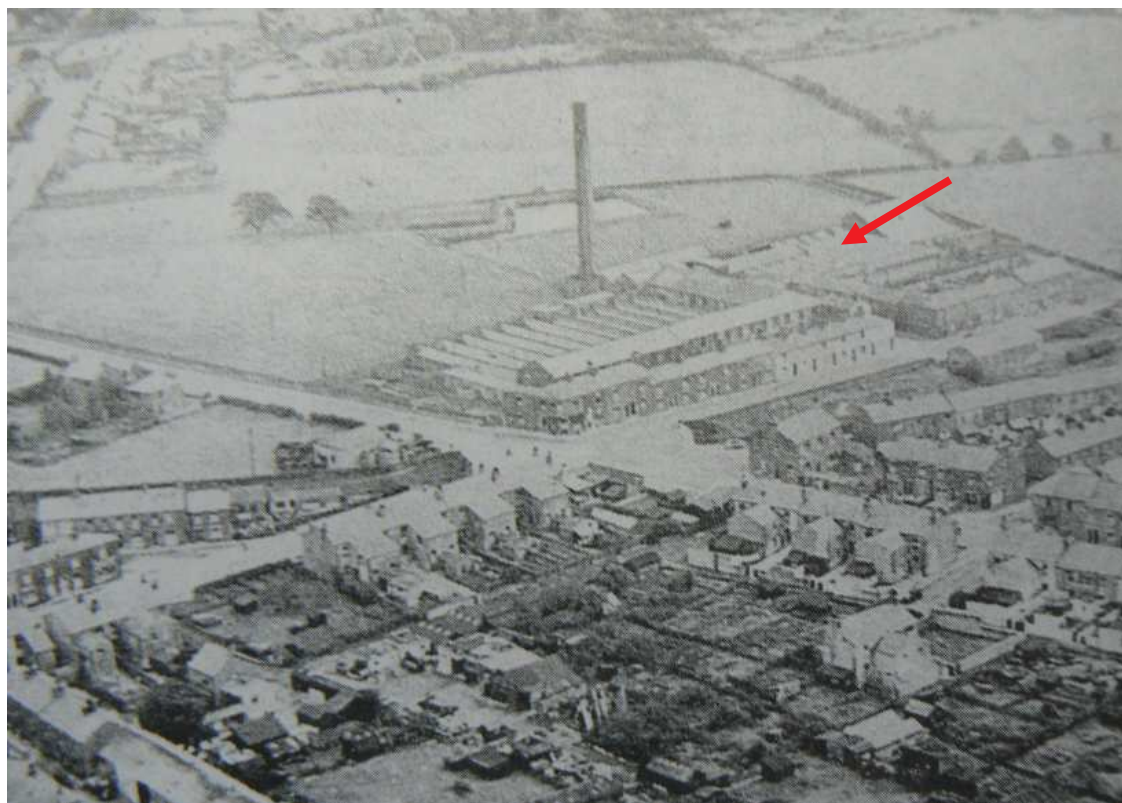


Plate 8: Aerial view over Longridge taken in c 1950, showing Stone Bridge Mill. Arrow marks the position of the weaving shed added in c 1910

4. BUILDING INVESTIGATION

4.1 DESCRIPTION

- 4.1.1 The weaving shed that formed the focus of the building investigation is a two-phased structure situated on the southern side of the main complex (Plate 9). The earliest phase of the building may have formed part of the original mill complex in 1850, although the larger part was added to the site in *c* 1910 to supplement the existing weaving shed (Plate 10).
- 4.1.2 The earliest phase of the weaving shed formed the northern part of the structure, and projected four bays to the south of a transverse, two-storey preparation block (Plate 12). Both buildings are shown on the Ordnance Survey map of 1893, and potentially date to 1850, forming part of the original mill complex. This part of the weaving shed was of random sandstone rubble construction, with dressed convex corbels carrying an external cast-iron gutter (Plate 11).
- 4.1.3 A single-storey lean-to structure projected from the façade of the west wall at the northern end of the weaving shed, adjacent to the two-storey preparation block (Fig 2). This had a single-pitch slate roof with a quoined parapet, and further quoins to the return wall (Plate 10). It appeared to be of a contemporary construction, and had purlin sockets and a roof scar for a transverse single-storey shed on its western side. The structure served latterly as the principal entrance into the weaving shed from the preparation block, but appears to have formerly had a square window in the position of the existing doorway. A concentration of fuse boxes within the structure suggests that it may have housed the main fuse board once electrical lighting and power was introduced to the shed.
- 4.1.4 Three quoins survived at base of the southern elevation of the earliest phase of the weaving shed, denoting the original extent of building. It was extended in *c* 1910 by seven bays to the south, in hand-made brick bonded in a pale lime mortar, and constructed in five-stretcher English Garden Wall bond. This extension was stepped out by half a brick to the west (Fig 2). It had similar channel-section valley gutters and trough to the earlier build, but these were carried on open-web cast-iron, rather than sandstone corbels (Plate 12). The upper ten courses of the parapet wall were rebuilt, probably in mid- or late twentieth century, but the original dressed sandstone cappings had been reused. The openings to the valley gutters also had sandstone dressings (Plate 12).



Plate 9: The west-facing elevation of the weaving shed, showing the two phases of construction



Plate 10: The stone-built section of the weaving shed, with the lean-to structure at its northern end



Plate 11: Detail of cast-iron gutter attached to the western wall of the stone-built section of the weaving shed, with the lean-to structure to the rear



Plate 12: Detail of cast-iron gutter attached to the brick-built section of the weaving shed. The rebuilt parapet wall can also be discerned

- 4.1.5 The north bay of the weaving shed projected beyond the preparation block, and the external gutter on its western wall was continuous through to the northern bay (Plate 13). This suggests that this part of the weaving shed was of the same construction date as the preparation block, with the guttering for the weaving shed incorporated into the design of the preparation block.
- 4.1.6 The northern façade of the shed (Plate 14), which fronted the narrow mill yard between two ranges of buildings, retained a four-light window with stone surround and projecting chamfered sill in the west bay and the two eastern bays. Wide loading doors lay in the centre of the elevation, probably representing an earlier aperture that had been enlarged (Plate 15).
- 4.1.7 Projecting from the north elevation of the shed was a two-storey stone structure with a rubble-faced north wall and a dressed rock-faced block in the western façade (Plate 16). This had a doorway with a square fanlight and projecting surround placed adjacent to its junction with the shed, and was capped with a cast-iron water tank (Plate 16). It also had a bearing box in its north wall, with oil scars from the drive shaft into the shed from the engine house situated on the opposite side of the yard. The bearing box was placed directly opposite the end of the stone phase of buildings, above a projecting doorway and fanlight, and was level with an end bearing to each bay within the shed, each with hinged timber shuttering on the external wall face.
- 4.1.8 Internally, the northern three bays of the weaving shed were of stone construction with six spans of saw-toothed, asymmetric north-light roof, carried on I-section 'Glengarnock' steel beams (Plate 17). These were butt-end jointed above 6" diameter hollow, cylindrical cast-iron columns, which had simple astragals below the rib to the head plate (Plate 18). Each had four bolts either side of a channel that carried the beam above, each housing a clamp onto the sill of the beam. Unusually, the columns did not sit directly below the valley gutters, which were clamp-bolted to the upper plate of each I-section beam. The roof was of timber construction, with additional T-section cast-iron rafters placed every seven lights. The southern pitch was sealed with lath and plaster below slate.
- 4.1.9 Wall boxes in the north wall carried the end bearings of what appeared to be five line shafts. Their precise method of attachment to the valley beams remains unclear, although each beam did have a cut-out in its shuttering on this alignment, suggesting the hangers were clamped to the beams. A blocked bearing box survived at the northern end of the east wall, and would have housed a bevel gear from the primary drive shaft to the east. The east wall formed part of an earlier range, with a window in its northern bay having a sill projecting into the weaving shed, and a doorway to the south having its external surround within the later shed. This building returned eastwards, level with the original southern end of the stone-built weaving shed, and had three vertical windows in this elevation. Its eastern wall bore the remains of first-floor windows sills to the nine-bay structure, which was sub-divided by a brick cross wall. This was placed three bays from its northern end, where it housed the water tank for the brick boiler house, placed on eastern side of the brick-built engine house (Plate 19). The remains of a square-section chimney projected slightly above the south-west corner of the boiler house (Plate 19).



Plate 13: External gutter in the north-west corner of the weaving shed



Plate 14: The northern elevation of the weaving shed



Plate 15: The northern elevation of the weaving shed, showing the window in the west bay



Plate 16: Two-storey structure against the north face of the weaving shed



Plate 17: Northern bays of the weaving shed



Plate 18: Detail of column head in the stone-built part of the weaving shed

- 4.1.10 A stone-edged bearing box above a doorway at the west end of the cross wall of the warehouse (Plate 20) had an associated cut-out for a bevel gear in the west wall. In addition, a corbelled cast-iron hanger was attached to the south face of the cross wall, adjacent to the east elevation (Plate 21). A cut-out in the ashlar window jamb retained a truncated section of 3" (0.08m) diameter shafting.
- 4.1.11 The northern three bays of the building had braced king post trusses (Plate 22), with a single purlin to each pitch, whilst those in the boiler house had two purlins, and iron king ties (Plate 23). In the southern part of the two-storey warehouse the braces of the trusses were not placed on the jowled foot of each king post, but were set wider on the tie beam.
- 4.1.12 The weaving shed was extended in *c* 1910. The extension was brick-built, in five-stretcher English Garden wall bond. This extension was originally larger than that presently extant, continuing to the east of the two-storey warehouse, as shown by two columns within the later full-brick thickness blocking wall. The columns of the new shed were similar to those of the original structure, below the capital, although of ½" (0.02m) narrower diameter, with the capital comprising a flat plate for the I-section beam, either side of a central vertical continuation of the column, with bolting plates either side, to attach the beams (Plate 24). The roof also replicated the earlier phase, but had T-section cast-iron glazing bars, rather than timber (Plate 25), negating the need for the additional cast-iron rafters used in the earlier roof. The beams also differed, being manufactured by 'FRODINGHAM Iron and Steel, England'.
- 4.1.13 Eight pairs of line shaft hanger brackets were observed on each valley within this roof, independent of the columns, carried on pairs of hanger brackets mounted on the valley beams (Plate 26). Each was bolted into the beam, with an adjustable bolting slot for the hanger. Blocked end-bearing boxes survived in the south wall, which also retained two doorways affording access to privies. Each had a single lean-to roof from the outer wall, carried on stone corbels, with an apparently detached, three-bay central block placed against the rear wall of a small yard, and with similar single-pitched roof. The eastern yard latterly housed a machine, probably related to extraction or ventilation. A suspended brick wall between two toilet stalls was carried at its northern end by a cast-iron column.
- 4.1.14 The southern shed retained a fully intact flagstone floor, laid in north/south-aligned rows of approximately 3' (0.91m) width, whilst that in the earlier shed was transversely oriented in similar width rows, but with typically 2' (0.61m) rather than 4' (1.22m) wide flags.



Plate 19: The boiler house added in 1877, with original fanlight window and square base of the brick-built chimney



Plate 20: Bearing box with stone surround set in the wall of the preparation block



Plate 21: Corbelled cast-iron hanger



Plate 22: Roof structure in the warehouse



Plate 23: Roof structure in the boiler house



Plate 24: Column head and bolting plate in the c 1910 weaving shed



Plate 25: The roof of the c 1910 weaving shed, showing T-section cast-iron glazing bars



Plate 26: Hanger brackets mounted on the valley beams in the c 1910 weaving shed

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ILLUSTRATIONS

LIST OF FIGURES

- Figure 1: Site location
- Figure 2: Plan of the weaving shed superimposed on the Ordnance Survey third edition 25": 1 mile map, 1932
- Figure 3: Plan of the weaving shed
- Figure 4: Sample cross-sections through the first and second phases of the weaving shed



Figure 1: Site location

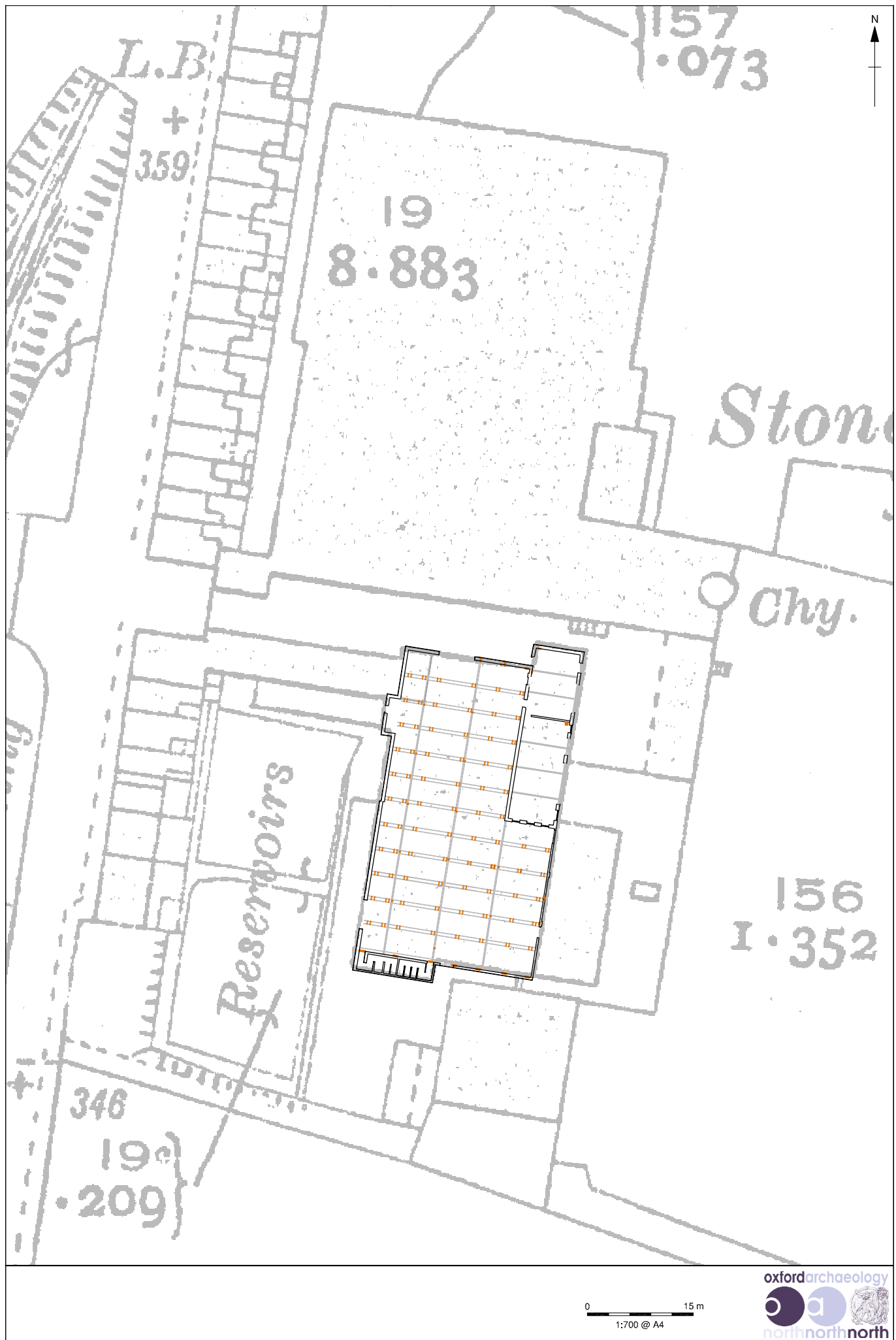
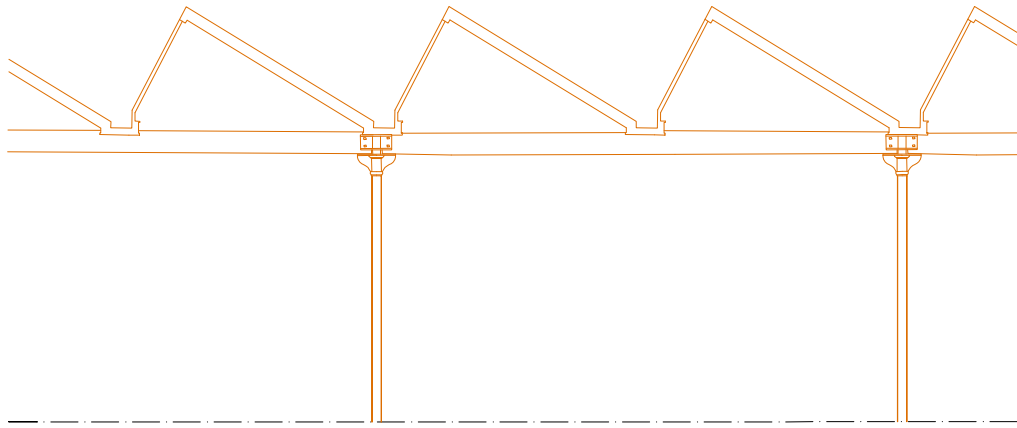


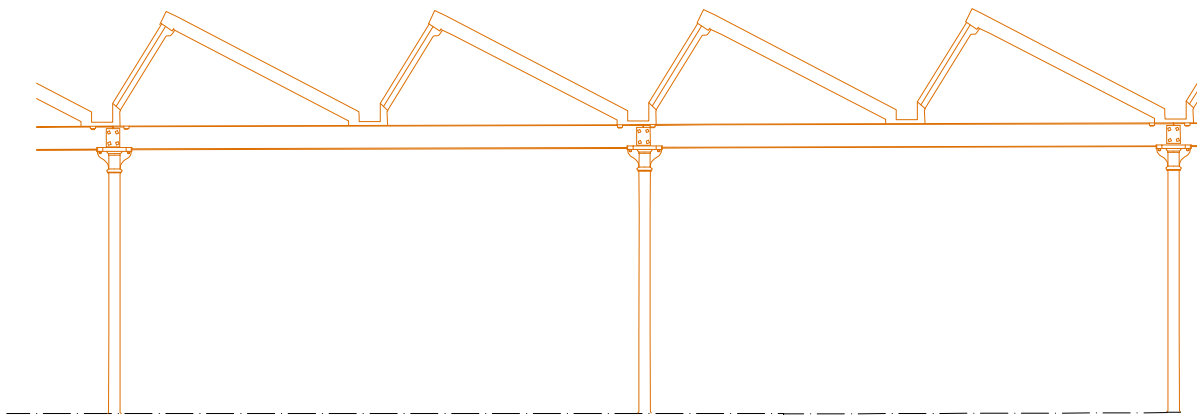
Figure 2: Plan of the weaving shed, superimposed on the Ordnance Survey third edition 25":1 mile map, 1932



Figure 3: Plan of the weaving shed



Roof of brick-built weaving shed
(Phase 2)



Roof of stone-built weaving shed
(Phase 1)

 Iron

0 2.5 m
1:100 @ A4

Figure 4: Sample cross-sections through the first and second phases of the weaving shed