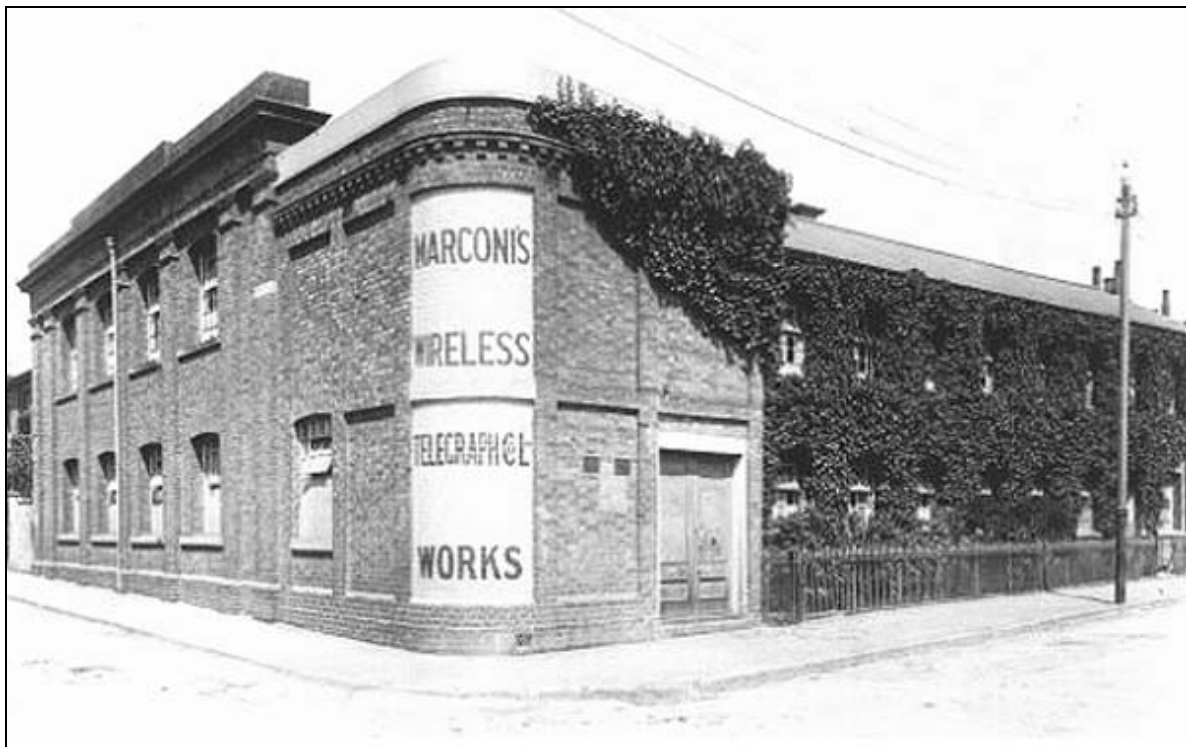


**FORMER ESSEX AND SUFFOLK WATER OFFICES  
HALL STREET  
CHELMSFORD  
ESSEX**

**LEVEL 3 HISTORIC BUILDING RECORD**



Essex County Council  
Field Archaeology Unit  
September 2012

**FORMER ESSEX AND SUFFOLK WATER OFFICES  
HALL STREET  
CHELMSFORD  
ESSEX**

**LEVEL 3 HISTORIC BUILDING RECORD**

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***As part of our desire to provide a quality service, we would welcome any comments you may have on the content or the presentation of this report.***

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**FORMER ESSEX AND SUFFOLK WATER OFFICES  
HALL STREET  
CHELMSFORD  
ESSEX**

**LEVEL 3 HISTORIC BUILDING RECORD**

**Client:** Knight Developments Ltd

**FAU Project No:** 2607

**Planning Application:** CCC 112/00738/FUL & 112/00739/LBC

**NGR:** TL 7097 0632

**OASIS No:** 134017

**Date of Fieldwork:** 28th August 2012

## **1.0 INTRODUCTION**

A programme of historic building recording was undertaken on the site of the former Essex and Suffolk Water company offices prior to residential conversion of several historic buildings as part of the redevelopment of the site for residential use. The work was commissioned by Arcady Architects on behalf of Knight Developments and carried out by Essex County Council Field Archaeology Unit, following advice from the Chelmsford City Council Conservation team and based on a written scheme of investigation produced by ECC FAU.

Copies of the report will be supplied to ECC HE team and the Essex Historic Environment Record (EHER) at County Hall, Chelmsford. The archive will be stored with Chelmsford Museum. An OASIS online record has been created at <http://ads.ahds.ac.uk/oasis/index.cfm>.

The proposals involve the conversion of four largely 19th century structures belonging to a former factory and water works that were amalgamated when the Offices were established in the 1980s. The principle building is a Grade II-listed former silk mill, built in 1858 and subsequently used by Marconi as the first ever radio factory. A contemporary house for the factory manager stands beside it. Two water works buildings also survive: the generator building, likely to be the original pump house and a later (c.1900) pump house that is relatively unaffected by later developments on the site. A large modern computer building

standing over a redundant reservoir is to be demolished as part of the proposals. The site forms part of the Moulsham Conservation Area and all structures are curtilage listed with the silk factory.

## **2.0 BACKGROUND**

### **2.1 Site location and description**

The former water company offices are located on the corner of Hall Street and Mildmay Road at NGR TL 7097 0632, in the Moulsham area of Chelmsford, a suburb of the town that was developed after the break-up of the Mildmay estate in the 1830s for housing and industry.

The buildings associated with the silk mill, the mill itself and the manager's house (buildings 1 & 2), date to the establishment of Hall Road in 1858 by John Hall, and occupy the south-eastern part of the site (fig. 1). Their gault-brick exteriors survive well but the interiors were stripped of their machinery when the offices were created in the 1980s. The historic water works buildings are located to the north-west, beyond a redundant reservoir that was presumably in-filled to facilitate construction of the office's car park (fig. 1), and comprise a 19th century generator building (3), likely to be the original pump house, and pump house 4 dated to c.1900 which houses an artesian well. Other structures associated with historic use of the site are no longer standing.

The site boundary is bounded by low gault brick walls with gated entry points located along Hall Street, Mildmay Road and the current municipal car park to the north. Areas between the buildings are laid to tarmac, including the western half of the site, which overlies the infilled underground reservoir, which was latterly used office car parking.

### **2.2 Planning background**

An application for redevelopment of the site for residential usage has been approved by Chelmsford City Council (CCC 12/00739/LBC & 12/00738/FUL). The plans involve the conversion of the four remaining historic buildings, the silk mill/radio factory, manager's house, generator building and pump house, into houses and flats, the demolition of the modern computer building and the construction of nine new houses across the western part of the site on the former covered reservoir and car park area. In view of the impact of the proposed works upon the historic integrity of the existing buildings, Chelmsford City Council Conservation team advised that an English Heritage Level 3 standard historic building record

should be made prior to conversion, based upon advice contained in *Planning Policy Statement 5: Planning for the Historic Environment*.

### **2.3 Historic research**

Historical background to the site is largely taken from an earlier FAU desk-based assessment of the site (Allen 2007), which is paraphrased below and additional information provided where necessary. In addition, the buildings have previously been described in surveys on the Public Water Supply Industry (Crosby 1999) and the Radio Electronics Industry in Chelmsford (RCHME 1999) and in a recent FAU Heritage Statement prepared for this development (Letch 2011). Further research was undertaken at the Essex Record Office (ERO) as part of this current study but very little new information was found for either the silk mill, water works or Marconi factory. This is unfortunate, although given that Marconi utilised the site for only 13 years it is not surprising. In addition, the Marconi archive at the Bodleian Library at Oxford was consulted, but no historic information pertinent to the Hall Street buildings (plans, photographs, etc.) was discovered.

In 1853 two gardens west of Mildmay Road were purchased to build the Chelmsford Water Works (Grieve 1994), to be supplied by gravity from two new reservoirs on high ground to the north and south of the town. An artesian well was sunk on the site and a pump house fitted with steam-powered pumps was built over it. The pump house, believed to be building 3, or its predecessor, was completed in 1854 (EHER 15572) and is depicted on the 1st edition OS map of 1874 with a well to the west of it (Fig. 2).

In 1858 John Hall built a silk mill (building 1) in the east of the site on the corner of Mildmay Road and the newly built Hall Street, to which he gave his name. A manager's house (2), known as Alfred Cottage, was built along the Hall Street frontage at the same time. The original silk mill complex included other buildings that have now been demolished: a steam engine and boiler house to the north and other outbuildings to the west (probably stables, etc.) enclosing the yard behind the manager's house (fig. 2). Early maps show that this yard featured a well. A small office block was added to the south-east side, probably soon after the factory was built, and this features on all early Ordnance Survey maps.

Between 1858 and 1860 the water works yard to the west of the silk mill was expanded to include the entire western half of the site, extending up to the newly constructed Hall Street (Allen 2007). The pump house (building 3) was extended and new pumps and a new water main were installed (Grieve 1994). In 1867-8 an underground reservoir with a capacity of 112,000 gallons was built to provide a reserve supply (Grieve 1994). The reservoir was



brick-lined and cement-rendered, with a galvanised iron roof. The fully-developed plan of the water works and silk mill is depicted on the 1st edition Ordnance Survey of 1874 (fig. 2), and includes buildings associated with the silk mill on the north side of the steam engine and boiler house and the factory which have since been removed. It also shows that the water works and silk mill plots are divided broadly down the middle by a house (and its plot) fronting onto Hall Street. Entry into the silk mill was from Mildmay Road, as it is today, and into the water works primarily from Hall Street, where the gates still stand, and perhaps also from Mildmay Road via the mill access (fig. 2).

John Hall's business failed and the silk mill was subsequently sold in 1866 to Samuel Courtauld and Co, who operated it, initially for silk throwing and latterly for the manufacture of crape, until 1894, when the business went into liquidation. The mill building was reputedly then used as a furniture warehouse. In 1899 the mill was acquired by Guglielmo Marconi's Wireless Telegraph and Signal Co Ltd (later Marconi's Wireless and Telegraph Co Ltd), becoming the world's first radio electronics factory, employing a workforce of 26 (Turrell 2002). A building plan from 1902 for a new packing shed adjacent to the radio factory (ERO D/B7 Pb39) indicates the layout of the early works, with the boiler and engine houses retained on the north side of the site, an engineer's house located where the stables stood and offices occupying the former manager's house. There were also two large radio masts erected for wireless experiments that were removed when the company moved to larger premises (Turrell 2002). Only the factory and manager's house survives. However, brick foundation remains of some of the demolished buildings have been encountered during archaeological trial-pitting carried out in 2008 (Allen 2009).

Marconi's stay at Hall Street was short-lived due to the cramped nature of the site and in 1912 the factory moved to its New Street site, which remained the company headquarters until 2008.

At a similar time a new pump house (building 4) was built by the water company, according to the maps between 1896 and 1924, since it is first shown on the 3rd edition Ordnance Survey map (fig. 3). A new well was sunk inside the building and much of the surrounding superstructure survives.

When the water works became redundant, the Essex Water Board and their successors, Essex and Suffolk Water, took over the buildings for use as offices. The reservoir was filled in and the former water works yard behind it became a staff car park. The silk mill was stripped out and converted to become the main admin block and a new computer block

(building 5) was built to the west of the house and mill in 1985, the construction of which involved the demolition of the Hall Street house and engineer's house. The manager's house and part of the pump house were also refurbished as offices. The generator room may have continued for a time in its original capacity, but has since been stripped-out. It is likely that the c.1858 structures on the north side of the mill and steam engine/boiler house were removed at the same time to improve access onto the site.

The offices closed in 2009 and moved to new premises at Hanningfield, leaving the buildings redundant. At the time of the survey (August 2012) modern elements to the silk mill had been stripped-out by building contractors and the computer block was being prepared for demolition.

### **3.0 OBJECTIVES**

The purpose of the survey was to record the historic structures to English Heritage Level 3 standards (English Heritage 2006). This entailed the creation of an external and internal descriptive record addressing materials, architectural elements, historic fixtures and fittings and original internal layout, plus full colour and black and white photographic record as outlined in the FAU written scheme of investigation (2012). The modern computer block and boundary features were recorded to a lesser level to complete the record.

### **4.0 DESCRIPTION OF WORKS**

The survey was undertaken in the early stages of stripping-out work to the silk factory and computer block. The other three buildings were unaffected by this work, but had all been previously cleared of less permanent fixtures and fittings. Access was possible around the site and to all internal areas apart from the modern plant room in the silk factory. As part of the survey, external and internal architectural descriptions were made and plans and elevations supplied by the client were annotated to show structural changes and surviving historic features.

A series of photographs (digital and 35mm black & white print) were taken internally and externally. Specific shots were taken of any areas of important architectural detail, fixtures and fittings. A representative selection of these photographs is reproduced at the back of the report as plates 1-28, some of which were also included in the heritage statement of April

2012. The remainder can be found in the archive. Additional historic photographs are reproduced as plates 29-32.

In the following section, the silk mill/Marconi buildings, part of which are statutorily listed, are described first, followed by those of the water works. Modern buildings and the historic site boundary are described last.

## **5.0 GENERAL DESCRIPTION**

The site is a broadly rectangular area of c.82m by 45m extent, whose perimeter is defined by low gault brick walls in keeping with the 19th-century buildings it encloses. The mill and manager's house are the most prominent buildings, fronting onto Hall Street and linked by modern glazed corridors to the computer block. The east side of the silk mill extends alongside Mildmay Road with the main entrance in the north-east corner (fig. 1). The water works buildings are located on the north side of the site overlooking the adjacent municipal car park. All buildings are brick-built, in a variety of styles, with slate roofs, providing an interesting group. Entry points into the site are located on three sides, leading from Mildmay Road, Hall Road and the car park to the north. A fourth pair of gates extends from the north-west corner of the computer block to the perimeter wall and appears to be the only original one. The others are modern steel.

The exteriors of all structures are well-preserved but the interiors have been subject to varying degrees of modern intrusion and refurbishment, particularly the old factory and manager's house that formed the main office areas of the later water company use.

### **5.1 Silk mill/radio factory 1 (1858)**

The silk works/radio factory is a Grade II-Listed structure listed in 1974. The National Heritage List Description is provided below, which mistakenly gives its construction date as 1898, which is broadly when Marconi took over the factory (1899). It also states that the factory was purpose-built, which is not the case.

The List entry reads as follows:

*"Marconi" Radio Factory*

*Hall Street/Mildmay Road*

*Built in 1898, the first purpose built radio factory in the world. Of gault brick with parapetted south facade having Tuscan pilasters and partly stuccoed entablature with brick dentil course over radiused corner. Brick plinth. Two-storeys with metal industrial type windows having*

*glazing bars and segmental brick arches. Roof clad with slate, plan roughly square with one curved corner. Plaque on the east wall commemorates Marconi's first factory.*

The silk mill is a rectangular two storeyed structure of two parallel twelve-bay ranges gabled north to south, with a small flat-roofed office block attached on the south east side. It is constructed of solid 15-inch (three-course) walls of 9-inch yellow stock bricks arranged in English bond in pier-and-panel form over a five-course brick plinth. The elevations are well-fenestrated with large factory-style tilting multi-pane metal windows with codestone sills and segmental-brick heads (plate 1). Original segmental brick arched doorways survive on the west elevation, refurbished with modern hardwood doors and fanlights. The double-pile roof is slate-covered and original in form, though internal evidence shows it has been felted and relaid in recent years. Historic cast iron hoppers and rainwater goods survive around the outside.

The office extension (plate 2) curves around the corner of Hall Road and Mildmay Road and has similar pier and panel form and general appearance to the factory, but its separate build is demonstrated by straight jointed brickwork against the main building. Fenestration is minimal and there is a separate entrance on the north elevation, now fitted with a modern door. Decoration along the roofline is provided by a brick dentilled course and parapet. It is likely the office was built over an existing factory entrance (Cocroft & Menuge 1999).

Internally, all equipment relating to either silk making or radio manufacture was probably removed by the time the building was converted as the main administration building for the water company. No indications of structural features or drive mechanisms relating to either its silk mill or radio factory use were in evidence. At the same time the first floor was replaced in the main building, and is accessed by modern stairs. Interiors on both levels have been sub-divided by modern partitions, the more ephemeral of which were removed during the modern stripping-out phase, thus giving a better idea of the original spatial layout of the factory. The office is likely to have been built on two levels, the first floor set lower than that of the factory, but the stairs here have been replaced.

### **5.1.1 External description**

The main (south) elevation faces onto Hall Road and has a parapetted front and stuccoed entablature hiding the gable ends. Tuscan pilasters form four main bays, with paired pilasters at either end (plate 3). On the east side is the office extension and to the west is the modern corridor linking to the manager's house.

The two long elevations are very similar in form to the front. The east elevation along Mildmay Road (plate 2) survives intact and bears the blue plaque commemorating the building's historic significance as the world's first radio factory. The elevation on the west side retains two original doorways, one broadly central and the other towards the north end (fig. 4a), that are now fitted with substantial modern hardwood doors. Those at the north end were probably for clocking in and out, while the central doorways would have led out into the yard for breaks.

Brickwork on the north elevation (plate 1) is rendered, most likely dating to the removal of the original building attached to this end. The only fenestration on this side is two small modern toilet windows that have been inserted at the western ends on each floor. On the ground floor is a modern plant room that could not be entered during the survey, but has an inserted modern doorway and metal venting on this side and was seen to contain only modern plant.

### **5.1.2 Internal description**

Internally, any fixtures and fittings relating to industrial usage (silk or radio manufacture) were probably lost when Essex and Suffolk Water Co. refurbished the building as offices around 1985, it is believed. The first floor was replaced at this time and the present room layout and all fixtures and fittings (stairs, doors, carpets, etc.) are modern (plate 4). The original factory layout is therefore hard to deduce but logically would have been open-plan, perhaps with different areas concentrating on different parts of the manufacturing or research and design process (plates 29-32). Few of the internal partitions appear to be of any great date.

Both floors are identical in decoration and function, providing staff toilets at the east ends and the rest as offices, with power points imbedded in the floors and stores located within the historic office extension. Stairs are located in the stair lobby behind the main entrance and within the historic office building, the latter of which is likely to have replaced earlier ones, since this would provide views across the factory floor. Original factory windows have been fitted with modern 6-inch tile sills. Modern stays have replaced original ones in all but the window over the modern stairs (fig. 4a) that has its original cord-operated fittings. Previously bare brick walls have been plastered, and modern radiators and 3-inch high chamfered skirting boards fitted.

### **Ground floor**

The ground floor offices of the later water company phase of use were largely open-plan and of flimsy construction (fig. 4a). The only substantial walls of any strength are those around the entrance, toilets, switch room, stair lobby and plant room, which are built from modern

Fletton bricks. A dog-leg flight of stairs leads to the first floor and is built of steel with open risers and hardwood treads (plate 5). In the main part of the building, the existing chipboard floor was added during the office conversion for under-floor wiring and is raised above an earlier concrete and vinyl-tiled floor. The original floor appears to have been brick (plate 29).

The concrete floor above is laid over a modern steel frame of 10-inch steel joists supported 8-inch steel joist plasterboard-clad posts (plate 4). This is a replacement; historic photographs show the original upper floor to have been wooden (plates 30-32).

The original office area has been sub-divided into a stairwell, containing an identical set of stairs and a modern stationary store. This part has a vinyl floor and plasterboard ceiling and no evidence for historic fixtures and fittings.

### **First floor**

The first floor (plate 6) is broadly similar to the floor below, with a stairwell and toilets at the north end (fig. 4b). The modern layout is different in having an L-shaped corridor leading from the stair landing to the external corridor linking the former manager's house, passing offices of varying size on the way (fig. 4b). Many of these partitions had been stripped-out, as well as the ceiling tiles, thus exposing the original roof frame. Plate 7 shows typical window detail.

The roof frame was hidden in part by the modern steel joists that held the suspended ceiling. Bays are formed by simple nailed collar rafter trusses augmented by vertical and horizontal iron tie rods and angle iron struts (fig. 5 & plate 8). The vertical rods are formed from pairs of rods that fork upwards into the apex of the rafters which pass down through the underside of an iron housing where they are secured by nuts, keeping the frame in tension. The horizontal tie rods pass through the housing and terminate in brackets bolted to the rafters either side. The housing also accommodates the feet of the angle iron struts. This pattern is repeated in both ranges, inbetween which is an axial beam on which the valley rafters sit. Steel joists now provide the support here that have presumably replaced much more attractive cast iron columns.

The roof has been re-felted over the original battens and a few timbers have been replaced. Nail holes and lath outlines on the underside of the battens up to the base of the collar provide evidence for an original plastered ceiling, with the lower parts of the rafters exposed and limewashed (plate 7). Some of the rafters have Baltic timber marks. Baltic pine was widely imported in the second half of the 19th century and often used in industrial structures.

## **5.2 Manager's house 2 (1858)**

The manager's house, also known as Alfred Cottage, was built at the same time or soon after the silk mill and is constructed using the same yellow stock bricks. It adopts a broadly square plan, with a small gabled projection on the north side and the main frontage facing onto Hall Street. Modern glazed corridors either side link to the silk factory and computer block. The front and back are fenestrated with two-pane sash windows, some of which on the top floor have been replaced, but in a sympathetically manner. The roof is half-hipped and slated, with plain chimneys and pots either end.

Inside, the room layout is representative of a two-storeyed four-roomed building and dashed lines have been included in figure 6 to show the likely extent of the original rooms, where possible. Almost all original fixtures and fittings have been replaced with modern office interiors.

### **5.2.1 External description**

The main (south) elevation (plate 9) faces onto Hall Road, with three bays and a plainer pier and panel form than the factory, and the windows set inside the panels. In the central bay is the main entrance with its stucco surround and entablature and rusticated doorcase with stippled keystone over and cream/black diamond floor tiles (plate 10). The six-panelled door now has a modern safety-glass fanlight over it. The windows either side have simple stuccoed entablatures and the three light range above have flat moulded brick heads. A white-painted sandstone block toward the east end bears the name Alfred Cottage (plate 9).

The two side elevations are very similar in form and currently contain the glazed passages and little else. The east elevation is un-fenestrated and perhaps was always this way. The elevation on the west side retains windows lighting the former dining room (perhaps also the meeting room) and master bedroom above (fig. 6). The ground floor window has a segmental arch head but the first floor one is hidden beneath the eaves. No evidence for additional, now blocked, doors or windows was apparent.

In modern times, the north elevation housed the reception area for the water company (rather than the front, which was probably hardly used) and the modern porch beside the back door dates to this phase of use (plate 11). This elevation has very little detail apart from the windows; ground floor windows having segmental brick arches and those above have flat heads. A small sash window in the centre of the first floor now lights a small office kitchen but is more likely to have formerly been an inserted toilet (plate 11). The reception doorway is original and so is the doorway into the kitchen

### **5.2.2 Internal description**

Internally, all historic fixtures and fittings apart from the windows have been removed, presumably when the house was converted to offices. The essence of the four-room floor layout has been largely retained, but it is clear that in places walls have been removed and others inserted. It is possible the position of the stairs was changed when the eastern link was constructed, but this is hard to substantiate.

Both floors are identical in decoration and function, latterly providing office space and kitchen areas, though no staff toilets - which were probably housed nearby in the computer block. Stairs are located in the north-west corner. All areas have modern decoration, carpets, fire doors, suspended ceilings, etc., and the same skirting boards and stairs as the main factory building.

#### **Ground floor**

The ground floor resembles a fairly symmetrical layout of four rooms and a central corridor leading from front to back (fig. 6a). For simplicity sake, the front rooms were for dining and sitting and the back rooms housed the kitchen and stair lobby. Plate 12 shows the extended dining room, now encompassing the front door and area around the stair and glazed corridor.

#### **First floor**

It is likely the two bedrooms at the front were separated by a corridor of the same width as the hall below, but were altered when the building was converted (fig. 6b). The only probable historic features to survive are some plain wooden alcove shelves in bedroom 3 (plate 13). The roof was accessed by the loft hatch in bedroom 3 and is a plain softwood collar rafter form (fig. 7).

### **5.3 Generator building 3 (1854)**

This single-floored Georgian-style building is situated next to the c.1900 pump house (plates 14 & 15) and is likely to be the oldest surviving building on the site. It was probably built in 1854 when the pumping station at Mildmay Yard was established by the Chelmsford Board of Health and appears on the first edition Ordnance survey map of 1874. The fact that it pre-dates the c.1900 pump house suggests this was the original pump house probably converted to generate electricity for the site after the new pump house was built. It is unclear when the building went out of use.

The structure is built in pier and panel form much like the silk factory, but in a mixture of red and yellow English bonded stock bricks. It has an oblong plan, with gables facing north and



south, and a shallow-pitched slate roof. Entry points are located on the east and north elevations, which seem to be original, though the east elevation appears to have been rebuilt. Semi-circular brick-arched metal windows light the building on all sides.

The interior was originally open to the ceiling. Generator machinery has been removed inside and the service pit is now boarded over. Although reportedly extended and new pumps installed in 1858-60 (Grieve 1994, 352), no indication of this was recorded by the historic building survey.

### **5.3.1 External description**

The two three-bayed gable elevations have a uniform appearance, with only a few changes between them. The north side, facing onto what is now the municipal car park, is the best-preserved. A doorway is situated in the central bay, mounted by a semi-circular fanlight and surrounded by a short brick portico (plate 14). Either side are arched iron-framed tilting windows with semi-circular heads set within the panels, with small iron grills above. A wheel-window occupies the centre part of the gable. The south gable (plate 15) faces onto the old water works yard. Each bay contains a window, the middle parts of which are casements and probably later in date than those on the north and other sides (Crittalls?). The former wheel window has been adapted to contain a modern clock.

The side walls have been adapted the most in the modern period to accommodate the generator plant inside. The east wall (plate 16) has been rebuilt in gault brick, logically when the attached buildings shown in figs. 2 and 3 were removed (and perhaps the means by which the generator itself was installed?). This may have coincided with the insertion of a gateway between the water works and former open ground now occupied by the car park. The two large bays are defined by wide piers, the one to the south containing a modern doorway and that to the north containing a large metal vent (fig. 8) partly obscured by vegetation. The west elevation is rendered and displays a pair of early windows in the south bay and modern vents inserted into the north bay partly obscured by a later open-sided shed (plate 15).

### **5.3.2 Internal description**

Internally, the generating plant has been removed, the service pit boarded over and is now empty (fig. 8). The floors of the single room are laid to concrete, the walls plastered and the windows fitted with iron grills. Modern additions such as a suspended ceiling and fluorescent lighting units suggests a later alternate use, though there are no comfort features here. Around the side are various modern containers and articles of furniture and from the ceiling

hang old cast iron loops for piping (plate 17), one of the few historic features to remain. Of particular interest are a group of 8½ foot (2.6m) upper column sections (with square shoes at the ends for fitting over beams) lying in the middle of the floor. There are two styles: slender 4-inch fluted columns and more robust 6-inch columns with papyrus leaf heads (plate 18). These presumably have come from elsewhere on the site.

#### **5.4 Pump house 4 (c.1900)**

Based on the evidence of earlier Ordnance Survey maps, the present pump house was constructed between 1896 and 1924, probably to replace an earlier pump house believed to be the generator building. This is the most interesting of the two water works structures, both architecturally and internally, and it retains some interesting features in the borehole room where the artesian well is located. Inevitably other parts have been modernised for office use, which has affected the original floor layout.

The main part is a square four-bayed two-storeyed structure with a hipped roof projection on the west end (plate 19). It is an attractive building, constructed of red brick in English bond, with square metal windows lighting the ground floor and arched tilting windows lighting the first, recessed within panels between the brick piers. Render applied between the windows and along the wall plinth is likely to be a modern addition. The slate roof is hipped to the west over the borehole room and gabled to the east, facing building 3, and has a distinctive vented roof turret containing a winching apparatus over the well-head (plate 19). The linear single storey four-bay projection, which is probably contemporary, is attached to the western end. It is also built in English bond but in plain rather than pier and panel form, with long arched windows lighting the north side only.

##### **5.4.1 External description**

The main feature of the south elevation (plate 19) is the stuccoed entrance leading into the borehole room on the west bay. Slender columns stand either side of the doorway, which is topped by a segmental arch and keystone set below a moulded entablature and arched fanlight. The heavy six-panel door is likely to be original. The adjoining bay to the east contains a first floor loading door, which is also original, as evidenced by the raised roof (for a winch?) within the pediment here. Two light ledged and boarded loading doors open outwards on cast iron pintel hinges. Within the hipped projection on the west side is a single arched tilting window above a shaped apron narrow. On the west side of the hipped projection a former doorway was partially blocked when a modern porch was built onto the linear range, and is now a window. The linear range on this side could not be recorded as it belongs to the neighbouring property.

The east elevation continues the pier and panel theme over three bays, but here the piers are deeper and the brickwork steps inwards in two bands parallel to the gable, producing an interesting effect (plate 20). In the centre of the gable is a large arched multi-pane window overlying an area of rebuilt brick-walling. Below this at ground floor level much of the central and southern bays have been rendered, suggesting possible changes here, and a former entrance on the north bay has been blocked and a modern doorway fitted (fig. 10). The original opening was arched, 1.5m wide and the edges dressed with hard bullnose engineering bricks, denoting a well-used entry point (plate 21).

The north elevation (plate 22) faces onto the car park and has the same appearance as the south side. Detail on this side is plainer, lacking the eaves and window detail seen on the more prominent elevation (plate 19). Windows on the ground floor are six-light vent windows rather than the casement windows viewed on the main elevation. The window on the second bay has been replaced with a metal casement window. Continuing to the west, the linear range has long arched windows lighting its four bays and no other obvious detail (plate 22).

On the west side is the pedimented wall of the pump room and the plain gabled end wall of the linear range, which lies in the neighbouring property (plate 22).

#### **5.4.2 Internal description**

Internally the borehole room and first floor area remain largely unaffected by later developments, but the remainder of the building has been partitioned and refurbished as offices, affecting its original layout. Modern 4-inch internal brick and stud walls have been added and other walls may have been removed. The original layout is represented as much as possible in figure 10.

The borehole room is located at the western end of the building, over the well head and reached from the main entrance by a small lobby area (fig. 10a). The borehole room is divided into the main area over the well head and the hipped west end, separated by a tall brick arch extending up into the first floor (figs. 10a & 11a, plate 23). Both parts are well-preserved and contain ceramic tiled walls capped by a moulded dado, a detail best seen in the main room (plate 23). Above the dado the walls are finished in painted brickwork and pine sarking clads the underside of the hipped bay and the sides of the winch tower. An entrance was formerly located in the west wall of the room, but has since been blocked, perhaps when the porch was built onto the linear range, and a window inserted (fig. 10a). The main feature is the cast iron superstructure over the well head for the winch to open up the well cover. The wheel for the winch remains at the top of the frame within the short tower

protruding from the apex of the roof (fig. 11c). The frame is constructed from c.5-inch cast iron tubing strengthened by c.3-inch cross-bracing bolted to the frame by iron brackets (plate 23). On the north side, elevated above the first floor, is a short maintenance platform (fig. 10b & plate 24). The well head itself has a steel cover and the surrounding floor is laid to concrete.

The rest of the ground floor has been fully converted for office use (plate 25), but it is clear from examining the insides of a cupboard on the east wall that the remainder of the internal walls were also originally tiled; an interior suited to an industrial environment (plate 26).

The first floor is reached by a narrow flight of concrete stairs. Although it too has been converted to offices and carpeted over, its original spatial layout appears to have been retained. The west side of the room is occupied by the winch area in the middle, maintenance access on the north side and a similar-sized room to the south, the function of which is unknown. A pair of loading doors are located at the south end, suggesting the main part of the floor was used for storage purposes (fig. 10b). A prominent feature of the room is the angle-iron roof frame that divides and defines the four bays (plate 27).

## **5.5 Computer block (1985)**

The modern computer block occupying the centre of the site is built over two levels in gault brick in pier and panel style to mimic the factory building (plate 28). Tall windows occupy the ground floor and the upper floor is lit by a continuous window range. The tiled roof is half-hipped. The interior is modern and was being stripped-out during the survey. This building has no architectural or historic merit and will be demolished in the current proposals for the redevelopment of the site.

## **5.6 Boundary features**

The perimeter of the site is defined by relatively low gault brick walls along the Hall Road frontage and to the north and west. These are built in English garden wall bond (three stretcher courses to one header course), which is unusual. The majority of the Mildmay Road frontage is bounded by the silk mill/radio factory building itself, though historic photographs do record the former presence of iron railings in front (cover photo). Gated entrances are located on the Mildmay Road frontage (original access for the silk mill), against the car park and on the Hall Street frontage, offering access into the water works. A fourth pair of gates extends from the north-west corner of the computer block. All but the Hall Street gates are modern and built of square-sectioned tubular steel. The Hall Street gates and their posts are cast iron and have detailing around the tops and middle panels (plate 28).

## 6.0 DISCUSSION AND CONCLUSION

The site contains four historically-important and architecturally-diverse buildings dating to the mid-19th and early 20th centuries, one of which is Grade II-listed. The silk mill/radio factory is the most historically important and this is recognised by its Grade II-listing. Marconi was an important part of the embryonic early 20th century radio and electronics industry in Chelmsford and, although production soon outgrew the site, this was the first radio factory in the world. It is unfortunate that there are no surviving factory interiors or equipment connected to this phase of use, but it is possible that parts of the historic layout survive. Other sources indicate that the ground floor of the factory was the machine shop, operated by the male employees, and that the female employees undertook the winding, insulating, and lacquering of induction coils on the upper floor (Hennessy 2005, 49). A number of historic black and white photographs that are accessible online (<http://markpadfield.com/marconicalling/museum/html/places/places-i=9.html>), which purport to be of the Hall Street factory c.1898, would appear to support this (plates 29-32) and give a real sense of the radio factory in operation.

The manager's house is important in its association with the establishment of Hall Street and the silk mill in the 1850s and contributes to the historic setting and architectural variety of the site. It is interesting to note that its use as a residence probably ended when Marconi took over the site, when it became the fledgling company's offices. Whilst the interiors have been changed, there are still elements of the original floor layout surviving. The house that once stood next to it is an enigma and it is possible that further historical research may reveal its association with the site, perhaps being the water works manager's house.

Of the surviving waterworks buildings, it is the pump house that is the best preserved and most important architecturally, displaying an Edwardian Baroque style. The fact it retains some historic interiors and fittings despite the office refurbishment is remarkable. Both this and the generator house, the oldest building on the site in its Georgian chapel style and probably the original pump house, have significant group value and some importance in the history of urban public water supply. The 1980's computer block and modern gates have no historic interest, but the boundary wall and water works gates on Hall Street contribute to the identity and cohesion of this historic site.

Until recently, the Essex and Suffolk Water Company had their headquarters on the site, which has ensured the surviving standing buildings have been well-maintained and remain in good condition. In particular, the building exteriors remain virtually unaffected by modern

development. However, during this time, three of the buildings, the silk/radio factory, manager's house and pumping station, have been converted to office space, thus removing earlier fixtures and fittings associated with their use, and affecting their internal layout. At least some of this refurbishment may be contemporary with the mid-1980s computer block. Internally, the only significant historic features to remain are to be found in parts of the pump house building, where the well head apparatus and some original interiors survive. The generator building is the only structure not to have been converted and more than likely continued to function as such until the offices closed and the site became vacant.

Tony Crosby in his survey of public water supply sites (1999) commented on the importance of the site for the study of the silk, water and telecommunication industries and that the pumping station was "one of the best mid-19th century examples identified during the survey". Indeed, this building group is in many ways representative of the industrial nature and development of the Moulsham Street area of Chelmsford through much of the 19th century. Along with the provision of electric lighting in the 1890s, the water works was part of the development of the supply of modern utilities to the towns of Britain. Together with manufactories such as Crompton's Arc Works in nearby Anchor Street, Marconi's undertook the pioneering development of cutting-edge technologies that made Chelmsford an industrial manufacturing centre of international significance. In this wider context, the recording, preservation and sympathetic conversion of the surviving historic buildings on this site is of considerable importance.

## **ACKNOWLEDGEMENTS**

Thanks are due to Arcady Architects Ltd for commissioning the survey on behalf of Knight Developments Ltd. Thanks also to the staff at the Essex Records Office. Fieldwork, recording and photography were undertaken by the author. Illustrations were prepared by the author and produced by Andrew Lewsey of ECC FAU. The project was managed by Mark Atkinson and monitored by Alison Bennett of the ECC HE team, on behalf of the Local Planning Authority.

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[http://www.batesuk.freeseve.co.uk/marconi/1898\\_HallSt.htm](http://www.batesuk.freeseve.co.uk/marconi/1898_HallSt.htm)

## **Appendix 1: Contents of Archive**

**Site name: Former Essex & Suffolk Water Offices, Hall Street, Chelmsford**

**Project no.: 2607**

### **Index to the Archive:**

Document wallet containing:

#### **1. Introduction**

- 1.1 Client/archive report
- 1.2 Unbound version of report
- 1.3 CD containing digital photographs & copy of BR report, desk-based assessment and heritage statement, pdf-formatted

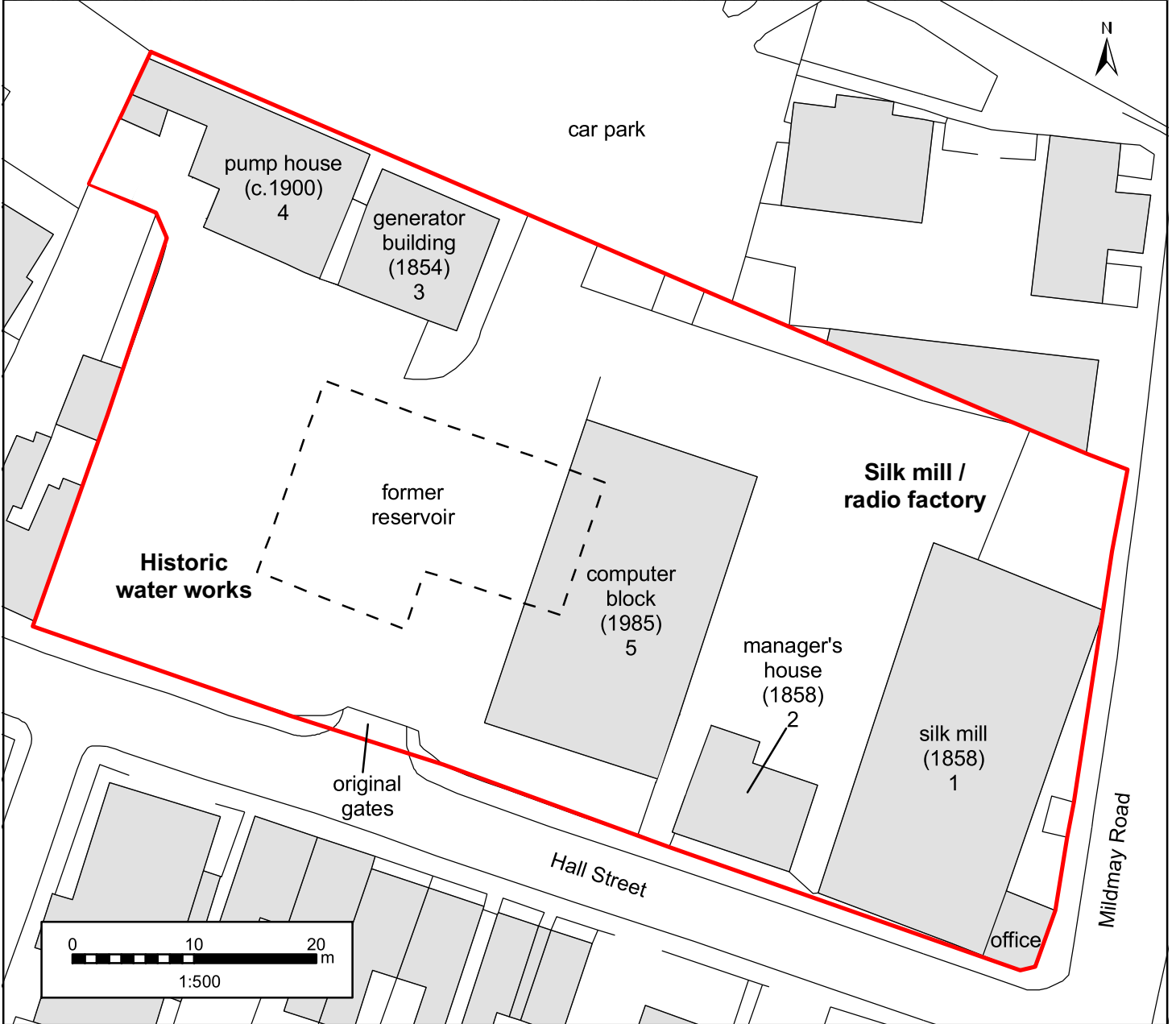
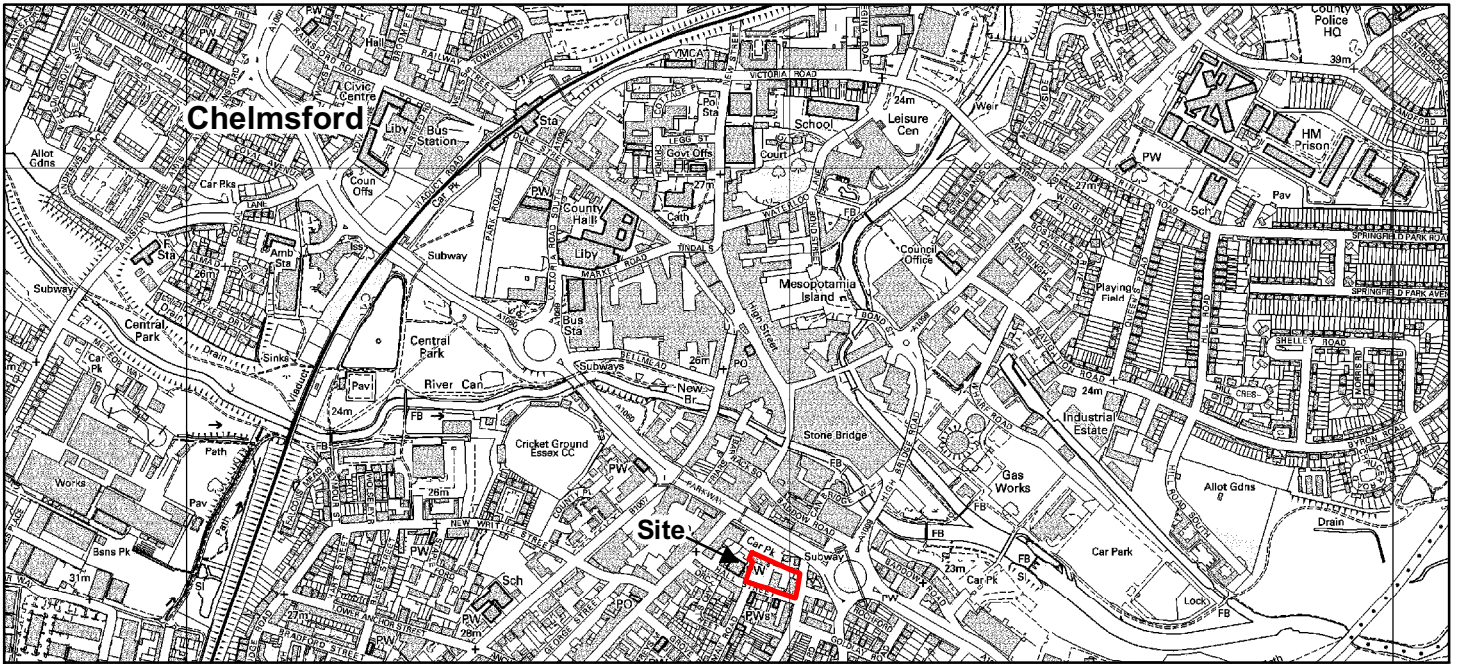
#### **2. Site Archive**

- 2.1 Photographic record (digital & monochrome prints)
- 2.2 Photographic registers
- 2.3 Site notes and annotated architect drawings



## Appendix 2: EHER Summary Sheet

<b>Site Name/Address:</b> Former Essex & Suffolk Water Offices, Hall Street, Chelmsford	
<b>Parish:</b> Chelmsford	<b>District:</b> Chelmsford
<b>NGR:</b> TL 7097 0632	<b>Site code:</b> n/a
<b>Type of Work:</b> Building recording (level 3)	<b>Site Director/Team:</b> Andy Letch ECC FAU
<b>Date of Work:</b> 28th August 2012	<b>Size of Area Investigated:</b> N/A
<b>Curating Museum:</b> Chelmsford	<b>Funding Source:</b> client
<b>Further Work Anticipated?</b> yes	<b>Related HER Nos.</b> 15572
<b>Final Report:</b> Summary in EAH	
<b>Periods Represented:</b> mid-19th & early 20th centuries	
<p><b>SUMMARY OF FIELDWORK RESULTS:</b></p> <p>A level 3 building record was made of the former Essex &amp; Suffolk Water Offices, Chelmsford prior to conversion of the four remaining historic buildings as part of a new residential development.</p> <p>The site contains four historically-important and architecturally-diverse buildings dating to the mid-19th and early 20th centuries, one of which is Grade II-listed. The silk mill/radio factory is the most historically important as the first radio factory in the world, established by Marconi in 1898 and this is recognised by its Grade II-listing. The exterior is well-preserved, built in typical Victorian industrial form using yellow stock bricks in pier and panel form and iron tilting windows. Its 1980s office conversion means there are no surviving factory interiors or equipment connected to this phase of use, but it is possible that parts of the historic layout survive. The manager's house is important in its association with the establishment of Hall Street and the silk mill in the 1850s and contributes to the historic setting and architectural variety of the site. Its use as a residence probably ended when Marconi took over the site, when it became the fledgling company's offices. Whilst the interiors have been changed to reception and office space, there are still elements of the original floor layout surviving.</p> <p>Of the surviving waterworks buildings, it is the pump house that is the best preserved and most important architecturally, in its Edwardian Baroque style. Despite some modern elements, the winch apparatus over the well head remains and some ceramic tiling on the walls. Both this and the generator house, the oldest building on the site, in a Georgian chapel style and probably the original pump house, have significant group value and some importance in the history of urban public water supply. A 1980's computer block has no historic interest, but was recorded to a lower level to complete the record, as were the boundary wall and water works gates on Hall Street.</p>	
<b>Previous Summaries/Reports:</b> none	
<b>Author of Summary:</b> Andy Letch	<b>Date of Summary:</b> 18th September 2012



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Fig.1. Location and block plan

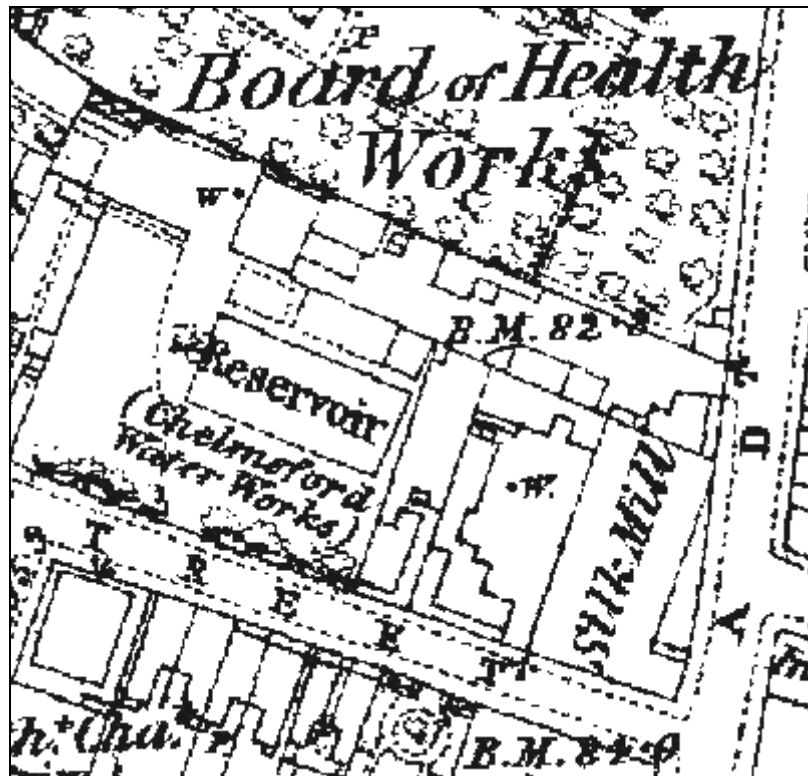


Fig. 2 First Edition 25" OS map, 1874

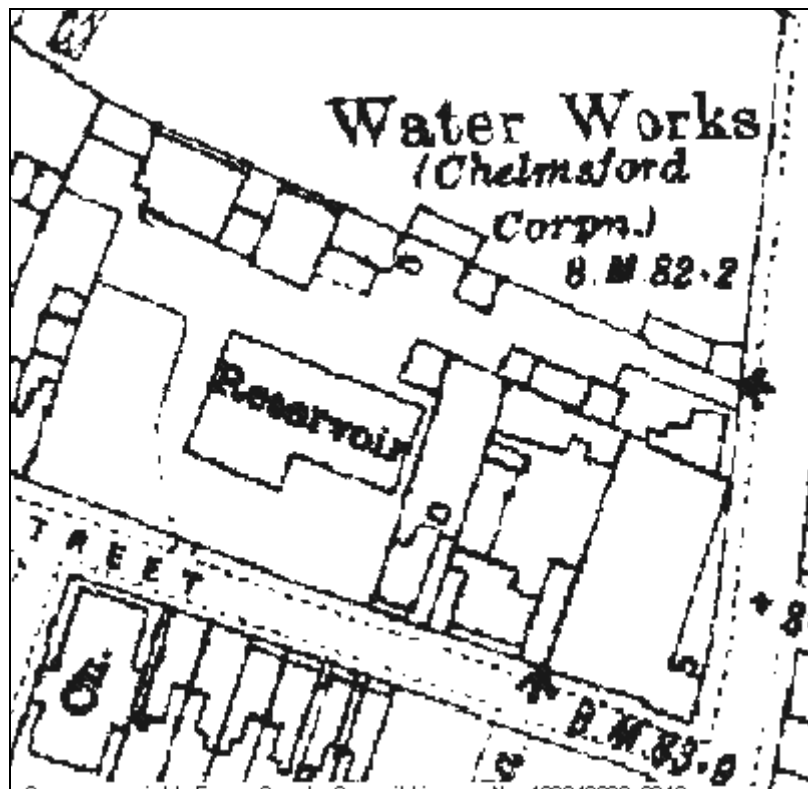


Fig. 3 Third Edition 25" OS map, c.1924

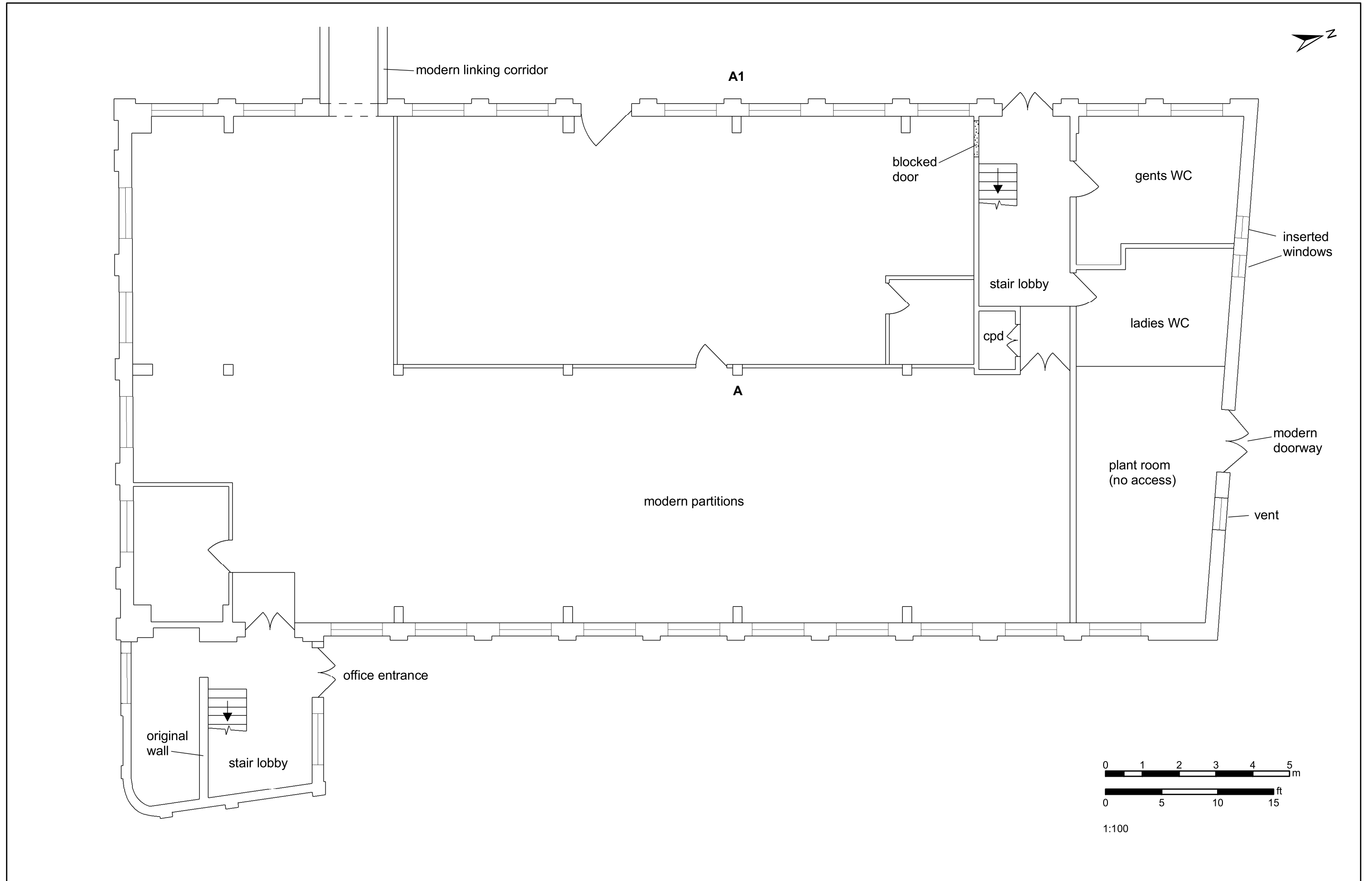


Fig.4a. Ground floor of silk mill

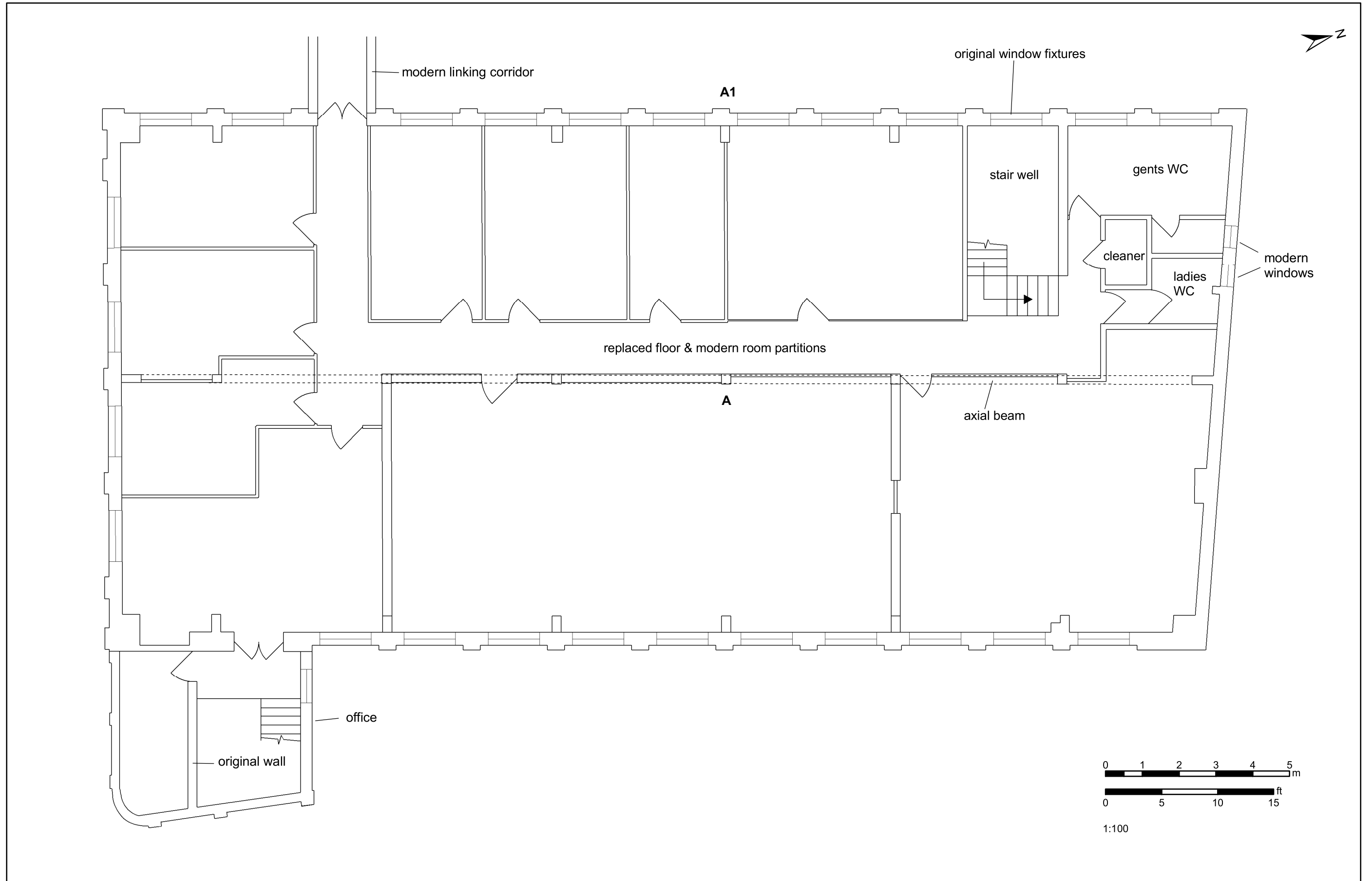


Fig.4b. First floor of silk mill

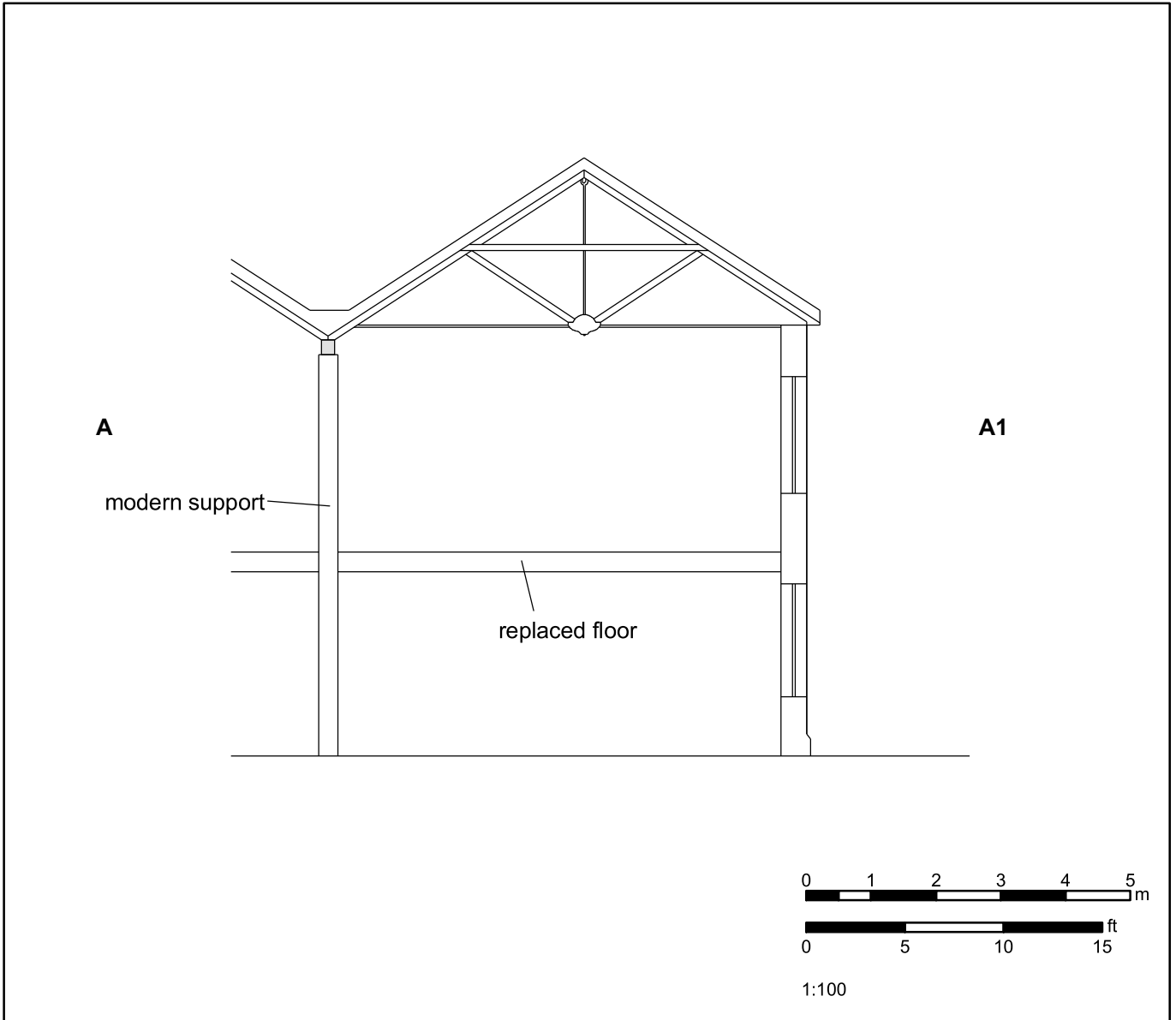


Fig.5. Cross-section A-A1

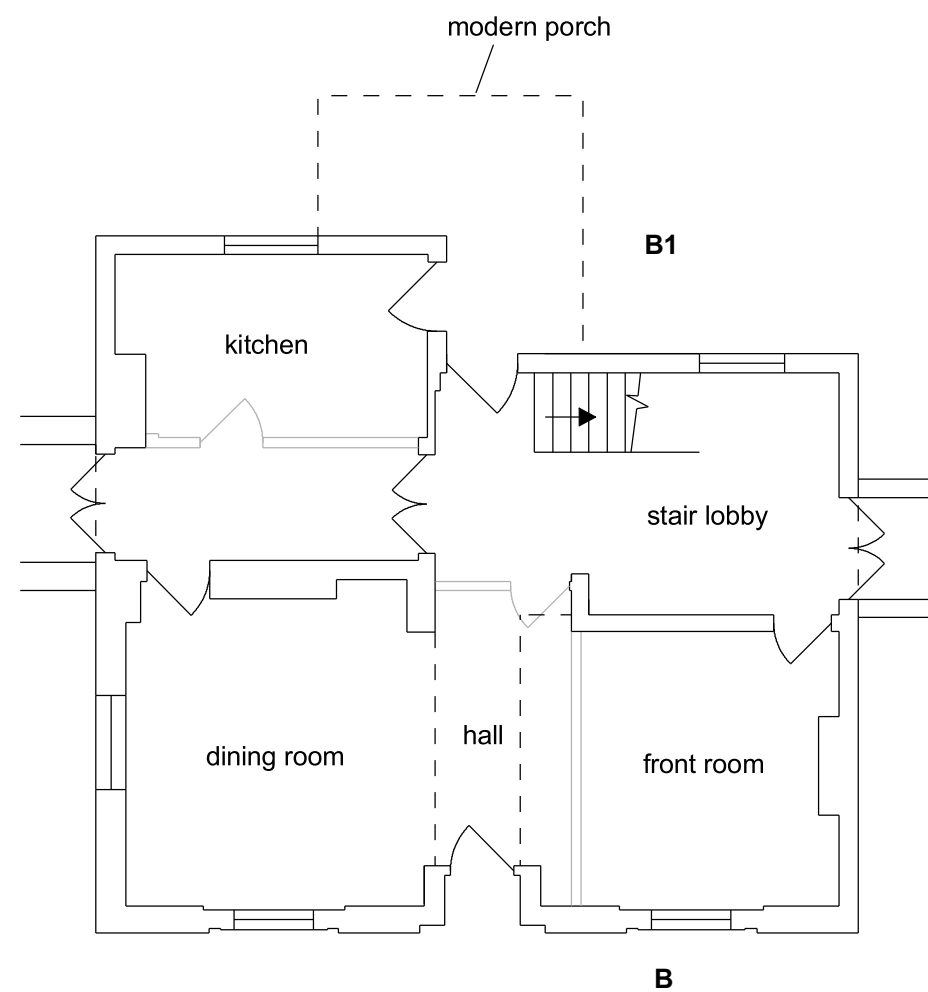


Fig.6a. Ground floor plan

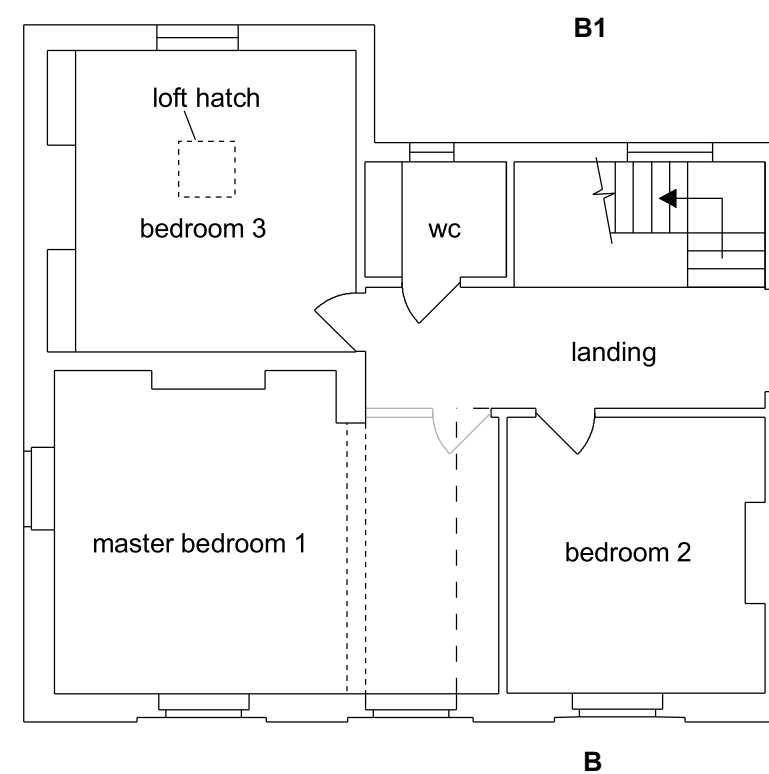
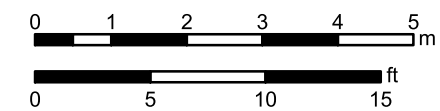


Fig.6b. First floor plan

Key  
— modern walls  
- - - removed walls



1:100

Fig.6. Floor plans of manager's house

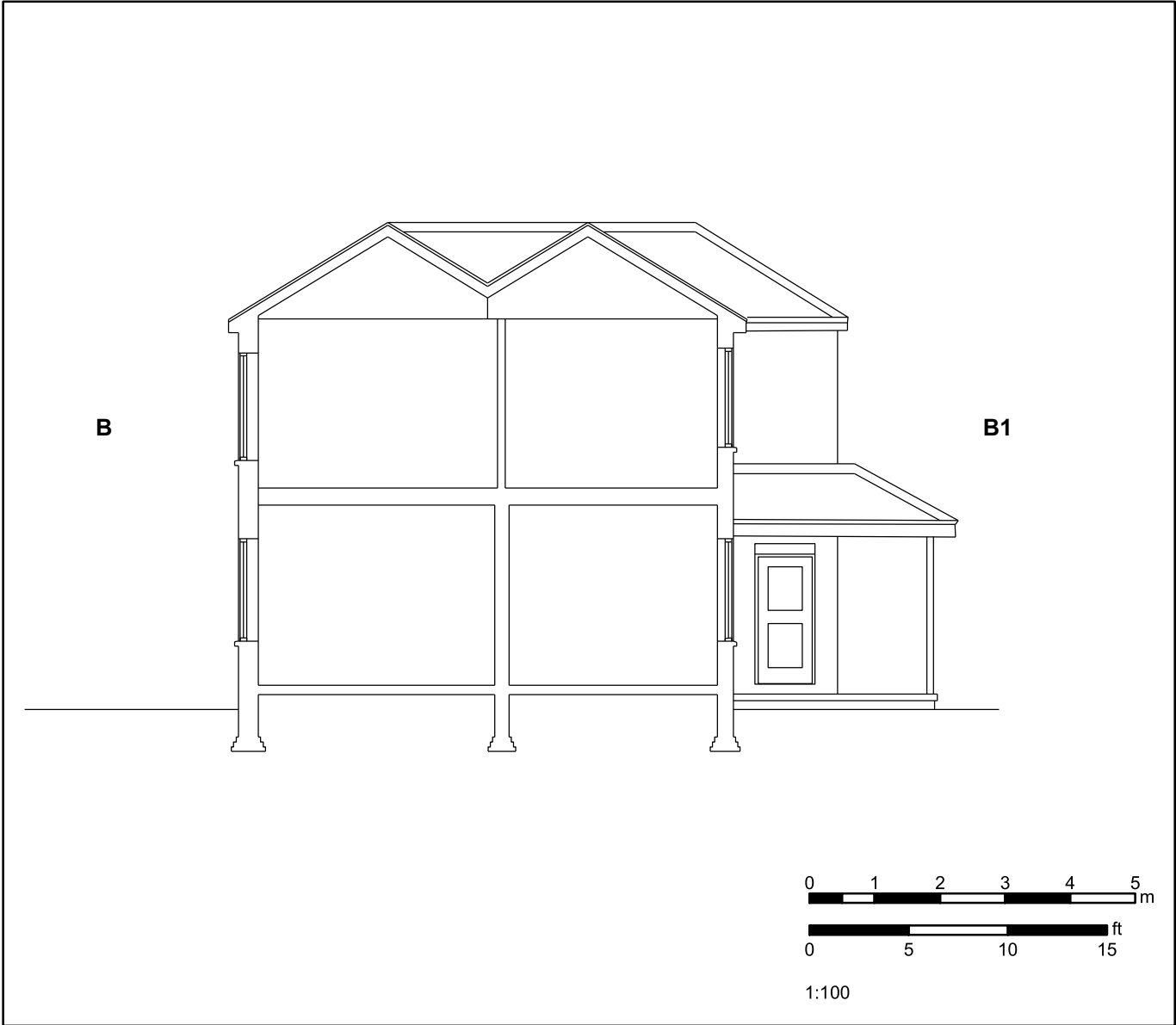


Fig.7. Cross-section B-B1



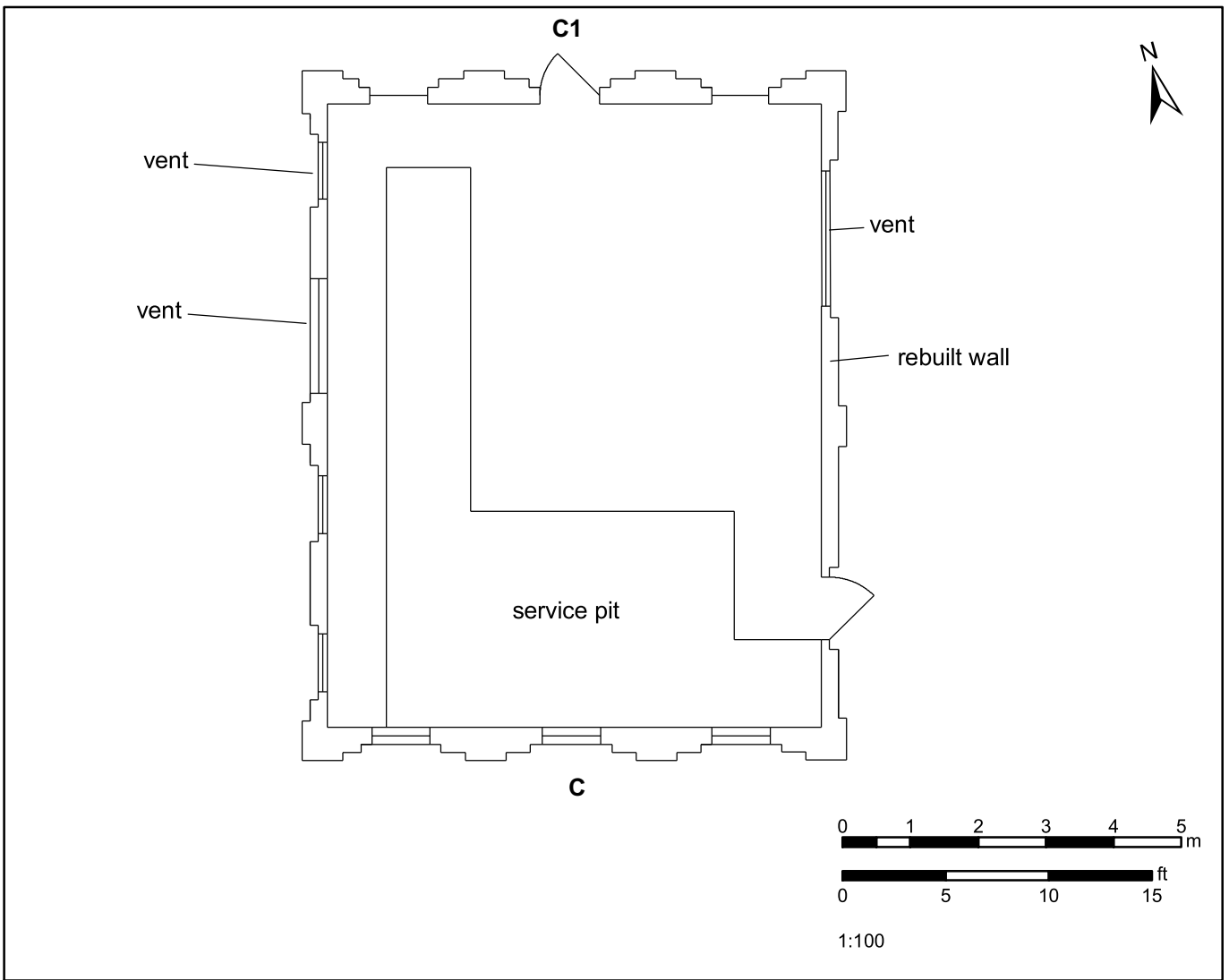


Fig.8. Floor plan of generator building

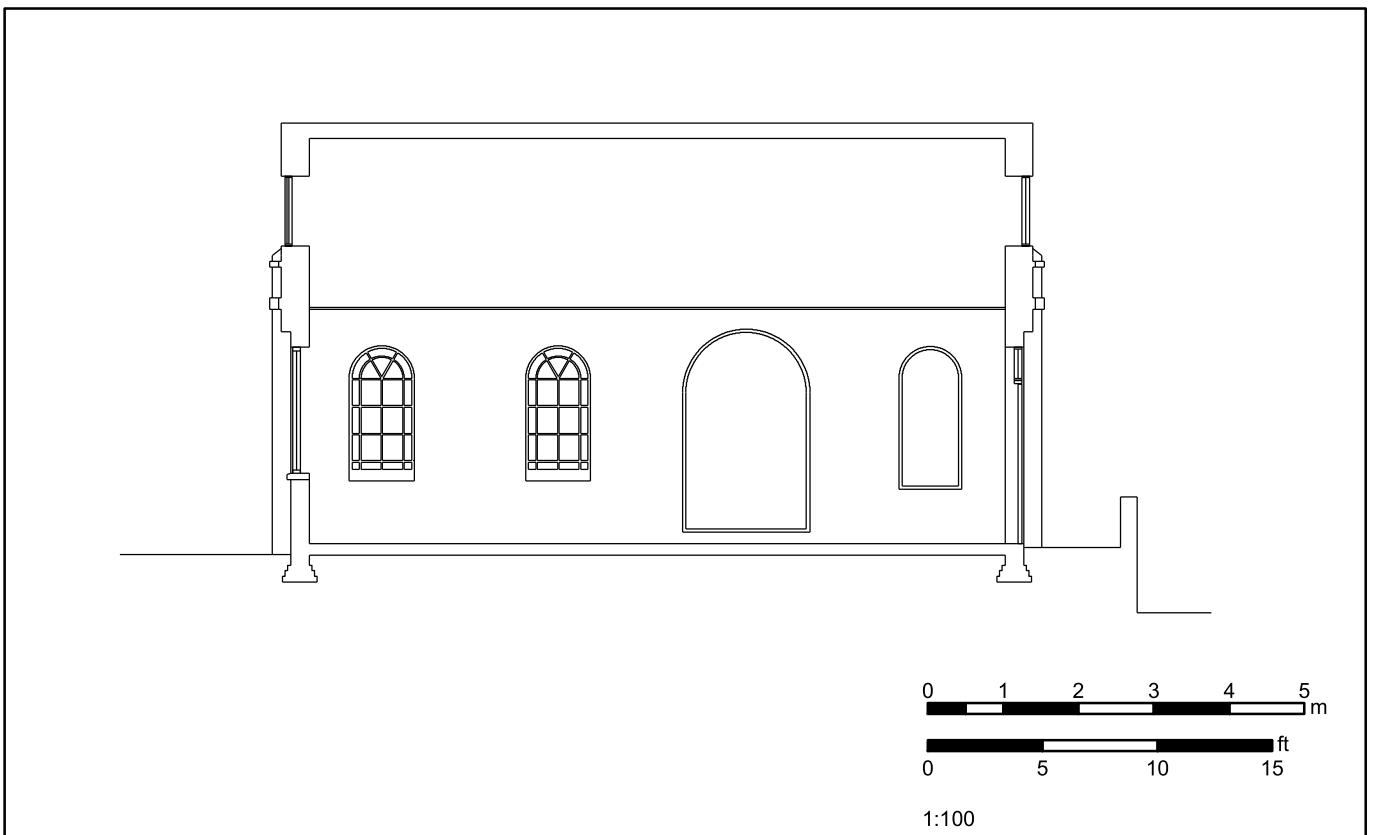


Fig.9. Cross section C-C1

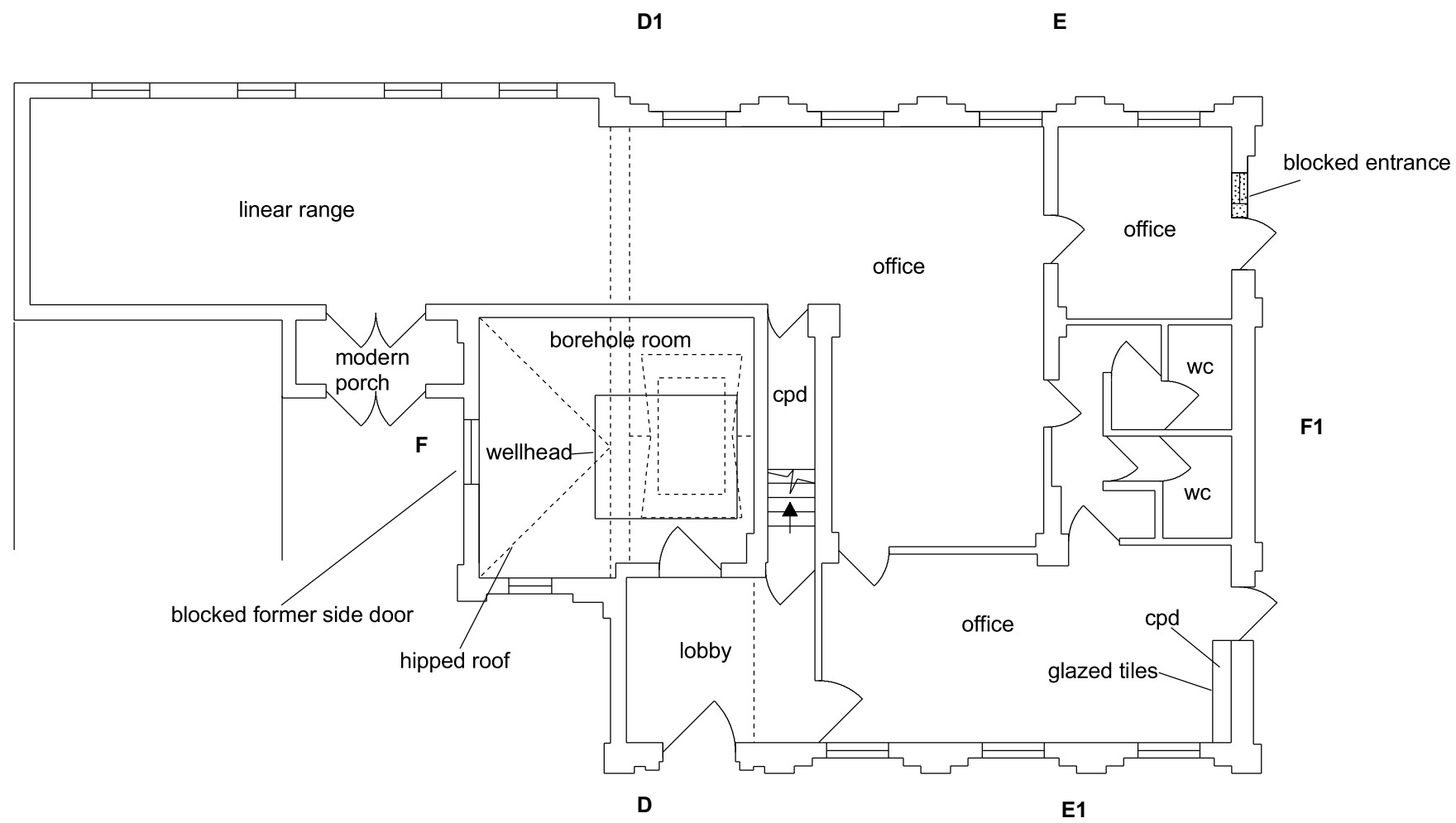


Fig.10a. Ground floor plan

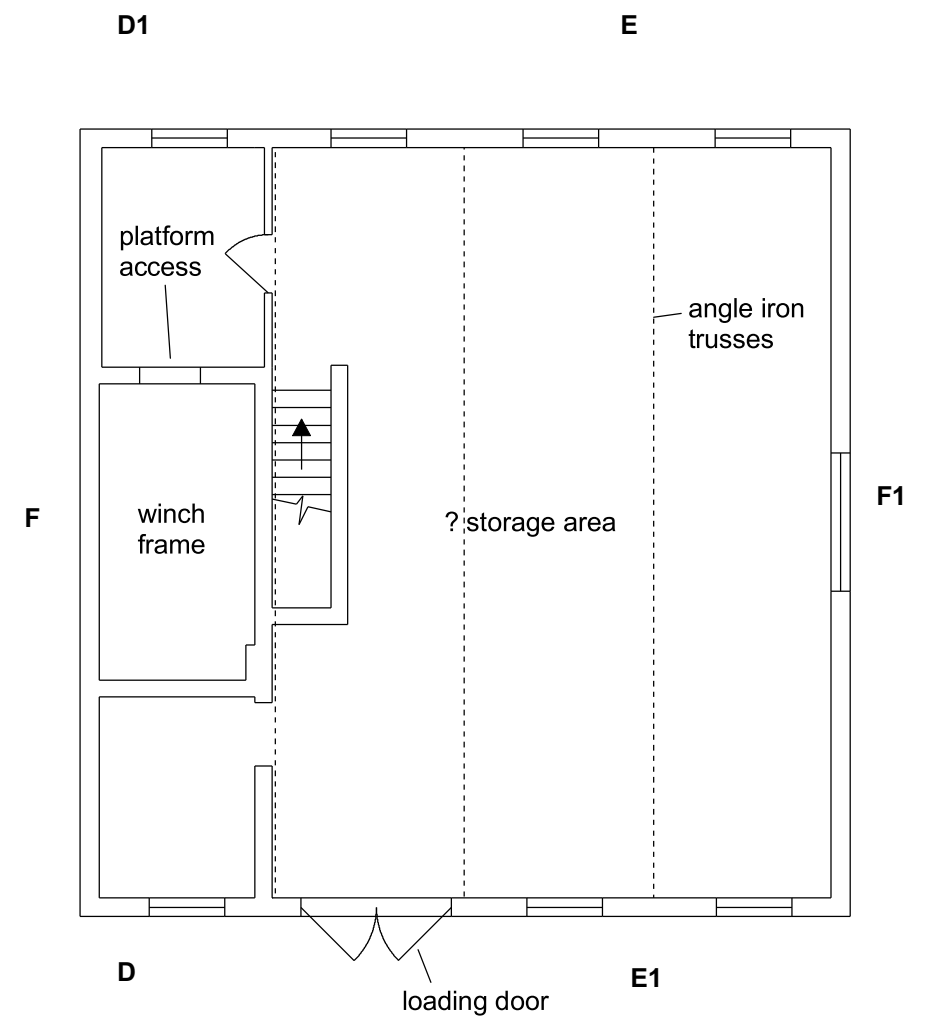
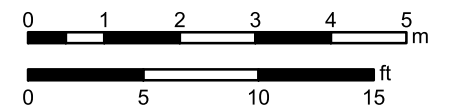
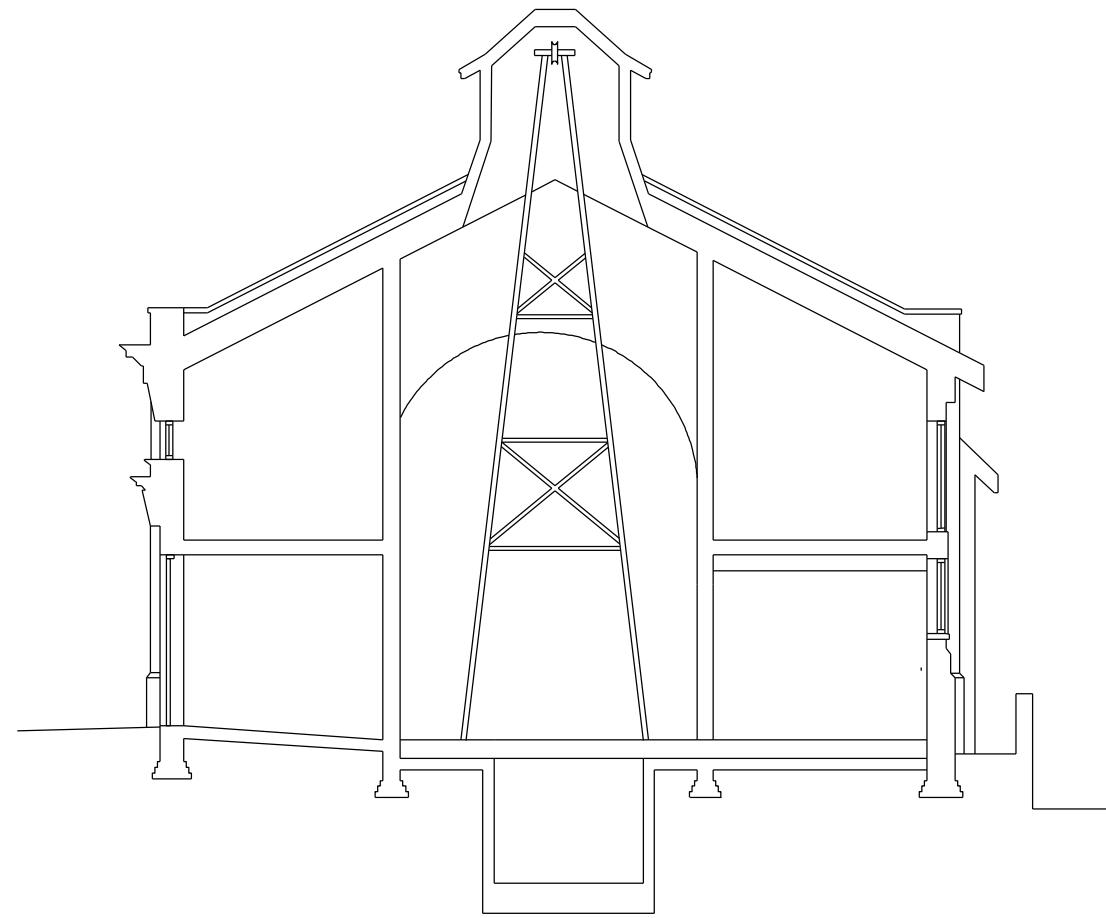


Fig.10b. First floor plan

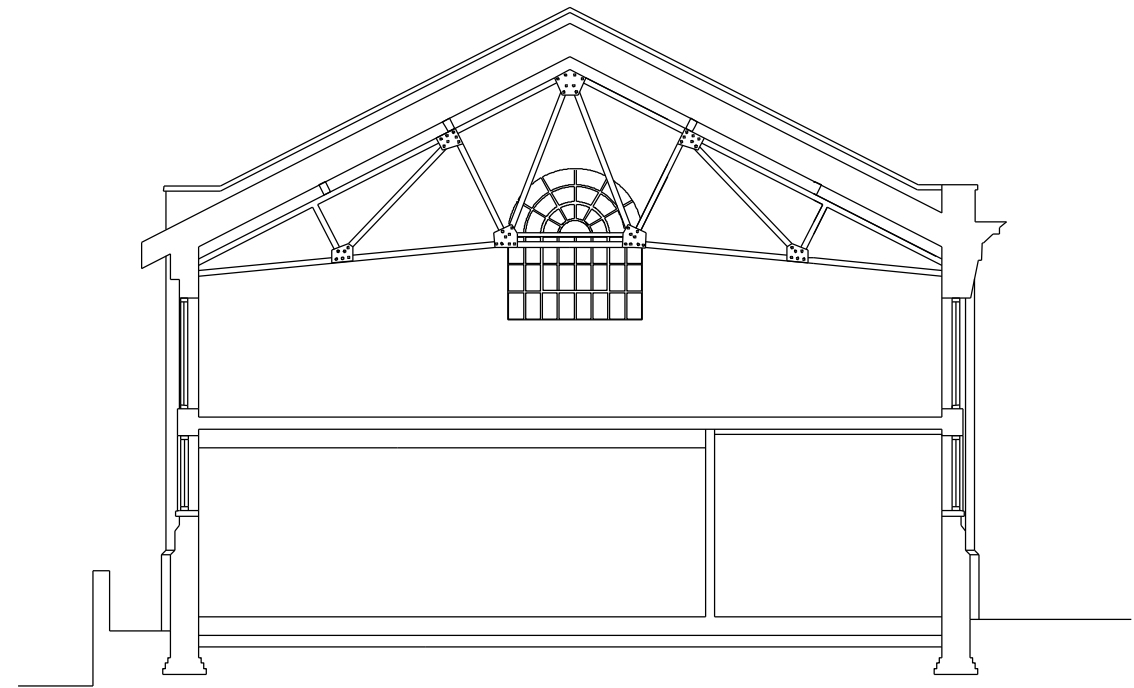


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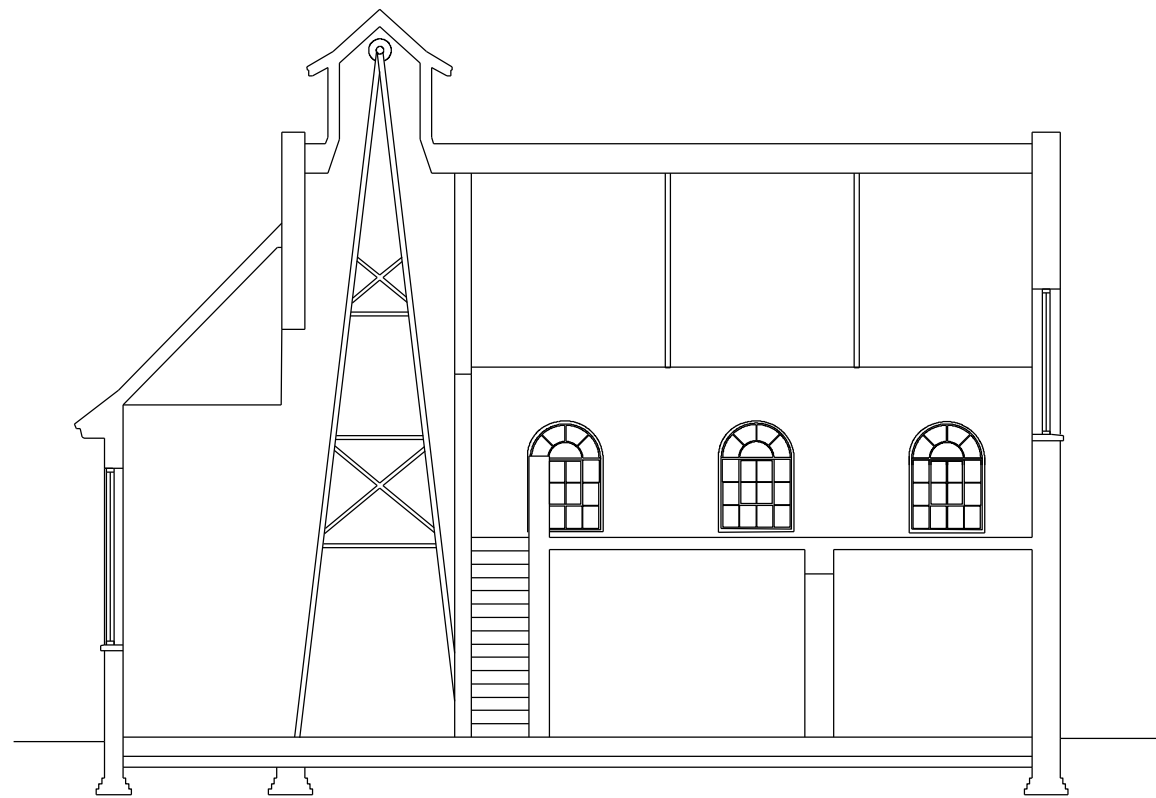
Fig.10. Floor plans of pump house



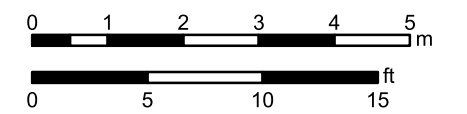
(a) Section D - D1



(b) Section E - E1



(c) Section F - F1



1:100

Fig.11. Cross-sections D-D1, E-E1 & F-F1



Plate 1. Silk mill/radio factory, viewed to south



Plate 2 Silk mill/radio factory, viewed to north-west



Plate 3. South elevation of silk mill/radio factory



Plate 4. Ground floor of silk mill/radio factory, viewed to south-east before strip

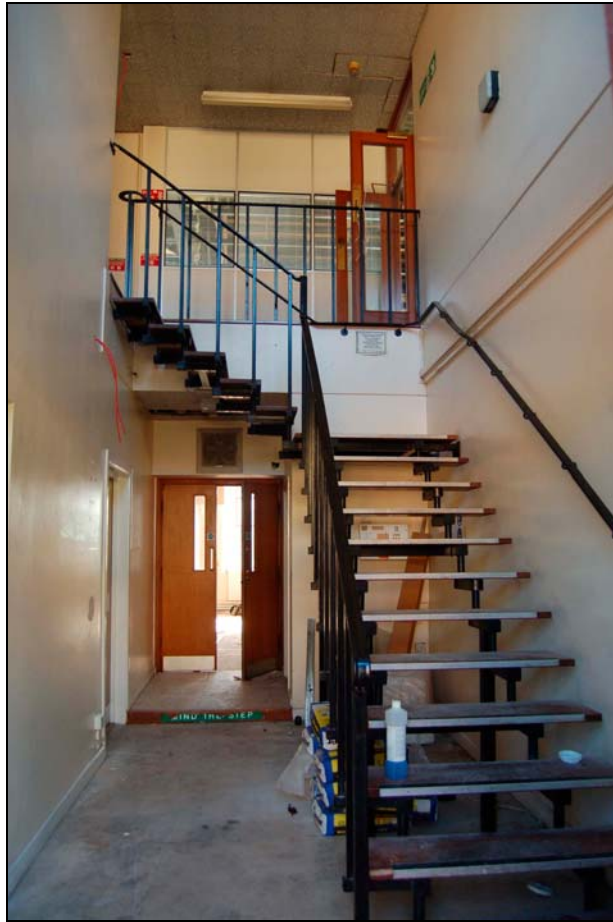


Plate 5. Modern stair lobby



Plate 6. First floor, viewed to south-west after strip



Plate 7. Factory window



Plate 8. Factory roof



Plate 9. Main façade of manager's house



Plate 10. Portico around front door





Plate 11. North elevation of manager's house



Plate 12. Interior of manager's house, viewed to front door



Plate 13. Interior of bedroom 3 in manager's house



Plate 14. Generator building (left) and pump house, viewed to south-west from car park



Plate 15. Generator building and pump house, viewed from yard



Plate 16. Generator building, viewed to north-west



Plate 17. Interior of generator building, viewed to north-west



Plate 18. Column sections stored in generator building



Plate 19. South elevation of pump house



Plate 20. Pump house, viewed to north-west



Plate 21. Blocked entrance on east side of pump house



Plate 22. Pump house, viewed to south from car park



Plate 23. Borehole room, viewed to east



Plate 24. Cast iron frame and maintenance platform



Plate 25. Interior of pump room, viewed to west (linear range)



Plate 26. Ceramic tiles on east wall





Plate 27. First floor of pump room, viewed to south



Plate 28. Modern computer block and Hall Street gateway



Plate 29. Staff in machine shop (c.1898), radio factory ground floor

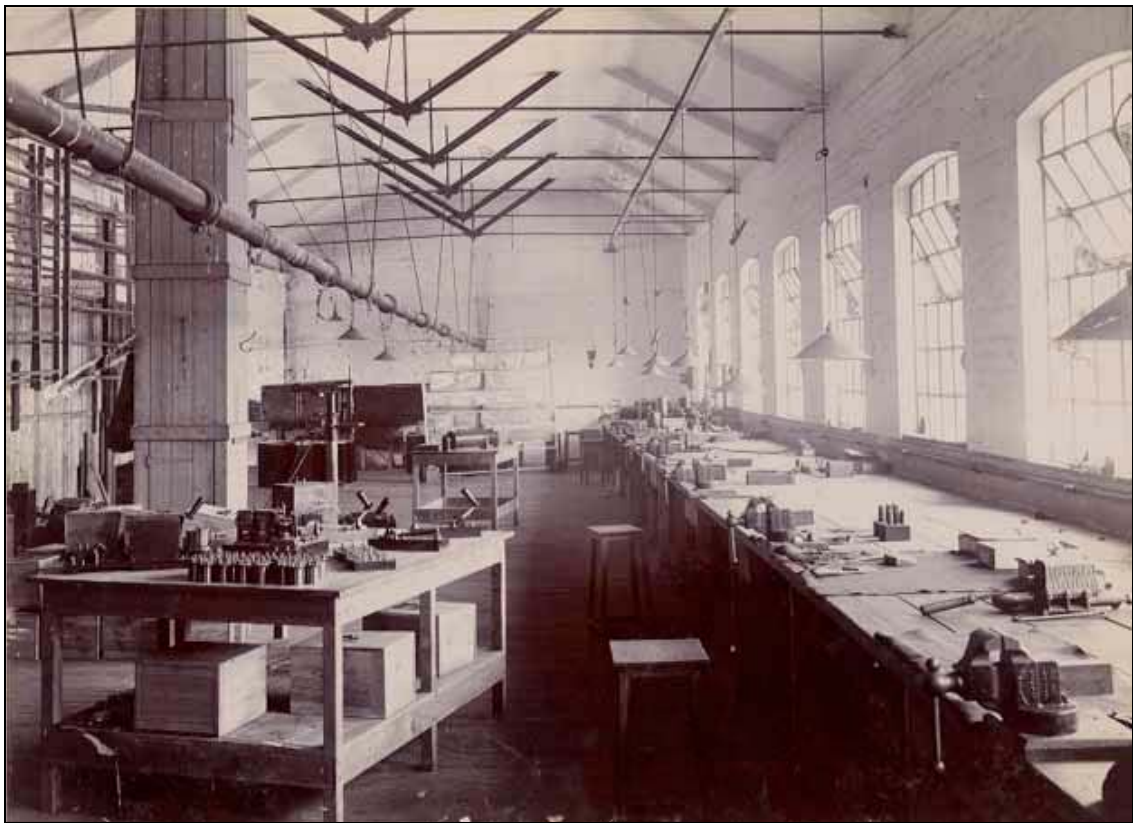


Plate 30. Mounting shop (c.1898), radio factory upper floor



Plate 31. Coil drying workshop (c.1898), radio factory upper floor

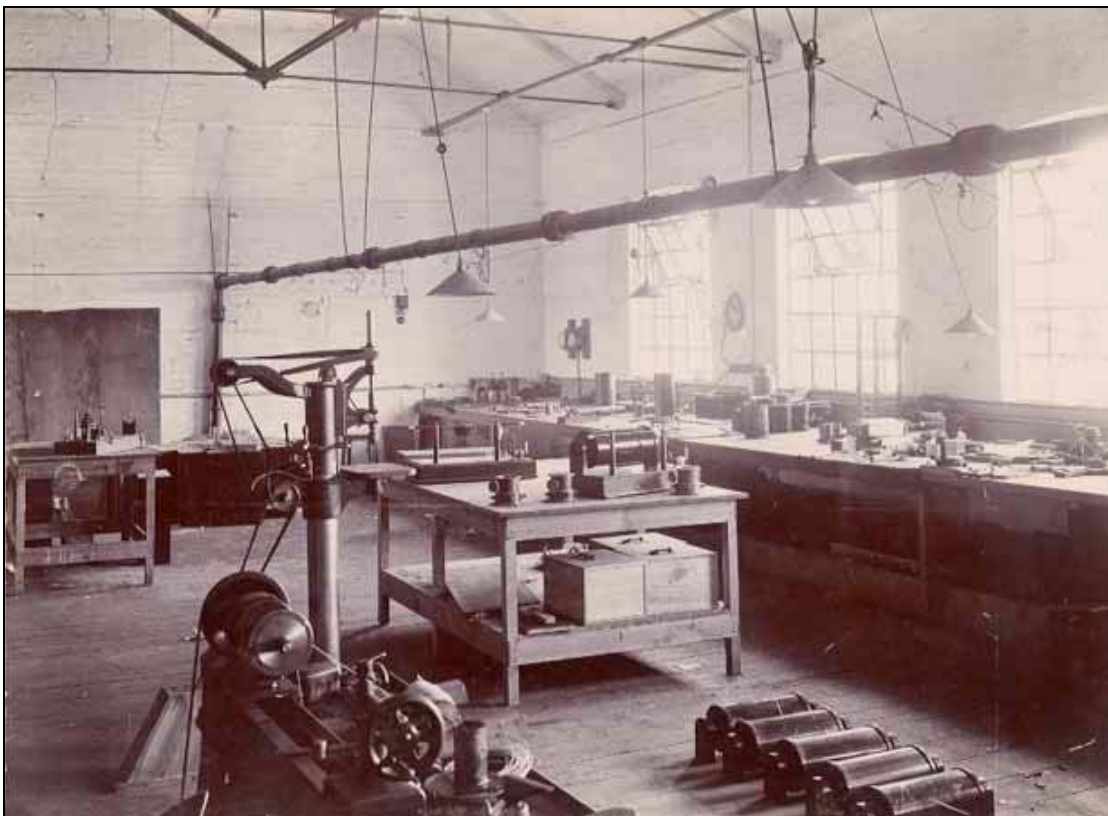


Plate 32. Coil mounting shop (c.1898), radio factory upper floor