

**AN HISTORIC BUILDING SURVEY  
OF THE NEW COOPERAGE,  
ROYAL WILLIAM YARD, STONEHOUSE,  
PLYMOUTH**

**Prepared for Urban Splash**

**By A.J. Passmore**

**Exeter Archaeology**

**Report No. 11.51**

**Project No 7522**

**June 2011**

## Contents

1	Introduction	1
2.	Historical and archaeological background	1
3.	Aims	1
4.	Method	2
5.	The New Cooperage	2
5.1	General description	2
5.2	Ground floor	3
5.3	First floor	4
5.4	The roof	5
6.	Discussion	5
	Acknowledgements	6
	Sources consulted	6

## List of illustrations

- Fig. 1 Location of site.
- Fig. 2 The site in 1910 (PDC 380 P).
- Fig. 3 Plan of the yard showing the location of the New Cooperage.
- Fig. 4 Ground and first floor plans of the building.
- Fig. 5 Profile A-A through the building, also showing the partition wall along profile A2-A2.  
Inset showing detail of first-floor construction materials.

## List of photos

- Photo. 1. East exterior elevation, looking west.
- Photo. 2. North exterior elevation, looking south. 1m scale.
- Photo. 3. Room G1 (entrance hall) showing delivery hatch in west wall, looking west. 1m scale.
- Photo. 4. Room G7, looking south. 1m scale.
- Photo. 5. Room G7, view of chimney with firebox, looking south-east. 1m scale.
- Photo. 6. Room G8, north partition wall showing arches, looking north-west. 1m scale.
- Photo. 7. Room F1 showing the fireplace and door, looking east. 1m scale.
- Photo. 8. Room F2 showing blocked fireplace, door, and stepped and arched masonry containing flues, looking east. 1m scale.
- Photo. 9. Room F7 showing hearth in the north partition wall, looking north. 1m scale.
- Photo. 10. View of the roof trusses and sky light above room F6, looking north-east.

## 1. INTRODUCTION (Fig. 1)

This report presents the results of historic building recording of the New Cooperage at the Royal William Yard, Stonehouse, Plymouth (NGR SX 4618 5356; Fig. 1). The work was commissioned by Urban Splash and undertaken by Exeter Archaeology on 27 May 2011. The New Cooperage is a listed building (National Heritage List number 1378543; Grade II), and the historic building recording was required under condition 3 attached to the grant of Listed Building Consent (application number 11/00085/LBC).

## 2. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND (Fig. 2)

The Royal William Yard was a naval victualling depot, constructed between 1825 and 1833, and occupied by the Royal Navy until 1992. The yard has been described as the most architecturally distinguished and consistent set of buildings ever constructed for the Royal Navy, and by far the most impressive single architectural group in Plymouth (Cherry and Pevsner 1989, 653). This is due in large measure to it being the work of one designer, the engineer Sir John Rennie. A cooperage was included within his designs, and comprised a central two-storey building in the centre of a courtyard. The courtyard was defined by ranges of two-storey buildings, the first-floors on three sides being over colonnades. For ease of reference this building is referred to as the 'Old Cooperage' in this report. In addition to manufacturing casks for the storage of liquids, such as beer and rum, the naval cooper also made mess utensils, ships buckets and other items (Kilby 2010, 31)

On its formation in 1891 the Naval Ordnance Department took over the western part of the yard and initially occupied the western portion of the Old Cooperage. The remainder was still used for victualling, presumably by coopers. The New Cooperage was completed in 1899, and at that date the Ordnance Department took over almost all of the Old Cooperage (Keystone Historic Building Consultants 1994, 33). The New Cooperage originally housed a carpenters' shop, seasoning room, central coopers' shop and store, and first-floor offices (National Heritage List, quoting Keystone Historic Building Consultants). A drainage plan of the yard dated 1910 gives descriptions of the ground-floor rooms, and these include the coopers' shop, a reading room, dining room, toilets, an iron store, and another shop, the name of which is illegible (Fig. 2).

In 2000 Exeter Archaeology undertook a watching brief during excavation of pits associated with the provision of new drainage (Exeter Archaeology 2001). In room G7, and the southern part of room G8, parts of a wooden block floor were exposed, and this is thought to have originally extended across these rooms, but had been removed from the northern two-thirds of room G8 and replaced in concrete. These blocks measured 0.22m long by 0.075m wide by 0.12m high. Below this surface in room G8 a concrete base was exposed. No features were found outside the building.

## 3. AIMS

Although much previous research and recording work has been undertaken at the Yard the building (in May 2001) was exposed to a degree where architectural details and features were exposed for the first time since construction. These will undoubtedly have a bearing on the overall understanding of the building's history and development and some of these may be permanently removed or covered and the information will subsequently be lost. The aim of the investigation was therefore to prepare a record of the building in its current condition.

## 4. METHOD

The following method of recording, agreed with the Plymouth City Council Historic Environment Officer, was employed.

### *Written descriptive record*

A written survey was prepared to record the surviving evidence that informs our understanding of the structural and functional history of the building, and its development. Any evidence of alterations or additions to the original form was also described, together with their relationship to the functional use of the building.

### *Drawn record*

Existing survey drawings were updated and annotated to show the position of exposed breaks in build, architectural detail, and fixtures and fittings. Where appropriate, architectural details were also recorded at a larger scale.

### *Photographic record*

A photographic record of the features was prepared using black and white print film and colour digital format. This record included general exterior and interior views of the building along with detailed photographs of architectural details and fixtures and fittings. Details of photographs taken were made on *pro forma* record sheets.

## 5. THE NEW COOPERAGE (Figs 3-5; Photos 1-10)

### **5.1 General description**

The New Cooperage is located beside the lawn, adjacent and parallel to the east wing of the Melville stores and offices (Fig. 3). The building is 18-bays long and two storied, with four bays at each end projecting outwards slightly from the central bays (Photos 1 and 2). The exterior is faced entirely in granite, which is in contrast to the early 19th-century victualling buildings, which are faced in limestone with granite dressings. The granite is however greyer than that used elsewhere, and must have come from a different source. In general, the 'Georgian Revival' style of the architecture compares favourably with the other buildings in the yard, the presence of plat bands, the design and layout of the window and door openings, and the tall, bold parapet stand out. The main difference is in the treatment of the facing stones. At first-floor level the granite is tooled roughly to a flattish finish, where the limestone blocks used on the upper floors of the other buildings they are dressed with smooth faces.

The building has near-symmetrical façades. The window openings have round heads on the ground floor and square heads on the first floor. In the narrower, central part of the building, the windows have 7x6 panes in metal casements (with 4x3 pane central openings) on the ground floor, with 6x6 panes in metal casements (with 3x2 pane central openings) above. These windows can also be found in the end bays, except on the first floor at the north end of the building, where some sash windows are present, lighting the former offices. On the ground floor there are central doorways in the north and south elevations, along with three doorways in the west elevation. On the first floor there are doorways in the south and west elevations. Most of these openings are for pairs of loading doors.

Internally, the main walls are constructed of rubble limestone, originally whitewashed, with granite used to support the first-floor beams and for corbels supporting the roof trusses. Buff

yellow bricks with ‘figure of eight’ frogs on each side, probably manufactured at the Great Western Pottery at Heathfield, Newton Abbot, are used for the internal walls, the chimney stacks and internal jambs to the window and door splays. The windows have thick concrete lintels.

## 5.2 Ground floor

The central door in the north elevation leads into an entrance lobby (Fig. 4, G1) which has a concrete staircase, with steel handrail, leading up to the first floor. This lobby currently provides access into five rooms, although this arrangement differs from that depicted on the 1910 drainage plan. Throughout the building most of the original door frames survive *in situ*; in rooms F2-F5 the doors are also in situ, but elsewhere they have been removed for refurbishment.

Room G2 now forms part of G3, but was originally a separate washroom, entered from the lobby. The room has wooden basins attached to the north elevation. In 1910 the toilets G3 contained two, possibly three cubicles; two walls have since been removed creating wider spaces. In the dividing wall, between a cubicle and the entrance lobby, is a tipping coal chute (Photo. 3). This is clearly an original feature – the opening has an integral curved brick head – that may indicate that one of the cubicles was originally a store. Room G4 has a blocked fireplace in the north elevation, which has a Portland stone lintel. In the side of the chimney stack is an inserted late 20th-century vent. In the south elevation of this room is an inserted and subsequently blocked door into room G7.

There are no historic fittings in room G5. Room G6 is now entered from the lobby, but this is an inserted opening, and the doorway, now blocked, was originally in the centre of the southern elevation. During the 20th century partitions were inserted into this room, but have since been removed.

The central part of the building (G7) is currently a large open space (Photo. 4). The 1910 plan however, depicts the northern bay as being a separate room, and also shows a series of structures in the centre of the room. The scar of the dividing wall is visible on the east and west elevations. This room would have been entered using its own doorway in the west elevation. There is no evidence for the other structures, the present concrete floor obscuring any below-ground trace of their footings. In the later 20th century a large partitioned-off area was added to the north end of the room. This has been demolished, but a concrete block wall added against the north partition wall still survives.

The main historical feature in this room is a brick chimney stack that is integral to the southern partition wall, but projects out into the room (Photo. 5). At waist-high level is a firebox with an iron doorframe and (removed) iron door. Above this is an area of replaced brickwork incorporating an opening – now blocked – with a granite lintel. The function of this opening is not clear, but is it possible that the brickwork reflects the position of a small copper used to heat water. Overlying this brickwork are two rectangular areas of cement with sawn-off metal and wood attachments. These resemble fixings for machinery but in this case may have been for the attachment of stairs leading to the high-level opening.

In the northern half of the room, suspended from the ceiling are a series of wooden horizontal bars with rounded ends and slight chamfers. They are (or were) present in each bay, at intervals of four joists. Elsewhere within the room are a few wooden and iron fixings for removed shelves.

As noted above, the floor of this room – along with the whole of the ground floor and the first-floor lobby F1 are concrete. However, a small area of the original wooden blocks, as observed in 2000, is exposed. The use of such blocks is, as far as the author is aware, unique within the yard. In other buildings, early parquet floors have been recorded, but not the use of wooden blocks.

Room G8 is largely featureless. The main features are two brick, curving piers projecting out from the north dividing wall (Photo. 6). In each pier is an inserted high-level vent, below which are areas of repaired brickwork. These features must indicate some form of heating or firebox opening. Either side of these piers are scars of removed partitions. Their locations indicate that they are associated with the piers in some way, although what was taking place here, and why heat was provided, is not clear. In the southeast corner of the room is a steel staircase to the first floor. This has iron balustrades and handrail, and its treads are perforated. Adjacent to the west pier a limited exposure of buff yellow brickwork was noted in a service trench.

### 5.3 First floor

The first-floor is supported on a complex ‘beam’ and joist arrangement. The floorboards rest on rows of closely-spaced joists that span each bay. At their junctions, the joists are attached over the top of tall rolled steel joists (RSJs). The lower sides of the joists are supported by horizontal beams either side of the vertical element of the RSJs. These are attached to each other and the RSJs using nuts and bolts. Scissor braces are used between the joists. Two RSJs were required to span the width of the building, and these are fixed along the central axis of the building using external plates fixed with rivets. In general, this arrangement was originally visible, and the wooden elements were painted white. However, in room G8 nails (for laths) in the bottom of the joists indicate this area originally had a ceiling.

The main stairs from room G1 lead into a narrow lobby (F1) giving access to four first-floor offices (F2-5) and a loft F6. The main features in the offices are fireplaces in the dividing walls with the lobby. Smoke was channelled through stepped and curved brick walls (to accommodate the hipped roof) into a wide central stack in the south partition wall (Photo. 8). In room F2 the fireplace has a cast-iron grate with fire bricks stamped ‘Foster Crown 10001’, a concrete hearth and a separate wooden mantelpiece (Photo. 7). In rooms F3 and F5 the fireplaces, hearths and mantelpieces have been removed, but the concrete hearth slabs survive set into the floor below (Photo. 8). In room F4 the original fireplace has been removed and replaced with a ceramic tile back, stamped ‘new standard British made’, with a buff yellow tile surround and hearth. The only other feature in these rooms is pipework in the dividing wall of F4 and F5, probably for sinks.

The main first-floor room F6 is a long loft open to the rafters, with loading doors in the west elevation. Fire escape stairs have been added to the outside of these openings. There are few fixtures and fittings, although some wooden brackets for (probably secondary) shelves survive. The chimney stack from the ground floor passes through this room, and on its east side is an area of brickwork (of the same type present in this stack on the ground floor). This may have replaced a small vent or perhaps a larger opening.

The stairs from room G8 lead into a very small lobby within room F7. Both the lobby and stair opening are divided from the room by a tongue-and-groove partition. The only other feature in this room is a hearth projecting out from the dividing wall with room F6 (Photo. 9).

This has a low concrete base and a firebox with a sliding door. The associated pulley mechanism only partially survives. There is a gas pipe fitting leading into the base of the firebox on its west side.

#### 5.4 The roof

The roof is hipped at both ends, reflecting the arrangement in the earlier buildings, and is supported on 15 trusses with further half trusses supporting the hips (Photo. 10). The trusses are formed using thin steel bars and rods, joined mostly using nuts and bolts but with some rivets. Constructional details can be seen on Fig. 5. On each pitch are nine rows of RSJ purlins onto which boards are fixed. The roof is covered with slate tiles. The hipped ends are supported using half trusses, whose lower ends terminate on curved brackets that pass through the brick partitions. The main trusses rest on granite blocks (the equivalent of sole pieces) in the tops of the walls. However, in the wider end bays the trusses are the same width, and rest on projecting, tall granite corbels. This indicates that the roof was prefabricated, and was not designed to fit the shape of the building.

Along the roofline are four, wide skylights, each with four 3x2 light windows on each side. The remaining frame is lined internally with tongue-and-grooved boards and ogee-moulded timbers.

There are rainwater valleys between the eaves and the parapet walls. Water passes down into internal cast-iron downpipes that lead into underfloor drainage. There is a single external downpipe, which is a secondary feature, and serves the former sinks in rooms F2 and F5. The base of the downpipe passes through the earlier granite path adjacent to the building.

Above the roofline are two chimneys. Above the main north dividing wall is a wide, fairly low rectangular granite chimney with seven openings, whilst above the south dividing wall is a narrow, tall granite stack.

## 6. DISCUSSION

After the completion of the yard in the 1830s, the New Cooperage was the only additional building to be constructed on the site. This was necessitated by occupation of parts of the yard, including the Old Cooperage, by the Naval Ordnance Board. This in itself is probably a reflection of the changing nature of naval victualling, such as the provision of goods (e.g. tinned meat) procured from outside sources, and the removal of the naval beer ration. Less space for processing and storage was required, and the need for new barrels declined. The New Cooperage was only about a quarter of the size of the original, and must reflect the presence, and need for, fewer coopers.

The architecture of the building is a blend of gothic revival with elements of the contemporary arts and crafts/art deco style. The design reflects and respects the earlier buildings, in terms of its size (including height), shape, and fenestration. However, the use of granite is in contrast to the industrial buildings. This material may however have been chosen to match the Officers' Residences that overlook the building. The parapet is less ornate than those of the other buildings, and this gives the building a contemporary character. The use of a variety of materials inside is far more expressive than in the 1920s and 1830s buildings, and although it is possible that some finishes have been removed, these elements – in particular the brickwork and concrete – were clearly meant to be displayed; there is an honesty in their use. Despite the close proximity to Melville, the main rooms in both the ground and first

floors are very light and airy, which is in contrast to the darker ranges in the earlier buildings. There is no attempt at the fireproofing Rennie had employed where necessary in the other buildings, such as the central block of the Old Cooperage.

The layout and actual use of the building is not fully understood. It is clear from the 1910 plan and the surviving architectural fittings that the north end of the building had a variety of uses including, toilets, a washroom, a dining room and stores on the ground floor, with offices above. It is likely that in the central part of the building the carpenters' shop was on the first floor, with the coopers' shop on the ground floor. The first-floor may also have been used for the seasoning – drying out – of wood. The now-removed partitions depicted on the 1910 map may represent the working spaces or berths of individual coopers. The presence of a wooden floor would indicate that during manufacture, casks were not put over cressets – piles of burning wood shavings used to warm and soften the staves (Kilby 2010, 11). Cressets were used in the manufacture of *slight* casks, i.e. casks with staves under 1-inch thickness. However, it is possible that this practice could have taken place on localised areas of stone floor, either not currently visible or surviving.

The uses of the flues, firebox and hearth in the southern partition wall are also a mystery. During manufacture, larger casks (with staves over 1¼-inch thick) need to be immersed under a steam bell or steeped in boiling water for half an hour to soften the timber (*ibid.*, 11). As described above, smaller casks could be heated using cressets. It is possible that the ground floor firebox in room G7 heated an integral copper to provide hot water, although no evidence such a copper was observed. The hearth in room F7 appears to be associated with blacksmithing, and it seems likely that a blacksmith was employed to assist the coopers by producing iron hoops and other small items such as hooks. The depiction of an iron store on the 1910 plan would support this idea. It is likely that the coopers' role was largely focused on the repairing of casks rather than the wholesale manufacture of new items (*ibid.*, 34).

As a later addition to the yard, the building has not been significantly altered, and, like the Clarence Store, which has similar large open spaces, the building has lent itself to subsequent use as a store. On the ground floor, the partitions within G7 have been removed, and a number of partitions added (and subsequently removed) in rooms G6, G7 and G8.

## ACKNOWLEDGMENTS

The project was commissioned by Urban Splash, and managed by A. Willetts (Urban Splash, W. Hoare (Gillespie Yunnie Architects) and T.H. Gent (Exeter Archaeology). The fieldwork was carried out by A.J. Passmore and G. Young. The report was prepared by A.J. Passmore with illustrations by S.E. Blackmore.

## SOURCES CONSULTED

### *Printed Sources*

- Cherry, B., and Pevsner, N. 1989. *The Buildings of England: Devon*.  
 Exeter Archaeology 2001. *Archaeological Observation and Recording of new drainage Works at the New Cooperage Building, Royal William Yard, Plymouth*.  
 Kilby, K. 2010 *Coopers and Coopering*.



*Website*

National Heritage List for England (no. 1378543)

[www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england](http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england)



Fig. 1 Location of site. Scale 1:50000.

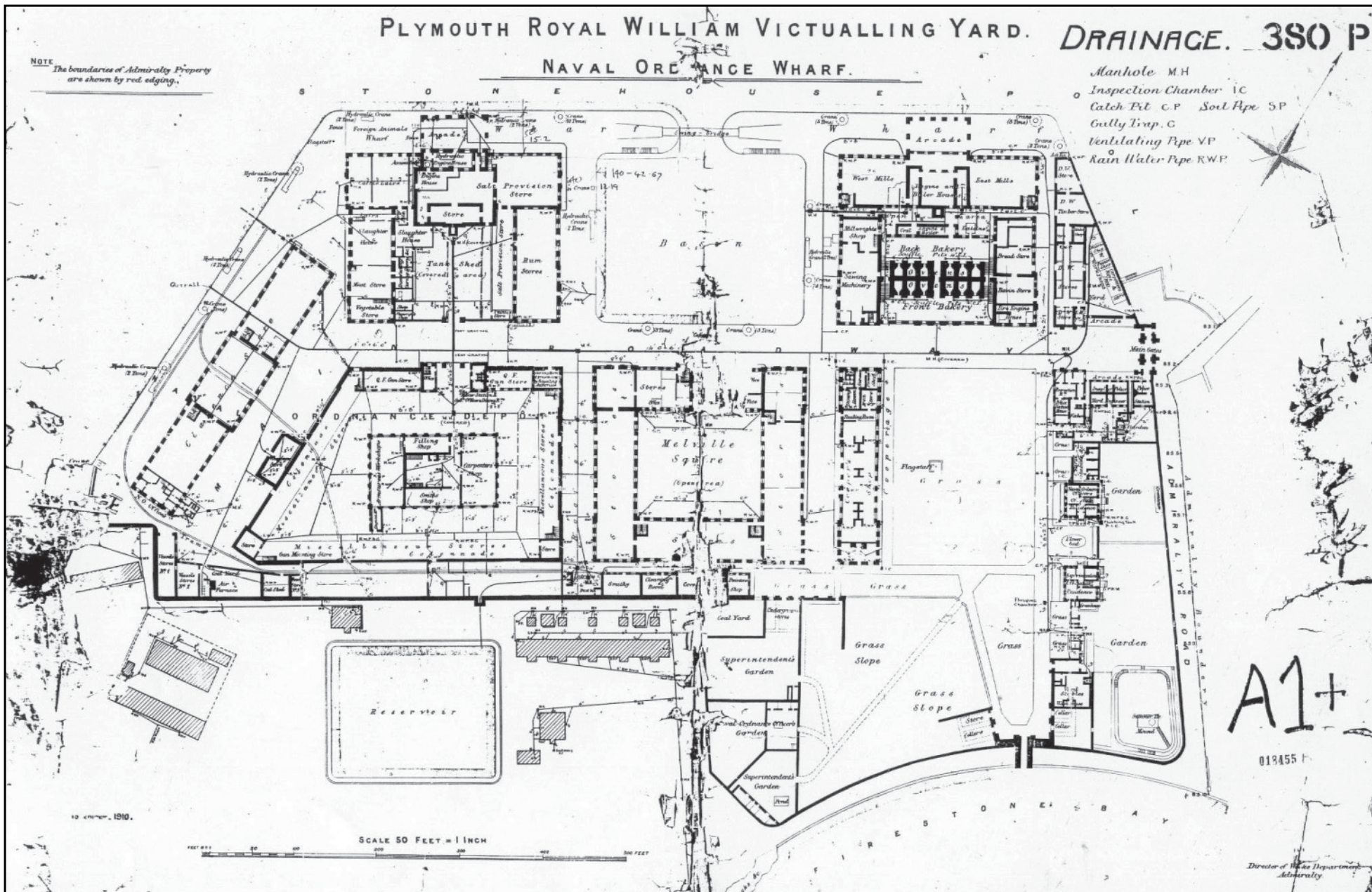


Fig. 2 The site in 1910 (PDC 380 P).

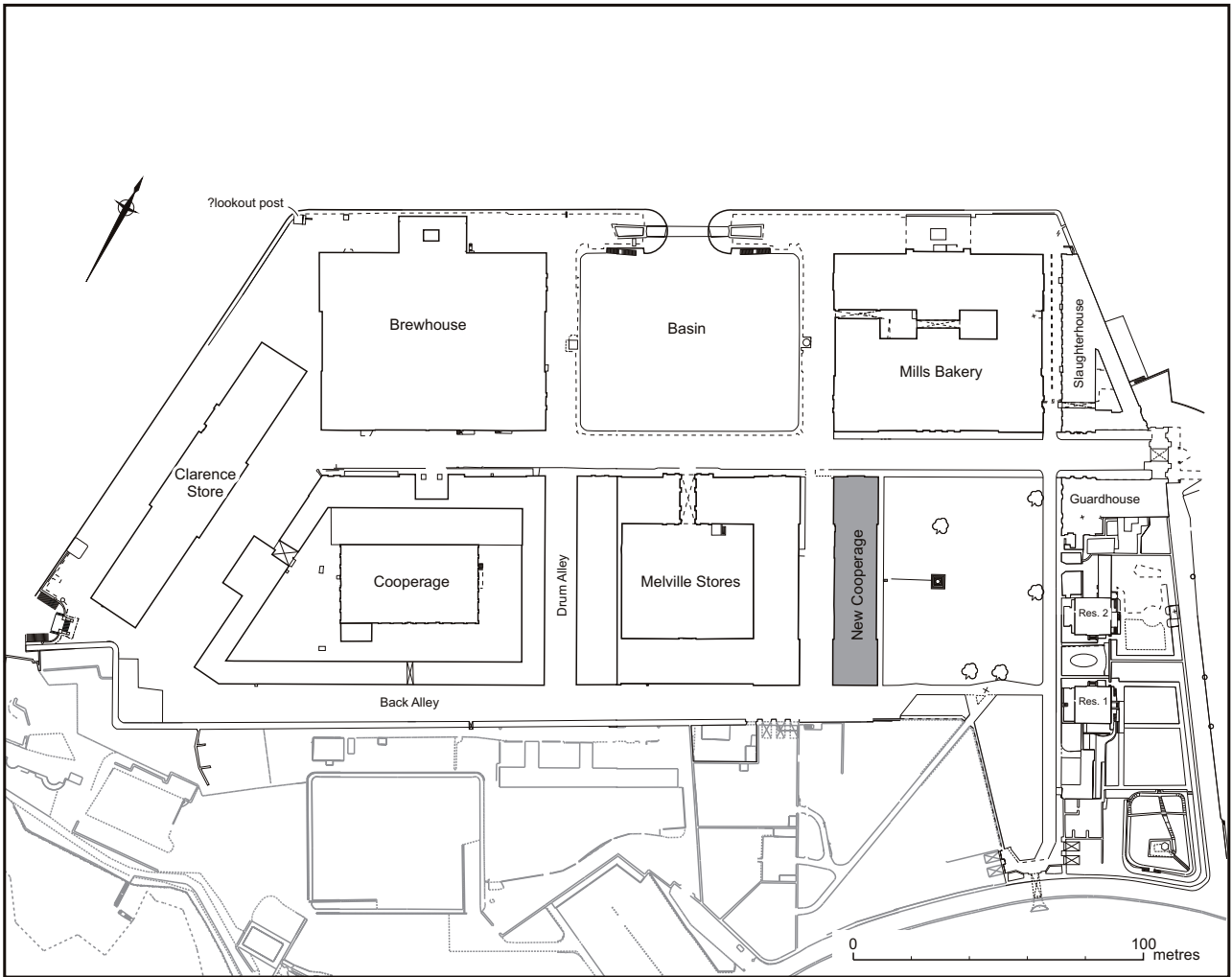


Fig. 3 Plan of the yard showing the location of the New Cooperage. Scale 1:2500.

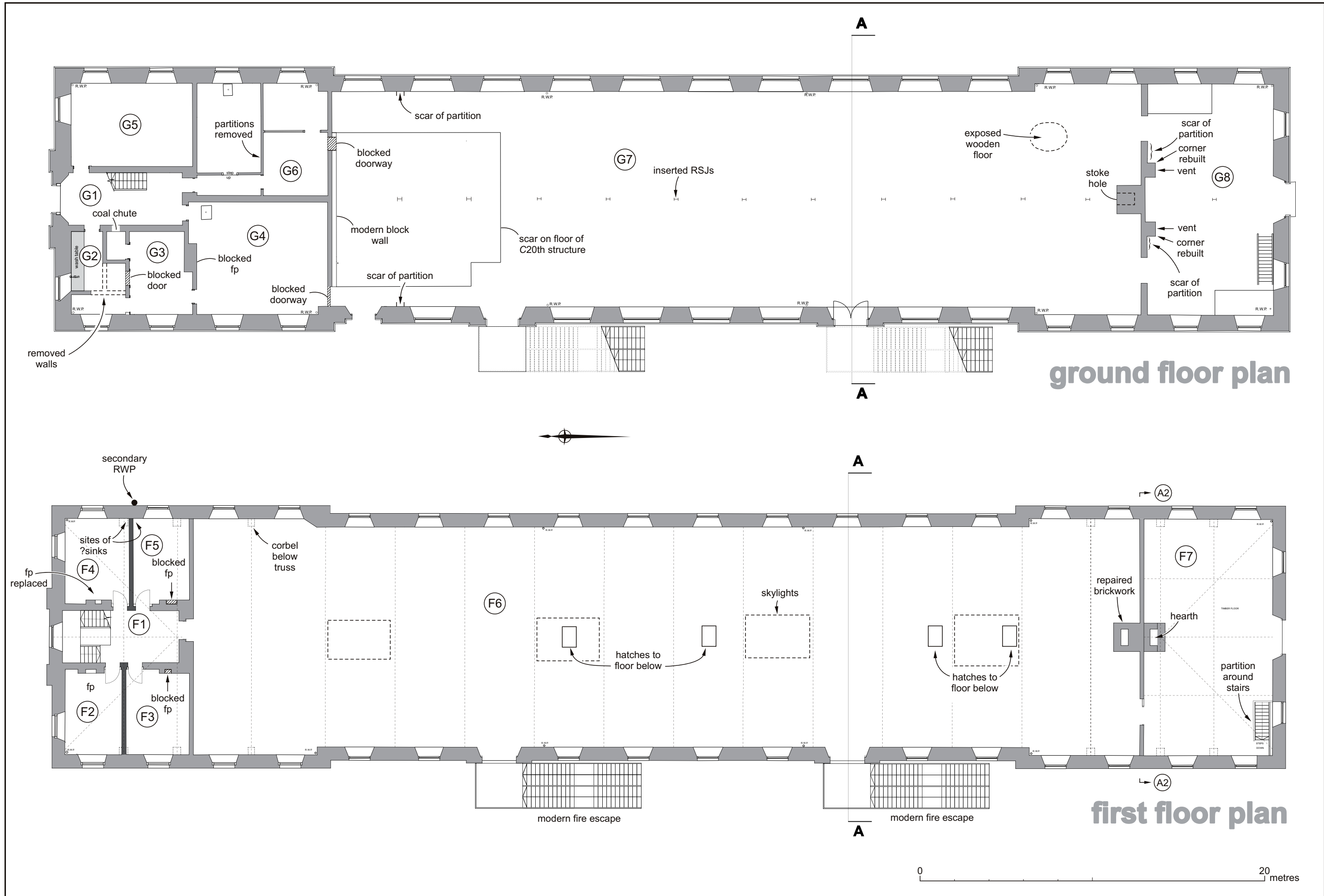


Fig. 4 Ground and first floor plans of the building.

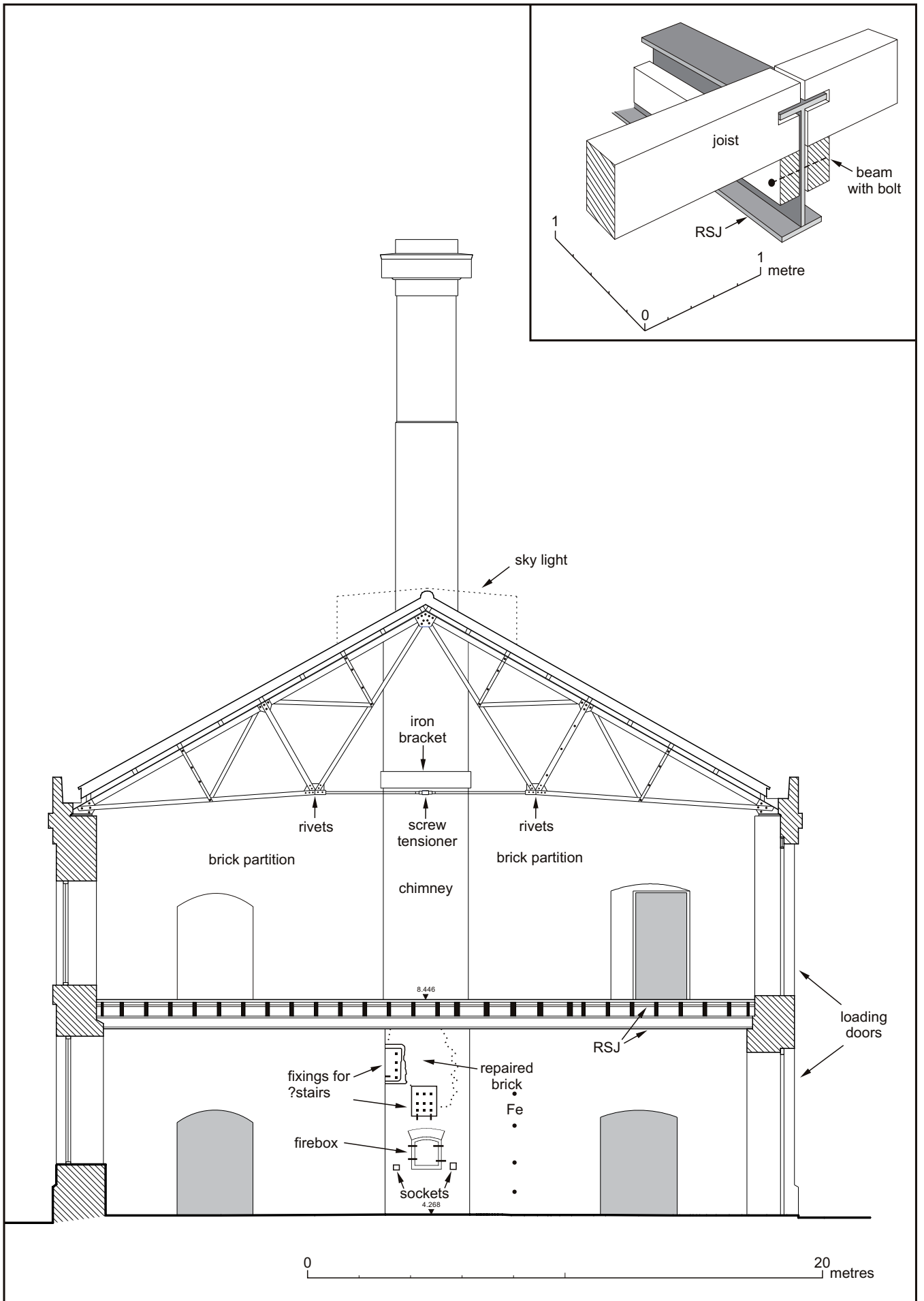


Fig. 5 Profile A-A through building and the partition wall along profile A2-A2. Inset showing detail of first-floor construction materials.



Photo. 1 East exterior elevation, looking west.



Photo. 2 North exterior elevation, looking south. 1m scale.



Photo. 3 Room G1 (entrance hall) showing delivery hatch in west wall, looking west. 1m scale.



Photo. 4 Room G7, looking south. 1m scale.





Photo. 5 Room G7, view of chimney with firebox, looking south-east. 1m scale.



Photo. 6 Room G8, north partition wall showing arches, looking north-west. 1m scale.

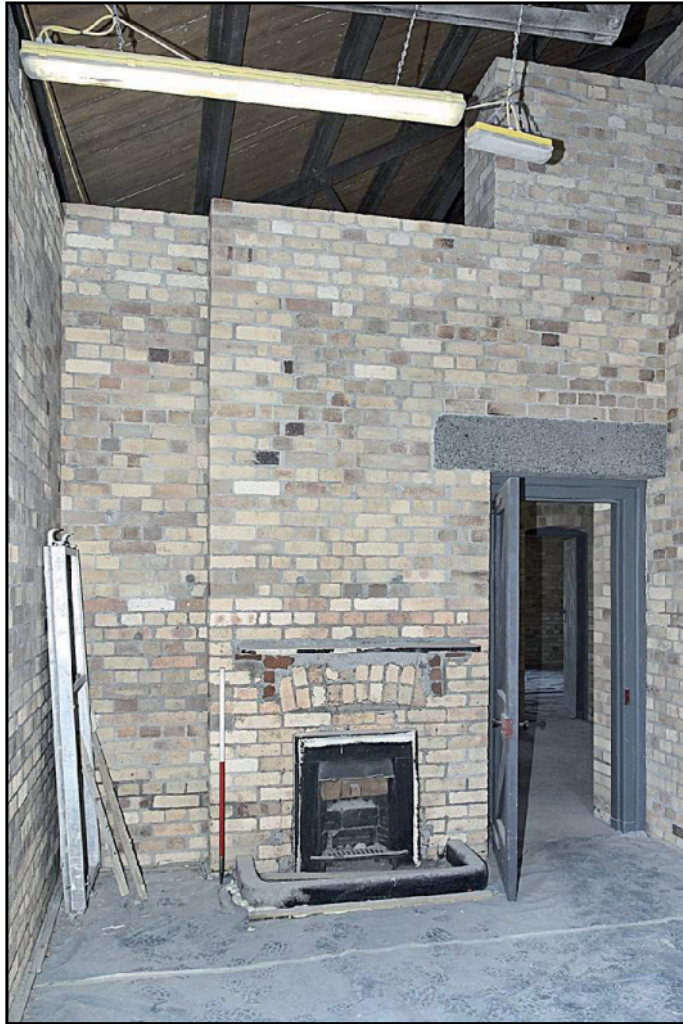


Photo. 7 Room F1, showing the fireplace and door, looking east. 1m scale.



Photo. 8 Room F2, showing blocked fireplace, door and stepped and arched masonry containing flues, looking east. 1m scale.



Photo. 9 Room F7, showing hearth in the north partition wall, looking north. 1m scale.



Photo. 10 View of the roof trusses and skylight above room F6, looking north-east.