

Foundry Farm, Harvey's Foundry, Hayle Cornwall

Historic Building Survey



Historic Environment Service (Projects)

Cornwall County Council

A Report for Stride Treglown Limited

**Foundry Farm, Harvey's Foundry,
Hayle, Cornwall**

Historic Building Survey

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Within the Historic Environment Service, the Project Manager was Nigel Thomas. Fieldwork was undertaken by Megan Val Baker, Katie Watkins and Imogen Wood.

The views and recommendations expressed in this report are those of the Historic Environment Service projects team and are presented in good faith on the basis of professional judgement and on information currently available.

Cover illustration

Foundry Farm in the mid 1990s.

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Abbreviations

CAU	Cornwall Archaeological Unit (now HES)
EH	English Heritage
GIS	geographical information system (electronic mapping)
HER	Cornwall and the Isles of Scilly Historic Environment Record
HES	Historic Environment Service, Cornwall County Council
LRF	Land Reclamation Fund
LRP	Land Reclamation Programme
NGR	National Grid Reference
OS	Ordnance Survey
PRN	Primary Record Number in Cornwall HER
RCM	Royal Cornwall Museum

1 Summary

Harvey's Foundry was instrumental to the creation and development of Hayle as an industrial centre in the later 18th and 19th centuries. The foundry itself once covered a substantial area (see Fig 1) but much of the former complex was demolished after the site closed in 1903. An extensive urban regeneration programme is currently being undertaken within Hayle centred on the old foundry buildings. The second part of the regeneration scheme comprises buildings within the former foundry stable yard (centred at NGR SW 557 372), including the Wagon House, Stables and Fire Engine Shed. These will be refurbished as offices, workshops and other employment facilities.

The Historic Environment Service (HES) was commissioned by Stride Treglown Limited to carry out a programme of archaeological recording work in advance of and during the refurbishment works. Work was undertaken according to the terms of a planning condition imposed as part of the consent given by Penwith District Council. This report contains the results of the fieldwork recently undertaken by HES.

Survey of the building exteriors was carried out in 2000 (Sturgess and Thomas 2001). Access to the interiors of these structures was not possible at that time due to safety issues and vegetation/collapse that filled the northern part of the Wagon House. The 2004 building survey has created a comprehensive record of the buildings and has also contributed to an understanding of their evolution and functions.

The Wagon House is demonstrably multiphase, with a first floor added to what was previously a loftier but single storey interior. The recesses in the rear wall may relate to earlier stalls, or perhaps were associated with a different function. This building had assumed its present footprint by the later 19th century, by which time it had become physically linked to the Foundry Barn and Boring Mill.

A similar level of complexity was shown in the stable block. The north west wing of this building is evidently earlier. Removal of modern render in the ground floor of the north-east wing revealed that this part originally had doorways which faced away from the stable yard and towards Foundry House. This wing had evidently later been reversed, with the original rear cob wall pierced with new openings and faced with brickwork.

Review of historic mapping suggests that the late 18th century foundry is likely to have been in the area of Foundry House, with expansion north to the river early in the 19th century.

2 Introduction

2.1 Project background

Harveys Foundry Trust is undertaking a programme of economic regeneration works within Hayle, re-using the former buildings of Harveys Foundry. The majority of the buildings that have survived are now ruinous and require extensive consolidation and rebuilding works before they can offer new uses. Phase I of the regeneration scheme concentrated on the former Harveys offices in 24 Foundry Square and a small new build scheme on the site of a 1960s structure (the Rowe building). The Phase II scheme focuses on the former foundry stable yard, where refurbishment work is planned for the Wagon House, Stables and Fire Engine Shed.

Planning consent was granted by Penwith District Council in May 2004 and was subject to several conditions including the provision of a programme of historical recording being undertaken at the site, in accordance with a written scheme of investigation (WSI). The Historic Environment Service (Projects Team), of Cornwall County Council were approached by Stride Treglown Limited to provide a WSI for the historical building recording. Following approval of the WSI by Penwith DC, archaeological works commenced on site in November 2004.

2.2 Aims and objectives

The overall aim of this archaeological recording project was to gain an understanding of the historic development and evolution of the buildings surviving within the Foundry Farm area, and build upon the information previously obtained from the survey of the exteriors.

The objectives were to:

- provide a ground plan and record the internal elevations of the three buildings (Wagon House, Stables and Fire Shed) prior to refurbishment works being undertaken.
- create a detailed photographic record of these structures before their conversion/re-use.
- liaise with contractors undertaking regeneration works as to which structures and features should be preserved *in situ*.

2.3 Working methods

2.3.1 Photographic recording

A detailed photographic record (comprising black and white prints and high resolution digital photography) of these three buildings was undertaken to build upon the record previously obtained by Thomas and Sturgess (2001). This record comprised detailed interior shots and recorded the general condition of the buildings, walls and structures, as well as any internal features that demonstrated development, function or use.

2.3.2 Measured survey

The exterior elevations of the Foundry Farm buildings, as well as accessible details of their plans, were recorded in the winter months of 2000 (Thomas and Sturgess 2001). The intention of this project was to complete the survey data, particularly to record their internal elevations, which had been inaccessible during the previous survey.

Survey data collected during the fieldwork was designed to product the following:

- A detailed ground floor plan of the Wagon House showing the extent of cobbled and other surfaces, the locations of internal walls and other features.
- Metrically accurate internal elevations of all buildings. These were to include all significant architectural and archaeological features such as detail around arches, windows and other openings, changes in build/material, structural alterations and collapse. All internal elevations and details were recorded.

Measured data was collected by creating horizontal datum lines on the elevations and recording details from taped offsets. Information was added to field drawings at a scale of 1:20. Detail was also added to existing plans of the buildings, particularly within the Wagon House.

2.3.3 Post survey

The photographs taken on site were archived to HES specifications. This included addition of details to the HER photo database.

All measured survey drawings were scanned and then digitised in AutoCAD. The information was interpreted, labelled and printed out as required. The results are stored as electronic files (in AutoCAD 2000 dwg format), with paper copies being included in this report.

3 Location and setting

Harvey and Company's premises once occupied the core of the western part of Hayle, the part which today is still known as 'Foundry'. The former foundry site is bounded by Turnpike Road to the north, by Foundry Hill and Foundry Square on the south and east sides, and adjoins Foundry Lane to the west. The site itself included a forge and smithy, two machine shops, a new boring mill, erecting shop, fitting shop, hammer mills, pattern shops and stores, and the foundry itself with five cupolas and two air furnaces (Buck & Smith 1995).

The foundry site today is situated on a split level, with the upper part comprising the plantation store, cattle houses, yard/reservoir area and stable yard complex. The area of the former open yard, adjoining reservoir and small structure is defined on the east side by a tall retaining wall dividing this area from the lower part of the site, which contained the casting shops, pattern store, boring mill and erecting shops. The reservoir on the upper level probably served boiler houses situated in the lower part of the site.

Harveys also owned extensive areas of quays, wharves, shipyards and associated buildings to the north of Turnpike Road. These actually represented a much greater investment in purely monetary terms for the Harvey family and firm, and was probably always the mainstay of the business, even if the foundry was the flagship enterprise of this wide-ranging and highly diversified company (Hayle Action Plan 2000, 38).

Foundry Farm always played an ancillary but important role in the foundry complex, being the site where the firm's teams of horses and wagons were housed. Teams of cart horses and wagons were essential to deliver machinery and components to the mining industry and other customers within Cornwall and beyond. Foundry Farm is located on Foundry Lane, behind and upslope from the ironworking and machining shops. This site is physically separated from the principal workshops by the three-storey building known as the Foundry Barn (see Fig 1) which probably was used as a food store for the animals kept within Foundry Farm.

4 Summary of past archaeological recording

4.1 Hayle Town Survey, 1993-5

A short history of Hayle, Harvey's Foundry, the Cornish Copper Company and other industries was compiled by CAU, comprising a gazetteer of Listed Buildings, Scheduled Monuments and other historic structures and archaeological sites (with a one-line entry for each); hand-annotated maps showing the location and extent of the 190 items listed in the gazetteer; a brief assessment of the current state of the historic resource; and some general recommendations for its future conservation and management (Buck and Smith 1995).

4.2 LRP assessment of the western part of Harvey's Foundry site

An assessment of surviving historic structures was carried out within the Foundry site as part of a bid to the Land Reclamation Programme (LRP) for consolidation of these structures; inventory of sites tied to a location map generated using GIS mapping (Smith 1999).

4.3 Hayle Historical Assessment 2000

An assessment was carried out to give an overview on the potential for heritage-led regeneration within the town. The report concluded that '...despite the demolition of much of Copperhouse Foundry and key elements of Harvey's, as an historic industrial town and port, Hayle is still largely intact. Much of its harbour infrastructure survives, together with key industrial and public buildings, and a good range of workers' housing, villas and early shop fronts. There is also considerable potential for the survival of buried archaeological remains. What emerges from the Hayle Historical Assessment is a settlement of unique character and great historical significance, contained within a landscape of equal merit' (Cahill and CAU 2000).

4.4 Harvey's Foundry Action Plan

Gordon Lewis Associates produced an Action Plan for Cornwall Enterprise Company, (financial and technical agents for the Hayle Town Trust). The Plan identified the best way to achieve a long term sustainable re-use of the site which has regard for its historic character and importance (Gordon Lewis Associates, 2000). CAU provided the historical and archaeological input to the Action Plan with guidelines for recording, preservation, interpretation and adaptive re-use.

4.5 LRF emergency recording, April 2000

An arson attack on some of the foundry buildings prompted an emergency photographic survey in advance of removal of the burnt timbers. Work was carried out by HES.

4.6 LRF survey, December 2000

A measured survey of all surviving buildings within the foundry complex was undertaken, including the exteriors of the Foundry Farm buildings (Thomas & Sturgess 2001). Due to health and safety reasons, access to some buildings was not then possible. Within the Wagon House, the north-eastern part had been fire damaged some years earlier and sections of the walling were in danger of collapse. The interior of the building was largely infilled with collapsed roof structure and vegetation. Within the stables most of the ground floor was accessible (with the exception of the angle between the two wings of the building) and a measured plan was achieved. The first floor was not accessible so recording of internal elevations was not possible.

4.7 Test pits 2004

Six geotechnical test pits were excavated in advance of the refurbishment of the buildings within the stable yard. These were archaeologically monitored by HES.

5 Wagon house and associated tack room

SW 5572 3711

Listed Building Grade II

5.1 Extent of survey

In December 2000 part of the ground plan of this building, together with all its external elevations, were recorded by CAU using a total station. Details of external features were added to the elevations by using rectified photography. Although at this stage the building was more complete, much was then inaccessible and in a dangerous condition. It remained so until 2004 when limited demolition and internal clearance of debris was undertaken by contractors. This included removal of the remaining roof and the majority of the brick upper storey to the front elevation. The remainder of the structure, including the internal elevations and ground plan, was recorded by HES in November 2004.

5.2 Description

The Wagon House is mostly two storeys high, roughly rectangular in plan and aligned approximately NE-SW. It rises to three storeys where it is joined to the Boring Mill and Foundry Barn ranges. The original build of the structure is predominantly granite rubble masonry, with granite exterior quoins. When seen in its more complete state, it had a brick upper storey to the front (facing onto the Foundry Farm yard area), beneath a scantle slate roof. The western ground floor room of the building has separate access and is likely to have served as a tack room. The central part of the ground floor served as wagon storage (with wide doorways to the front, and wooden partitions separating the bays). At its eastern end, the ground floor of the building is likely to have served as stabling. The upper floor is likely to have mostly been loft space for storage of feedstuffs. At the western end, above the tack room, were once small rooms separated by wooden partitions, with at least one room provided with a fireplace. It may have served as a groom's quarters but was accessed by steps to a first floor doorway from the rear of the building.

The whole of the Wagon House was re-used during the 1950s and 60s as part of a small-scale farming complex. During this time the ground floor was mostly concreted over, blockwork partitions added and heavy cement-based mortar applied to the ground floor walls. These changes have largely disguised earlier divisions and features. At about the same time the upper floor was used partly as a workshop and store.

Removal of the internal debris in 2004 has allowed a more complete view of the development of the building. The earliest and most distinct internal features are a line of nine recesses in the rear wall. These have round brick-arched heads and are separated by brick piers, each recess measuring approximately 1.2m wide and up to 2.3m high. A fragment of a tenth arch is also visible, indicating that these features continued eastwards for a few more metres.

The wooden first floor of the Wagon House crosses the line of the recesses, suggesting that this floor is later, and that a change of function/re-use of an earlier building has occurred. Supporting evidence is provided by a fragmentary thin skin of brickwork added to the front of the recesses at ground floor level, which effectively blocked them off. The wooden floor appears to be contemporary with the front wall of the building, however. This suggests that either the entire front wall (containing the wide doorways of the wagon house) is later than

the rear wall or that the upper (brick-built) section of the front wall represents part of a rebuild.

The five recesses at the southern end of the wall have all been covered in plaster and lime-wash which is cracked and missing in places. The four easternmost recesses have been infilled with flush masonry, either brickwork or stonemasonry, indicating a change of use. Within a few of the recesses are small ventilators supported by iron lintels.

Towards the eastern end of the building, the wagon house abutted the Boring Mill. At ground floor level the walling is covered with later 20th century cement-based render. The level of the first floor can be seen from remnants of joist sockets. Situated on the first floor elevation of the north-west wall is a large area of brick indicating a wide infilled doorway. This has granite jambstones to its right hand jamb whilst the left hand jamb has been rebuilt with brickwork, representing a widening. Adjacent to this is an area of brick infill, similar in height to the blocked doorway, there is also an open window frame above this level with granite jambstones. An axle hole for a piece of lineshafting is visible at first floor level. This contains remains of the axle, which was supported in a bearing block mounted on a granite support. The hole for the axle has clearly been pierced through the original wall masonry, with bricks added to make good the alteration.

The second floor level can also be determined from joist sockets. The uppermost storey of the north-west wall contained two open windows/doorways both framed by granite quoinstones. Quoinstones also provide evidence of a third opening.

The ground floor level of the north-eastern wall is completely covered in cement-based render with the outlined shape of one abutting blockwork partition, and a lower wider ghosting of some other later feature that abutted this wall, perhaps a feed trough. A ventilator just below first floor level has been pierced through this elevation, clearly seen on the exterior of the building. At first floor level is a single central window with an external shallow brick arched head. On the internal wall face this has granite jambstones to its reveal and was surmounted by wooden lintels comprised of original masonry with one window framed by granite quoin stones. Unlike the other windows in this building there was also present an original brick arch, the original lintel having been replaced with modern wood. Also present on this level is a small iron pulley wheel affixed to the wall.

On the second floor is another central window framed by granite jambs; however, this feature had been infilled with modern bricks.

The south-west wall is covered in cement-based render but large underlying areas of original masonry were visible where the render has detached. On the south-east wall, where the wagon house adjoins the taller masonry of Foundry Barn the first and second floor levels can be seen as fragmentary lines of joist holes. On the ground floor are two openings which may have both originally been doorways, one being later partially infilled. At the first floor level are two splayed openings with granite jambstones, one of which has been subsequently infilled with masonry. Another fragment of lineshafting is visible, similar in many respects to that on the parallel wall and probably once connected to it. At second floor level are two openings, one of which is original to the wall, has granite jambstones and is aligned with the openings below; the other is a later alteration and has more roughly made jambs.

The western part of the Wagon House is on a different alignment, and appears to have been linked to the taller masonry by a linking structure. The western end contains two, apparently original, wide doorways with shallow brick arches. A third slightly wider opening was once spanned with a timber lintel, and probably represents an alteration. East of these is a series of doorways and windows at ground floor level. Remains of a timber first floor can be seen, above which is remains of a thinner upper wall of red brick.

A single celled space adjoins the southern end of the Wagon House range and its irregular plan suggests it may be an addition. The independently approached ground floor room is interpreted and hereafter described as a tack room, used to store the large quantities of harness that would have been required for the Foundry's draught horses. The building is constructed of rubble masonry, granite quoins and jambstones to the front elevation (but brick to the rear quoin), and some scoria block. This building is two storeys high and originally had a hipped roof along with the remainder of the Wagon House range. This roof was still intact when the exterior of the building was surveyed in 2000. At that time the upper floor was also visible, but unfortunately not accessible due to safety considerations. It comprised a pair of small rooms separated by wooden partitions, with another doorway leading to a loft above the main part of the Wagon House. The upper room facing the yard was heated by a small fireplace located on the dividing wall between the Wagon house and tack room, with a narrow brick chimney stack emerging close to the apex of the hipped roof (see Fig 12). Another small chimney stack was once sited further along the building's frontage (see front cover picture) but this had disappeared before the survey in 2000.

The ground floor entrance doorway to the tack room is situated on the south-eastern side of the building, facing the yard. An adjacent splayed window has internal vertical iron bars. A 'Belfast' type ceramic sink has been incorporated into the corner below the window. This together with cement render and concrete flooring represent later 20th century use of the building. The upper storey of the front elevation has one large splayed window with granite jambstones. Original supporting beams of the upper floor are still present, running from the south-east to north-west walls. Several large iron hooks are mounted on these beams, perhaps once used for supporting harness.

The upper floor elevation of the north-western wall also encompasses one window and a doorway; both have granite jambstones. Another small blocked fireplace was revealed in the southern wall, on the upper floor. Its chimney had been removed sometime earlier, as there was no trace of this on the exterior of the wall, and the place where it would have emerged was covered with scantle roofing. This fireplace had presumably been replaced by the example noted in 2000.

5.3 Interpretation

This building range is first shown on plans from 1835, but the footprint of the structure was very different at that date, with outlines of further structures on the south-eastern side. By 1853 the stables were denoted as a distinct independent rectangular building, and became linked by the angled range to the Boring Mill and Foundry Barn by 1864. the footprint of the present layout is first shown by the OS in 1877, where the angled outline of the tack room is apparent, together with its exterior steps to the rear door.

The wide archways and wooden double doors (as indicated by surviving door hooks and hinges) suggest its use as a wagon house as well as a stable, with an accessible loft above.

The irregular plan of the tack room (and different construction to the front elevation compared with the remainder of the range) suggests it may be an addition to the original plan of the wagon house. The upper floor, with its fireplaces suggests use as a grooms/stablehands quarters.

Generous use of cement-based render to the ground floor interior walls, the addition of the ceramic sink within the tack room as a feed trough, concrete flooring and outlines of stall partitions are indicative of re-use as part of a farm in the 1960s. Part of the wagon house also saw use as a workshop, as indicated by materials visible in 2000 and an infilled vehicle inspection pit within one of the arched door openings.

6 Stables

SW 5576 3702 PRN 138988

6.1 Extent of survey

The front and side elevations of this stable were recorded in 2000. Rear elevations are within neighbouring property and therefore not accessible. An outline interior ground plan was also achieved during this survey. In the 2004 survey the ground floor plan of the interior have been recorded, together with complete interior elevations (see Figs 10, 18 and 19).

6.2 Description

This building is two storey and is right-angled in plan, having wings oriented to the north-east and north-west. The building faces onto the southern part of the foundry farm area, and there is a substantial area of granite cobbles to the front. The present survey has revealed that the north-west oriented wing is earlier, and is of different construction to the addition. These are described in more detail below.

6.2.1 North-west wing

This part is built of rubble and dressed granite masonry at ground floor level, the upper storey has masonry ends but cob is used throughout both of the long walls. Its roofline was originally hipped at both ends; the north-western hip having a scantle slate covering. The remainder of the roof covering has been replaced in the 20th century with corrugated iron sheeting. Roof timbers comprise simple tie-beam trusses ('A' frames) which divide the roof into 11 bays.

The ground floor elevation facing the yard is constructed of dressed granite masonry with detailing to the openings. All doorways and windows along this elevation have wide reveals to allow more light to be admitted into the building. If these openings are viewed from the inside it is noticeable that on the left hand jamb of each one is a small slot or recess within the side of the frame. These were probably for fitting shutters or ventilators as they run one third of the way down the frame. Both of the windows in the ground floor have been converted from doorways, their openings now partially infilled with blockwork. Originally this elevation had five doorways into stalls for horses. A modern wide opening has now been formed with a steel girder supporting the cob above, which resulted in the removal of a pier of granite masonry between two original door openings.

Internally the original finish of the walls comprises limewashed rubble masonry, which has been overlain by cement-based render along the lower sections of the walls and a thick concrete floor, representing the foundry's re-use as a farm in the 1960s. Situated within the upper right-hand corner of the western wall, cut into the original masonry, are two brick-lined openings leading out to the level of the lane outside. One has a water supply pipe running through it. These openings appear to be modern in construction and may have served as shafts allowing animal feed to be passed though directly from street level. The original stall divisions are no longer visible. Some limewashed original floor joists are present, most running across the width but jointed principal beams also run the length of the entire building, although there have been alterations and modern timbers have been used in part.

On the upper floor facing the yard are three openings, all cut through the cob walling. The westernmost opening contains a 20th century casement window. As the building is set below the road at its western end, the upper storey has a pair of wooden doorways which are directly entered from Foundry Lane. Both doorways have granite jambstones and therefore appear to be original to the structure. The purpose of two doorways set so closely together is uncertain,

but hints at a longitudinal division within the upper floor, with a doorway into each section. The rear wall is relatively featureless, aside from a blocked window at the eastern end. This has been infilled in two stages, the first blocking being of stone masonry with a brick framed ventilator set into one corner. The ventilator was subsequently infilled with brickwork.

6.2.2 North-east wing

The north-eastern wing of the stable building has a more varied type of construction. The wall facing the yard is of cob but faced entirely with red brick and covered with limewash. The gable at the east end is built of granite rubble masonry and includes some scoria blocks in its quoins. Doorways with brick jambs have been added at both ground floor and first floor levels. Corrugated iron sheeting has been added to provide weatherproofing to the upper floor and gable.

The lower section of the rear wall is of stone masonry, with the upper storey of cob. This upper part has failed in more recent years and has been partially rebuilt with blockwork. Removal of interior cement render revealed that the rear wall contains three blocked windows interspersed with two doorways. These former openings have granite jambs and are part of the original design of this part of the stable block. The fact that this 'rear' wall has original openings and the wall facing the yard has been reconstructed (and has doorways made through cob) indicates that this wing of the stables has been reversed.

In the interior all the extant stall partitions are of concrete block and date to the later 20th century. The four doorways to the yard are splayed; one has recently been reduced in size with the use of modern brick and concrete block.

The timbers supporting the first floor and roof are predominantly original, with crude chamfers on the floor joists. Roof trusses are simple tie-beams, but are of heavier construction than those of the north-west wing. These divide the space into eight bays. When built, this newer roof was added to the southernmost hip of the north-west wing, to give the appearance of a continuous construction. First floor window openings facing the yard (within the brick skinned cob wall) are well constructed, with brick jambs and neatly cut slate sills.

6.3 Interpretation

A former stable block, used for housing the numerous draught horses that would have been required by the foundry. The upper elevation was probably used as a loft for the storage of feed and may have also served as sleeping quarters for the stable hands. The features of this building (i.e. the internal stall partitions and openings) underwent significant alterations when it was re-used as housing for livestock in the 1960s.

This stable complex is first depicted on a map in 1828 and is named as a stable block on plans dating to 1853 and 1864. When first shown, the building is depicted with its present angled footprint. Archaeological examination has shown that this is a multi-phase building, with the north-west wing constructed first, as shown by its different construction. When built, the north-east wing faced outward from the farmyard, and its original doorways probably linked to additional structures shown here on early foundry plans. It seems likely that this part of the stable originally served Foundry House, one of the Harvey family residences, which adjoined this side of the foundry complex between 1835 and 1877. Sometime later the north-east wing was reversed, with new doorways made into the yard, and all of this facade was then refaced with brickwork.

7 Fire engine house

SW 5577 3704 PRN 138989

7.1 Extent of survey

Outline elevations and the plan of the fire engine house were recorded in 2000. Removal of vegetation and debris allowed all internal elevations and features to be recorded in 2004.

7.2 Description

A rectangular single storey building measuring (externally) 6.36m long, 3.26m wide and approximately 2.4m high to eaves level (see Figs 15 and 16). The building is predominantly constructed of rubble masonry with some scoria blocks incorporated. Granite jambstones are used at the entrance. In 2000 parts of a wooden door frame were extant and in 2004 supports for the frame (iron brackets and sockets) were still remaining.

Limewash is still visible on some of the internal masonry. The north-eastern wall has a small splayed window below the roof line containing its wooden frame. The roof, although much decayed and not surveyed, is supported on simple tie beam trusses and covered with scantle slate. A field visit in April 2005, after removal of further vegetation and partial reconstruction of the roof, indicated that a horizontal line visible in the masonry at the height of the window lintel suggests that the building had been raised in height, probably when the window was also inserted (see Fig 27).

To the rear of the fire engine house are the remains of another structure. Viewed from the external (south-west) side, its main wall is tied into the adjacent property boundary. The structure has a quoin of scoria blocks and the fire engine house wall clearly abuts this quoin. A return wall of this structure forms the rear wall of the fire engine house. A series of blocked wide doorways is visible in the property boundary. This would suggest that these remains are part of another stable with its doorways facing out from the stable yard.

Some evidence survives to indicate that this stable was of two storeys. The surviving walling is of different construction in its uppermost courses, and includes a brick pier. A granite kerbed ramp running up the north-eastern side of the fire engine house probably once led to a loft above the stable.

In later years the stables seem to have been re-organised and partially demolished. This part of the foundry yard became small workshops. In the later 20th century the fragment of the stable behind the fire engine house was enclosed with a concrete block wall with two doors. The space inside was probably a small pair of animal pens.

7.3 Interpretation

The building is first depicted and is labelled as a fire engine shed on a plan of the foundry dated 1853. In a foundry the size and scale of Harveys it would have been a necessary precaution to have a horse-drawn pump available in the event of a fire.

Another stable block, to the rear of the fire engine house was recorded on this side of the yard in 1864. It appears likely, given that this stable was immediately to the rear of Foundry House (shown as Mr John West's house in 1864), that these were private stables of one of the foundry's owners rather than those of the foundry itself.

8 Discussion

The surveyed buildings within the stable yard were mapped in 1840 and many probably existed several decades earlier. All these buildings have demonstrated considerable alterations which reflect changing uses during the foundry's existence through the 19th century. The Wagon House had a first floor added to what was previously a loftier but single storey interior. Mid 19th century plans refer to this building as stables and the line of brick arched

recesses in the rear wall are probably related to animal stalls. As the pair of wagon house doorways and floor do not relate to the recesses this appears to represent conversion of at least part of this building to housing for wagons. It seems likely that the part joining the Wagon House to the Boring Mill and Foundry Barn remained as stabling, though the extensive late 20th century render on the ground floor has masked evidence. The tack room has an irregular plan and is of different construction so it is likely to represent an extension to the Wagon House range..

A similar level of complexity was shown in the L shaped stable block. The north-west wing of this building is evidently earlier, with the north-east wing added later as an extension. Removal of render in the ground floor of the north-east wing revealed that this part originally had doorways which faced away from the stable yard and towards Foundry House. This wing had evidently later been reversed, with the original rear cob wall pierced with new openings and faced with brickwork.

The use of cob walling for the loft above the original part of the Stable hints at an earlier and more rural building tradition. Cob walling was also used for the extended stable (north-east wing). It is also possible that the brick-built frontage of the Wagon House represents a mid 19th century rebuild of what was previously a cob upper storey.

Although a very small building the fire engine house has also seen alteration, with the addition of a small window as well as heightening of its side walls and roofline. The fire engine house was found to have been added to the rear of another stable block, the latter also originally facing away from the stable yard and towards Foundry House. A ramp added to the side of the fire engine house appears to have provided access to a loft above the stables.

The stable blocks on the south-east side of the foundry yard were recorded as such in 1864, although the buildings themselves were in existence from at least 1835. The fact that two ranges of stables (one on each side of an entrance lane from Foundry Hill) face outwards is potentially extremely significant. They may have originally been private stables for the occupier of Foundry House, one of the partners in the foundry business. There are, however, a large number of stables to serve a private house. It is therefore possible that the stables were originally associated with a precursor to Foundry House. Here the 1809 OS map (Fig 2) is significant, as it shows the original 'Iron Foundry' fronting onto Foundry Hill, which at that time was on the main road between Connor Downs/Angarrack and St Erth. This would be a likely place for a small foundry which had origins as a blacksmith's business, facing the road rather than the nearby creek. If this hypothesis is correct then the casting shops once sited closer to the railway line were an early 19th century (post-1809) development rather than the true origin of the works. It does not diminish the importance of the the later development however, as this would have represented a shift towards control and use of the creek to become part of a harbour.

Expansion of the foundry after 1877 forced the demolition of Foundry House and this in turn probably led to the re-incorporation of the formerly outward-facing stables into the foundry stable yard.

9 Recommendations

Much of the history of the foundry was examined by Vale (1966). Results of the present study hint that the story of the the foundry, particularly its origins and early development, may be more complex than as previously understood. It is therefore suggested that a thorough re-appraisal of the documentary and cartographic record of the foundry is undertaken, to elucidate some of these details. This should help to inform further archaeological work and

standing building analysis as other structures within the Harvey's Foundry complex are re-developed as part of the regeneration proposals.

10 References

10.1 Primary sources

CRO 1835 plan H 166/33

CRO 1853 plan H 166/22/2

RIC 1864 plan of Harveys Foundry

Ordnance Survey, 1877. *25 Inch Map* First Edition (microfiche copy at HES)

Ordnance Survey, 1907. *25 Inch Map* Second Edition (licensed digital copy at HES)

Ordnance Survey, c1930. *25 Inch Map* Revised Edition (licensed digital copy at HES)

Ordnance Survey, 2003. *LandLine Digital Mapping at 1:2500*

Tithe Map and Apportionment, c1840. *Parish of St Erth* (microfiche copy at HES)

10.2 Publications

Buck, C and Smith, J, 1995. *Foundry Square Hayle, An Archaeological and Historical Evaluation* CAU Report

Cahill, N and CAU, 2000. *Hayle Historical Assessment* CAU Report.

Gordon Lewis Associates, 2000. *Harvey's Foundry Action Plan* Cardiff.

Smith, J, 1999. *Harvey's Foundry Hayle: An Archaeological Assessment* CAU Report

Sturgess, J and Thomas, N, 2001. *Harvey's Foundry Hayle: Historic Buildings Survey and Archaeological Evaluation* CAU Report

Vale, HED, 1966. *The Harveys of Hayle* Bradford Barton, Truro

10.3 Websites

<http://www.imagesofengland.org.uk/> English Heritage's online database of Listed Buildings

11 Project archive

The HES project number is **2004078**

The project's documentary, photographic and drawn archive is housed at the offices of the Historic Environment Service, Cornwall County Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Field plans and copies of historic maps stored in an A2-size plastic envelope (GRE499).
3. Electronic drawings stored in the directory ..\CAD ARCHIVE\SITES H\HAYLE FOUNDRY PHASE II 2004078
4. Black and white photographs archived under the index numbers GBP1708 and GBP1709.

5. Digital photographs stored in the directory G:\CAU\IMAGES\SITES.E-H\HARVEYS
FOUNDRY, HAYLE\STABLE YARD 2004078
6. This report held in digital form as: G:\CAU\HE PROJECTS\SITES\SITES H\HARVEYS
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V2.DOC

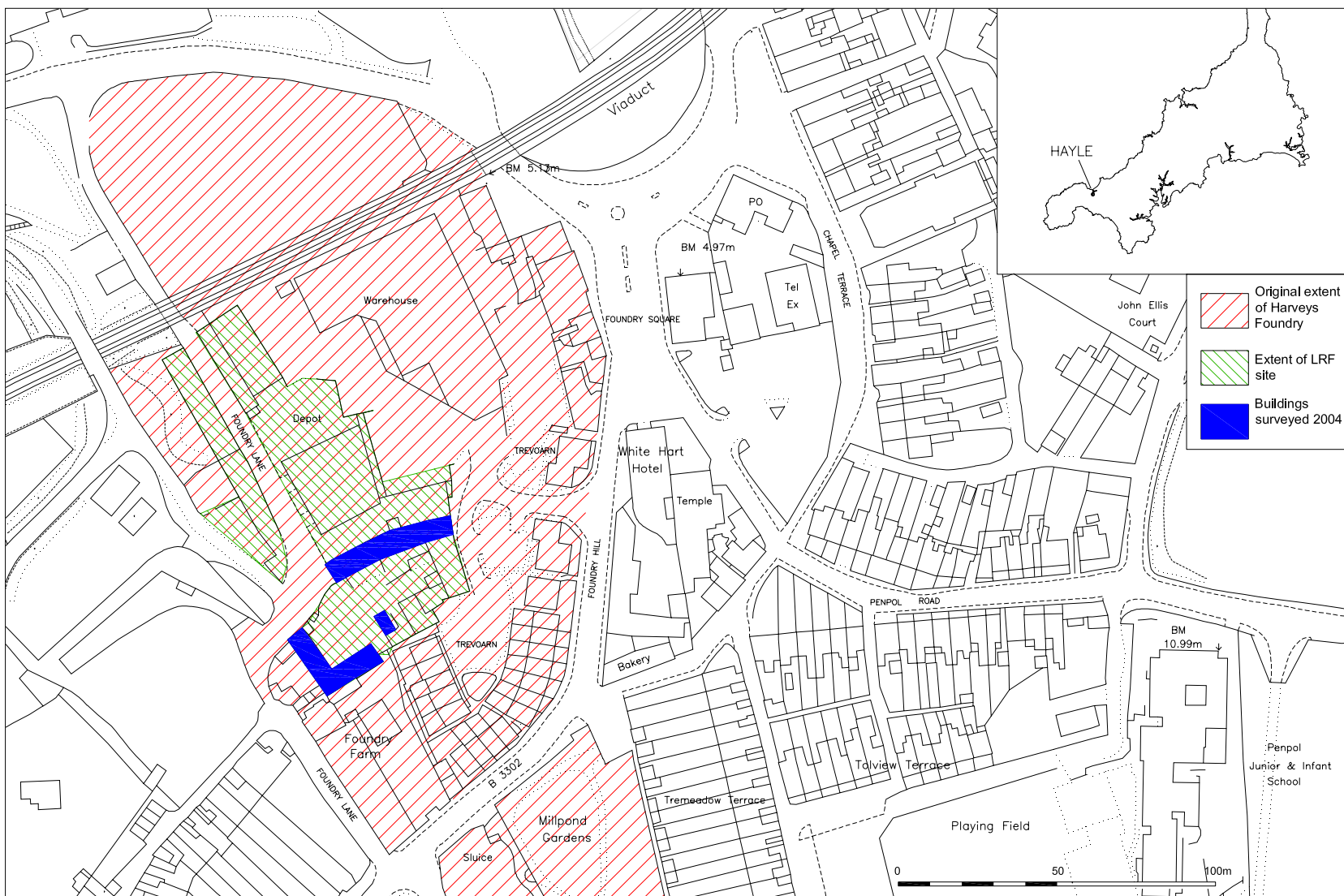


Fig 1 Location map

Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office.

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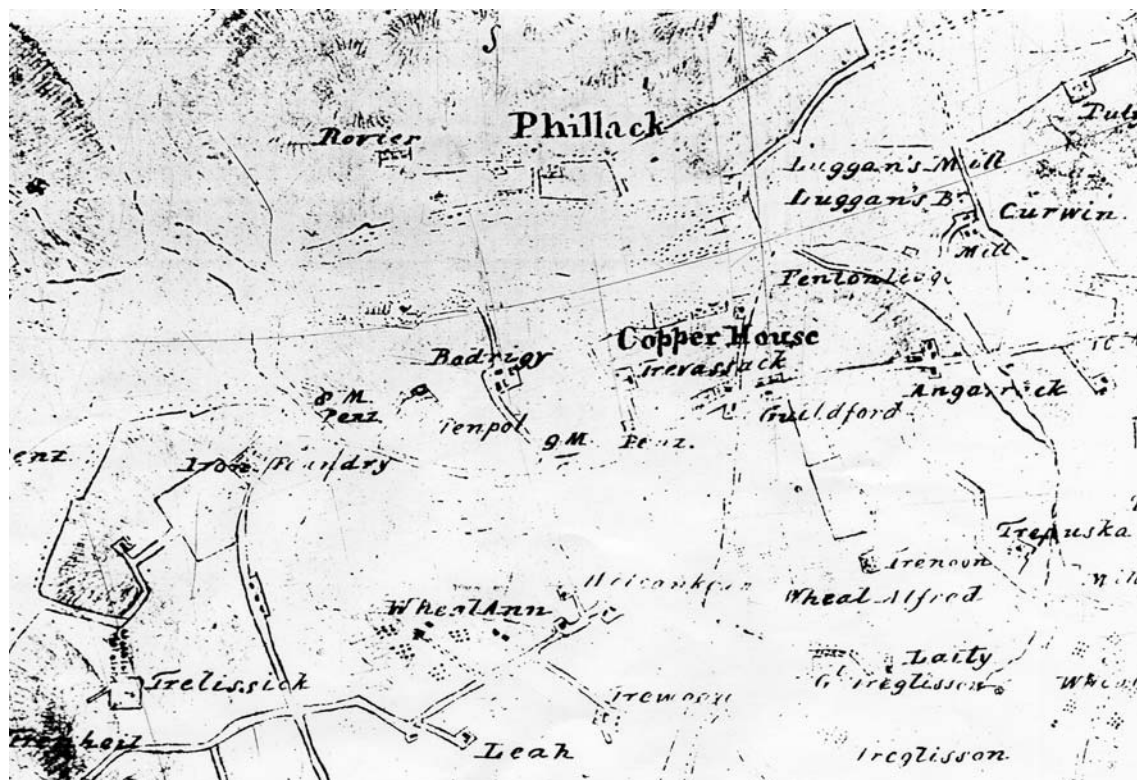


Fig 2 Extract from the 1809 OS Surveyors' drawing

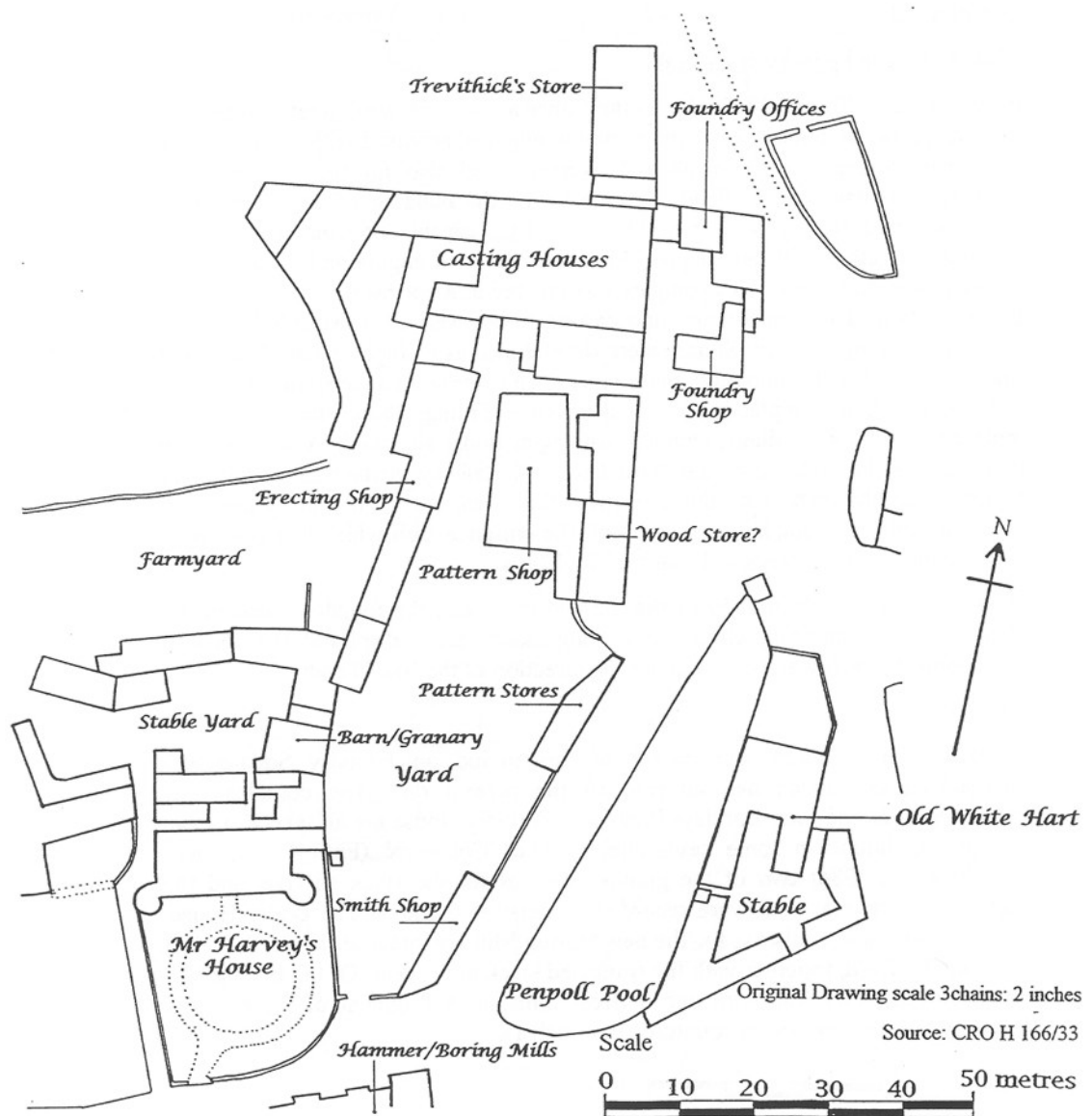


Fig 3 Copy of foundry plan 1835

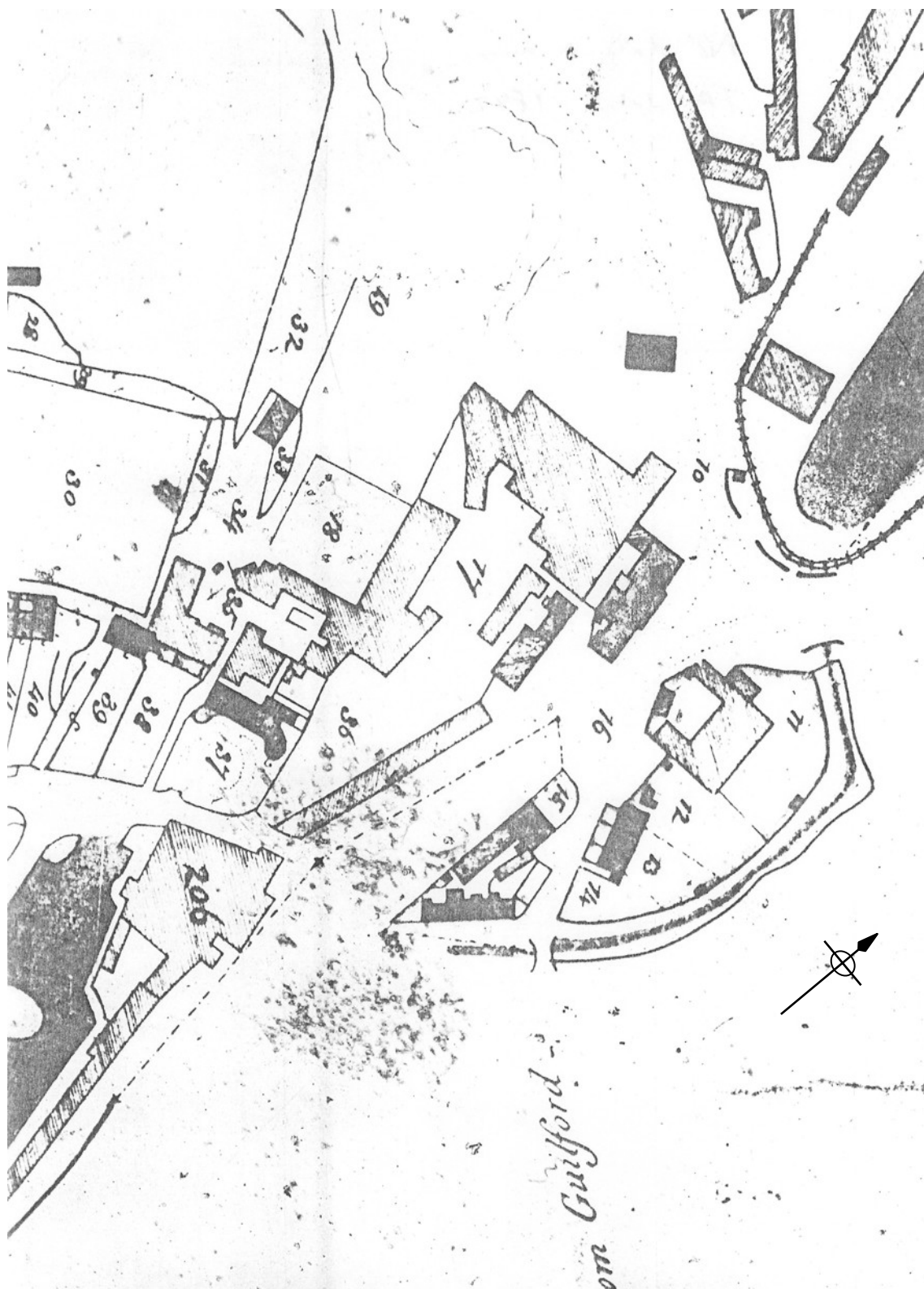


Fig 4 Tithe Map of St Erth parish, 1840

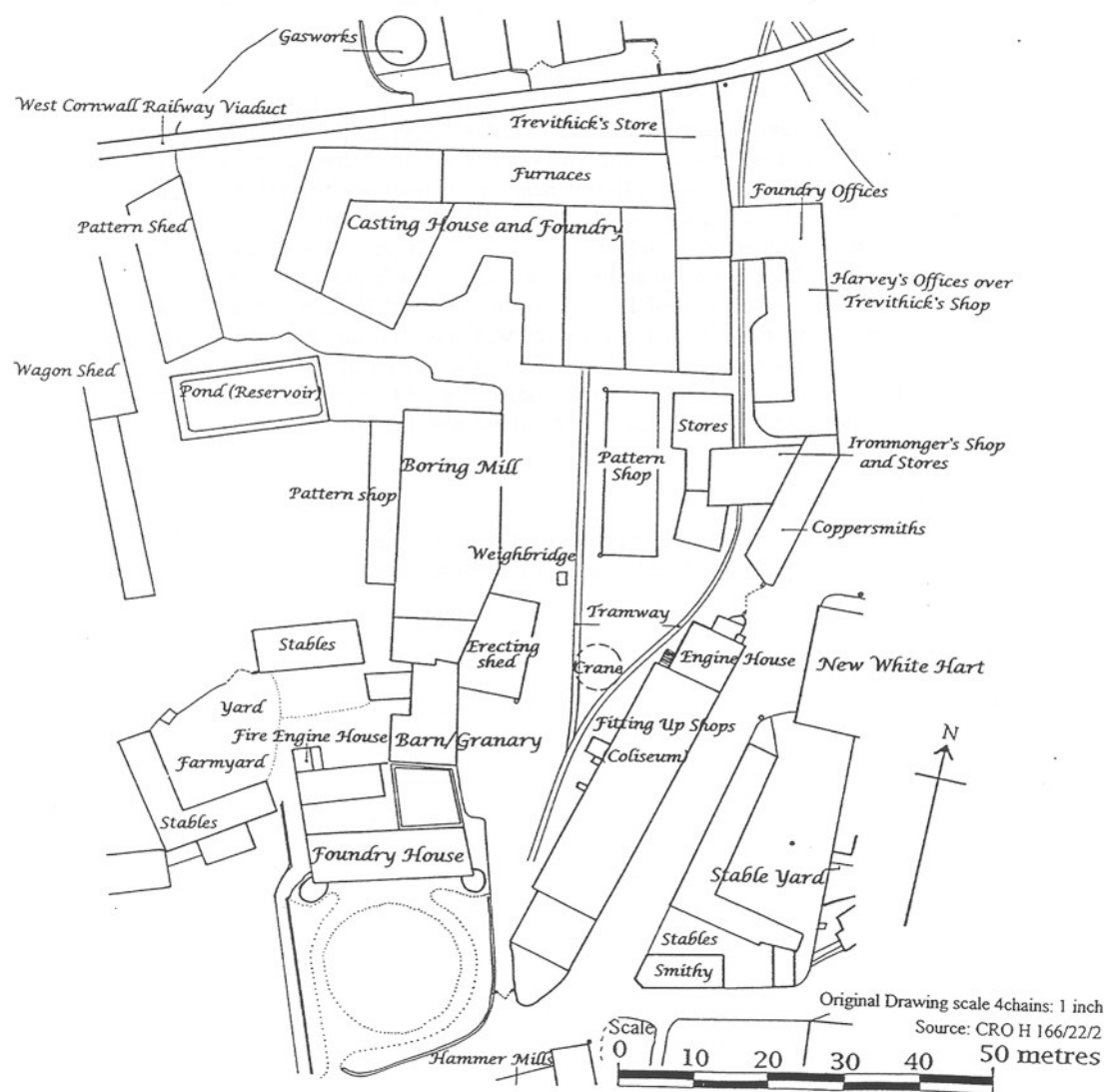


Fig 5 Copy of 1853 foundry plan

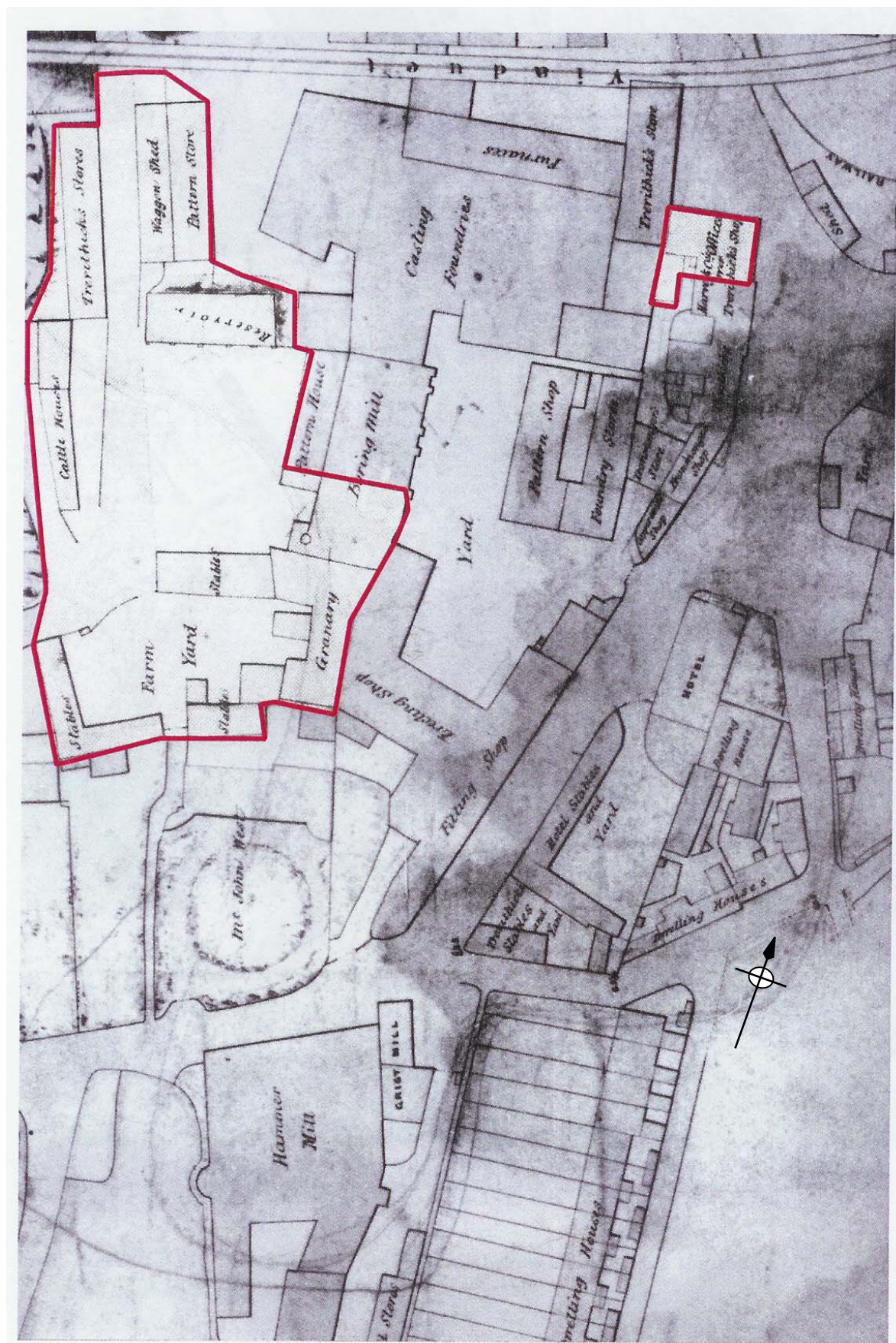


Fig 6 1864 Foundry plan (LRF area highlighted)

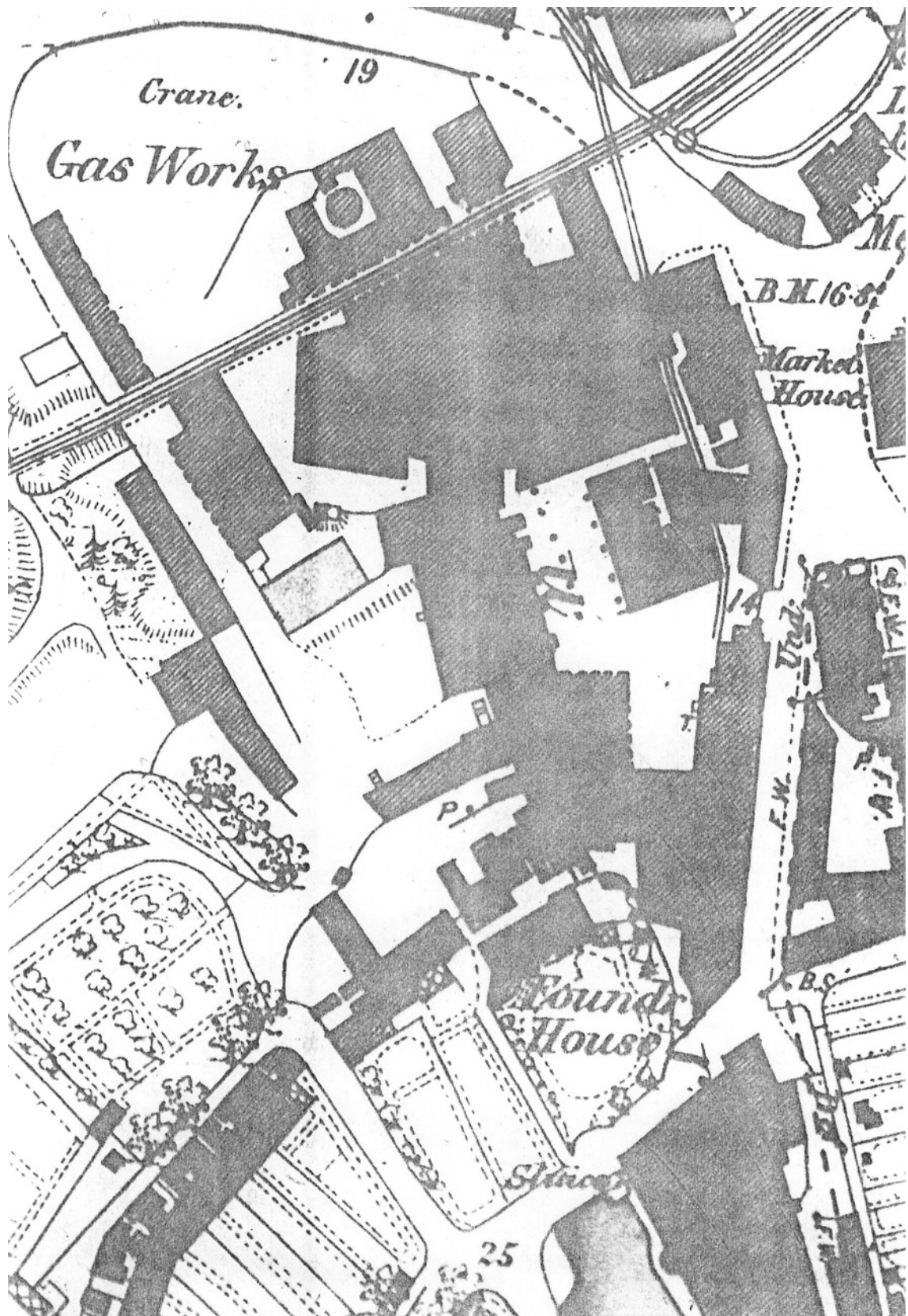


Fig 7 Extract from OS 25 Inch First Edition Map (1877)

This map clearly shows the angled western end of the Wagon House (the tack room) with steps to the upper floor at the rear

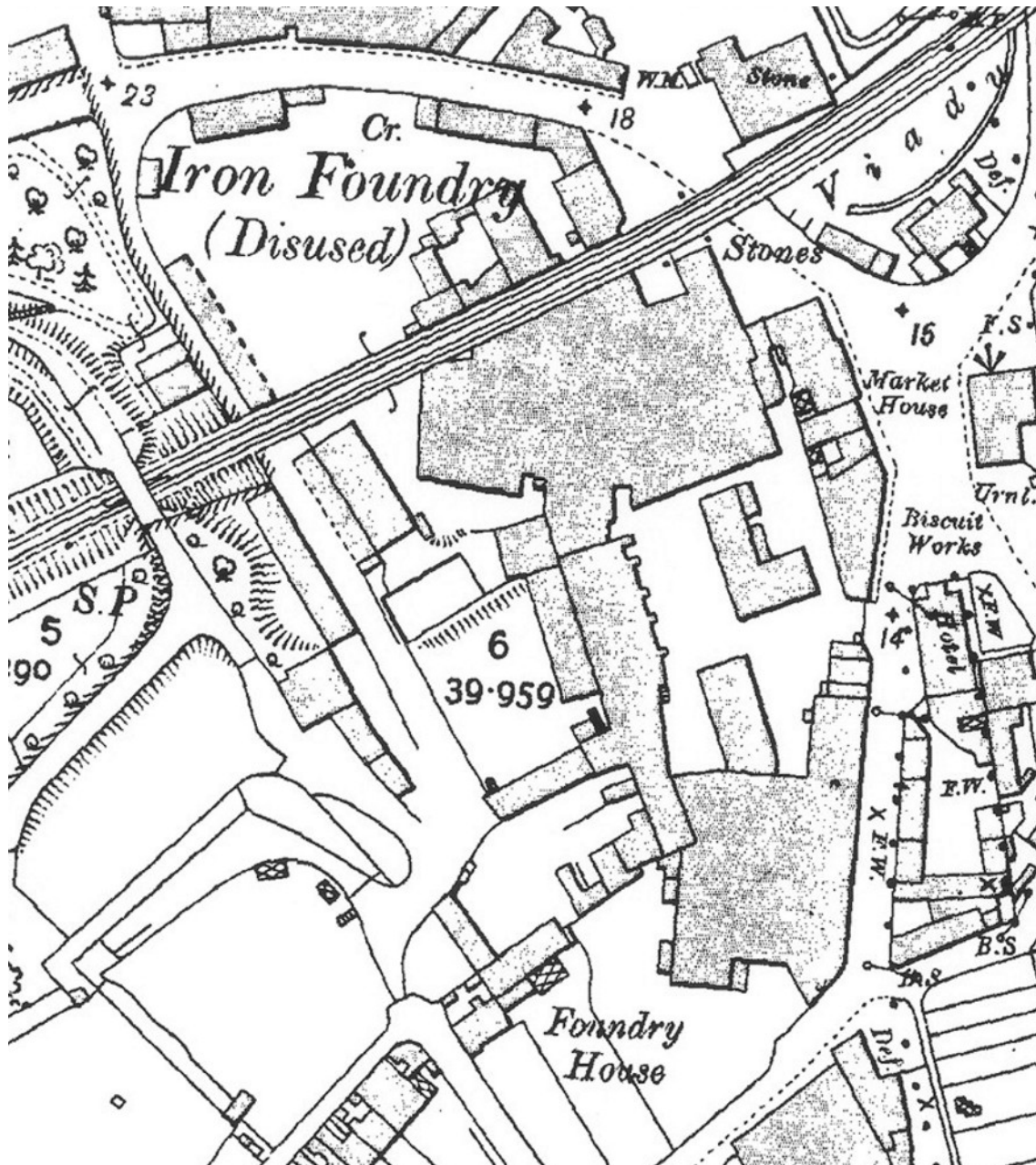


Fig 8 Extract from OS 25 Inch Second Edition Map (1907)

This map depicts the foundry at its maximum extent (but it had closed four years previously). The workshops had been extended south into the space formerly occupied by Foundry House. It appears that the stable yard had been re-organised with the stables once facing Foundry House now integrated into the foundry yard itself.

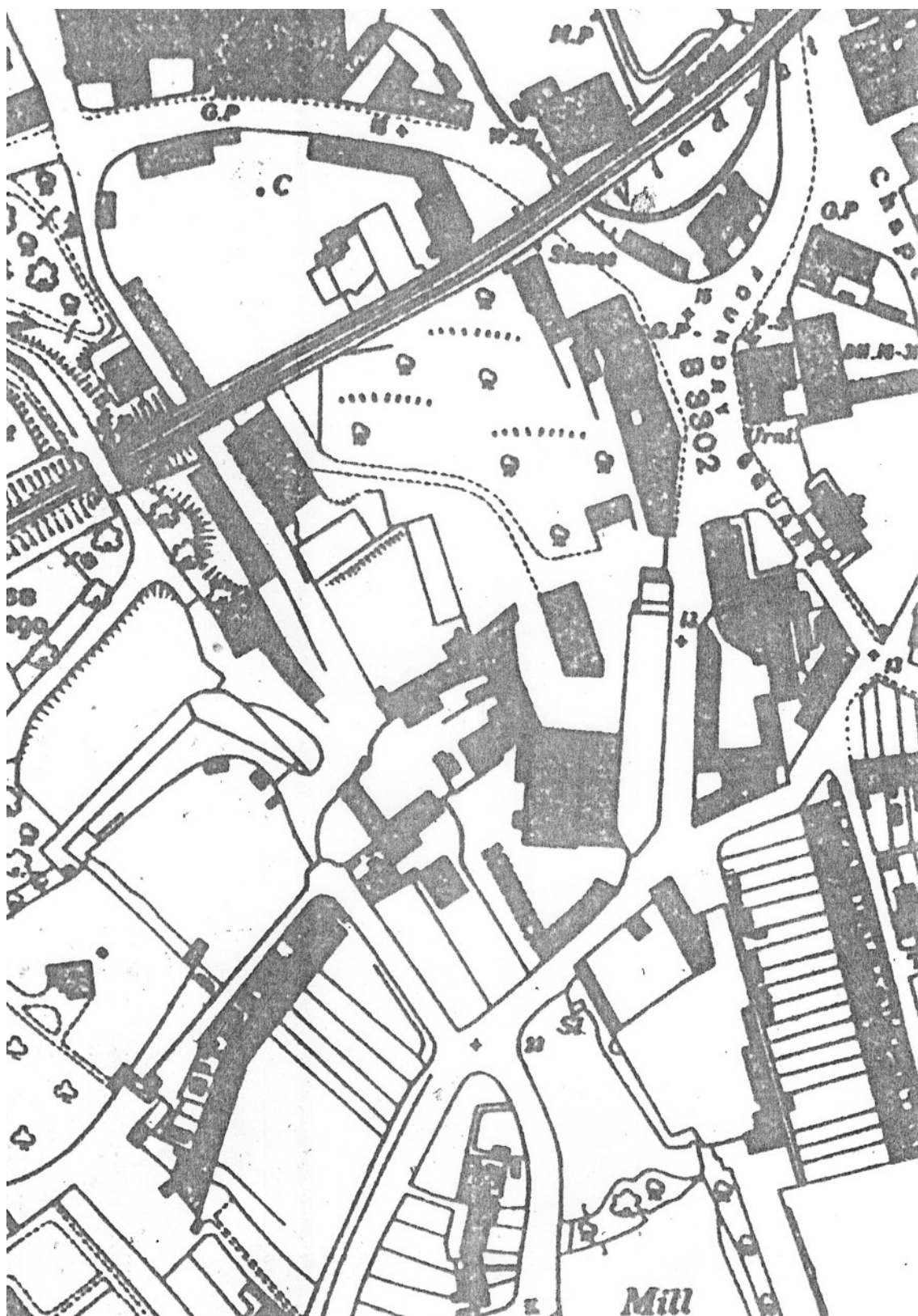


Fig 9 OS 25 Inch Map revision , 1930s

In the earlier 20th century the casting shops and the northern part of the Boring Mill were already demolished and the 'Coliseum' (Fitting Shop) was unroofed. The stable to the rear of the Fire Engine House was no longer in existence.

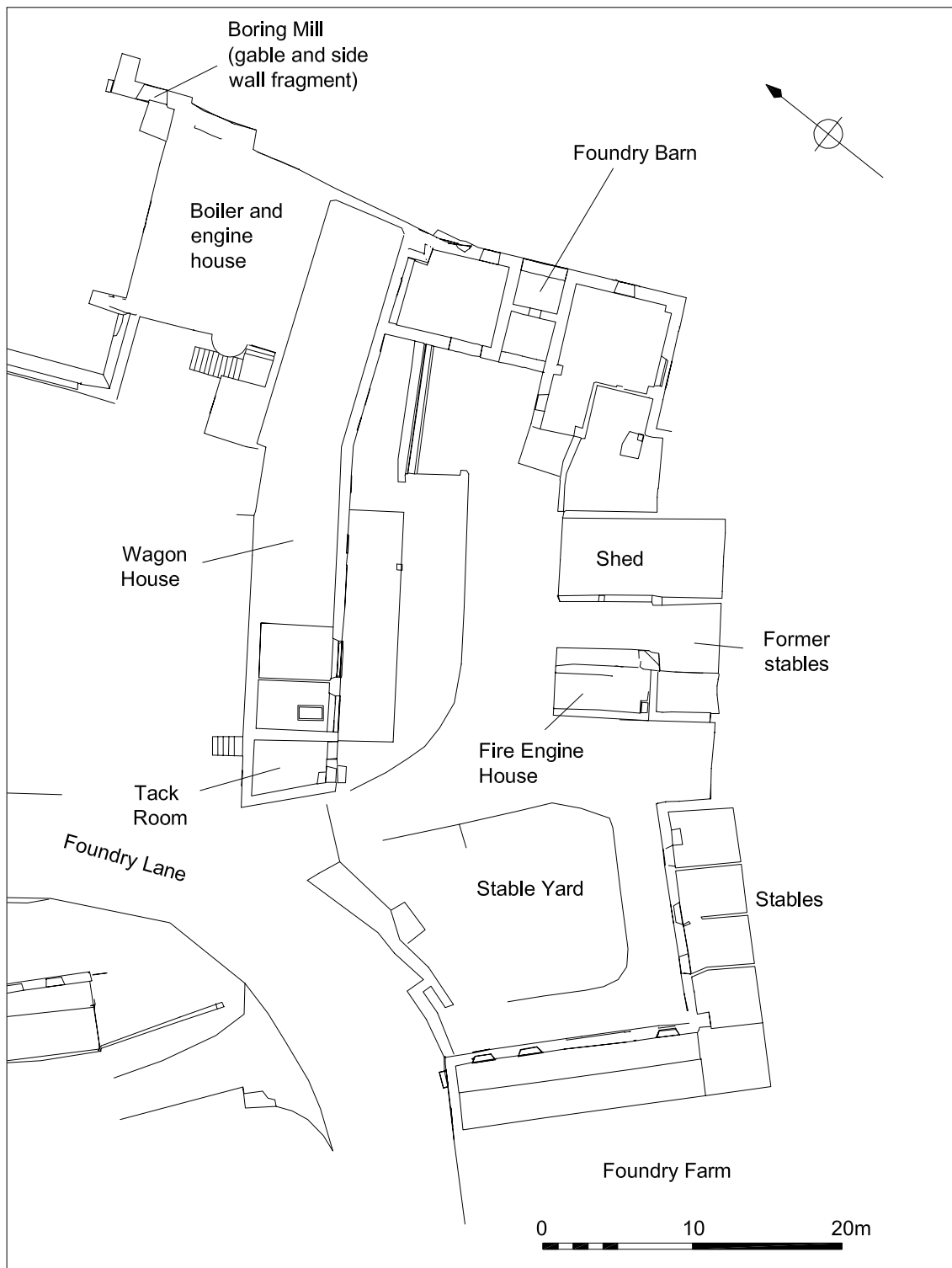


Fig 10 Site plan of the stable yard and adjoining buildings

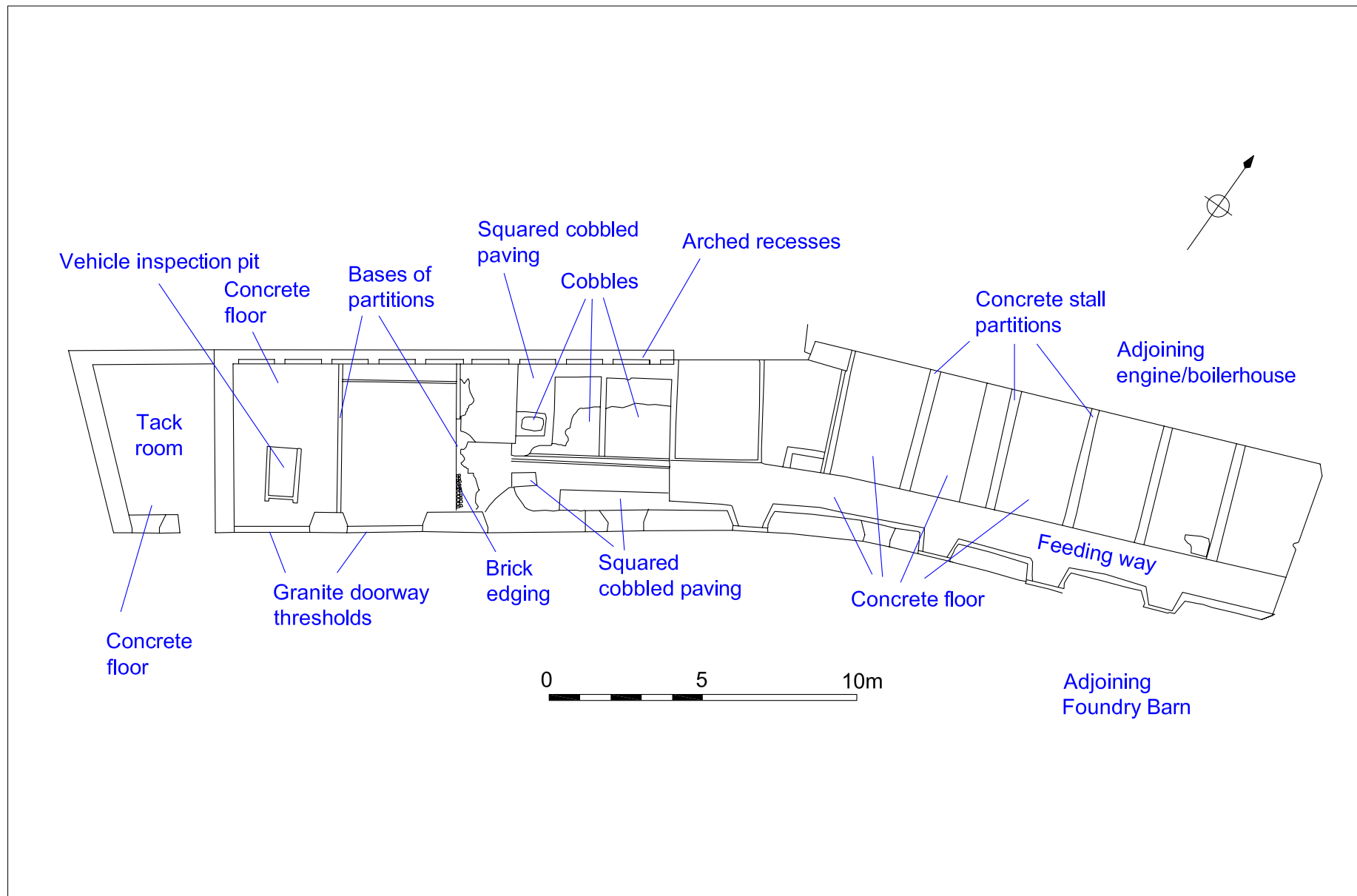


Fig 11 Ground floor plan of the Wagon House

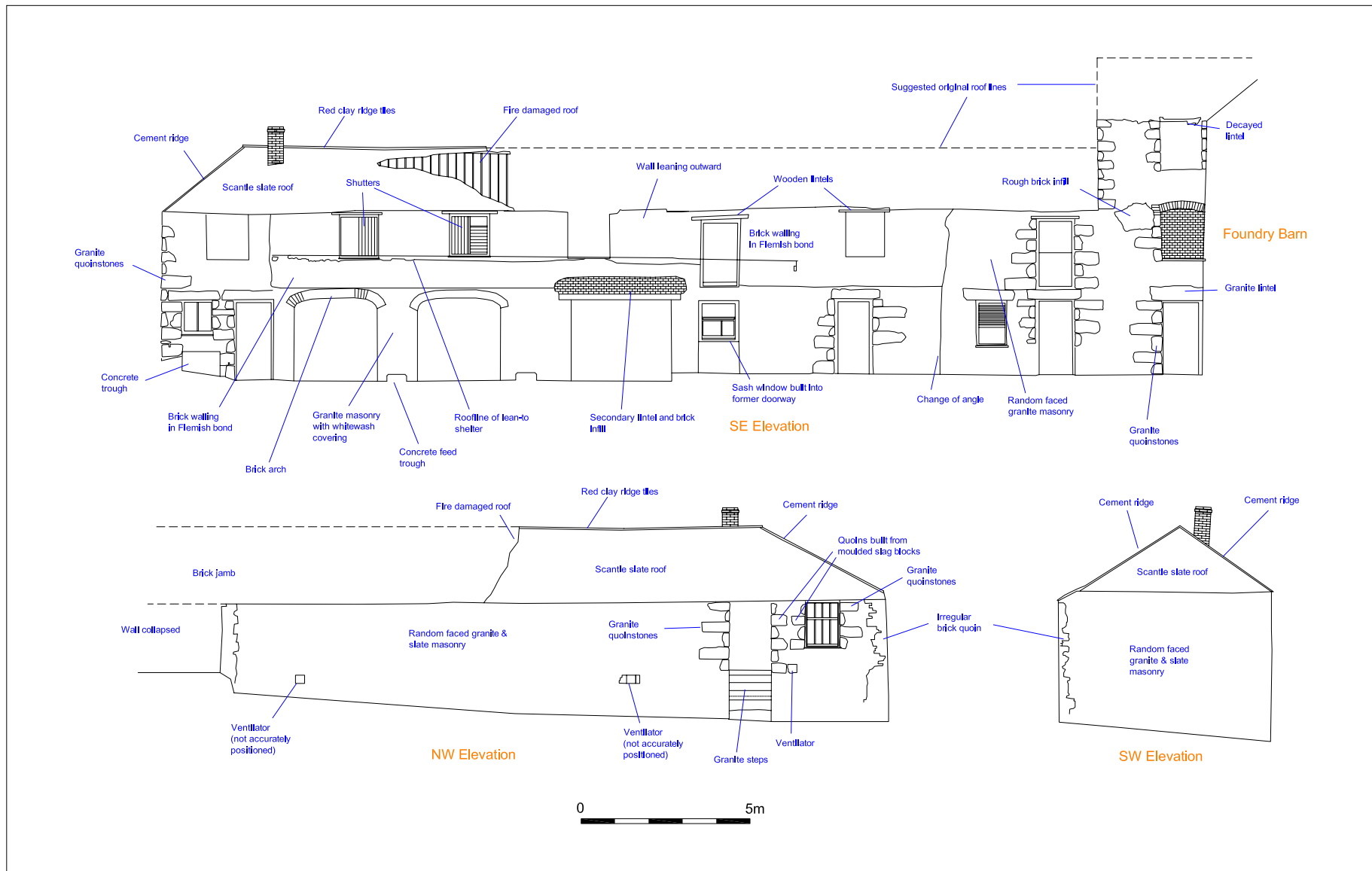


Fig 12 Stables / wagon house external elevations (surveyed 2000)

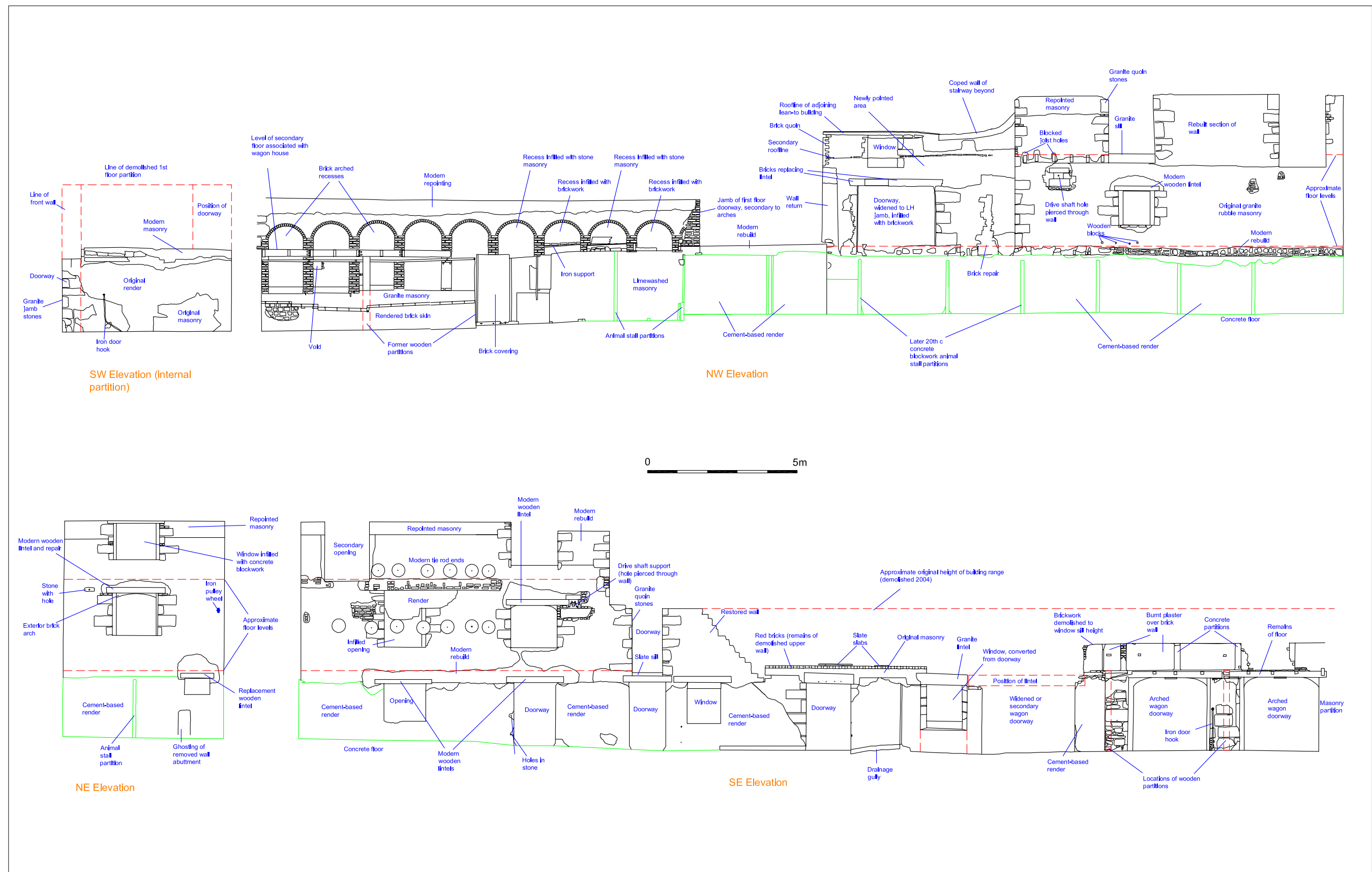


Fig 13 Internal elevations of the Wagon House

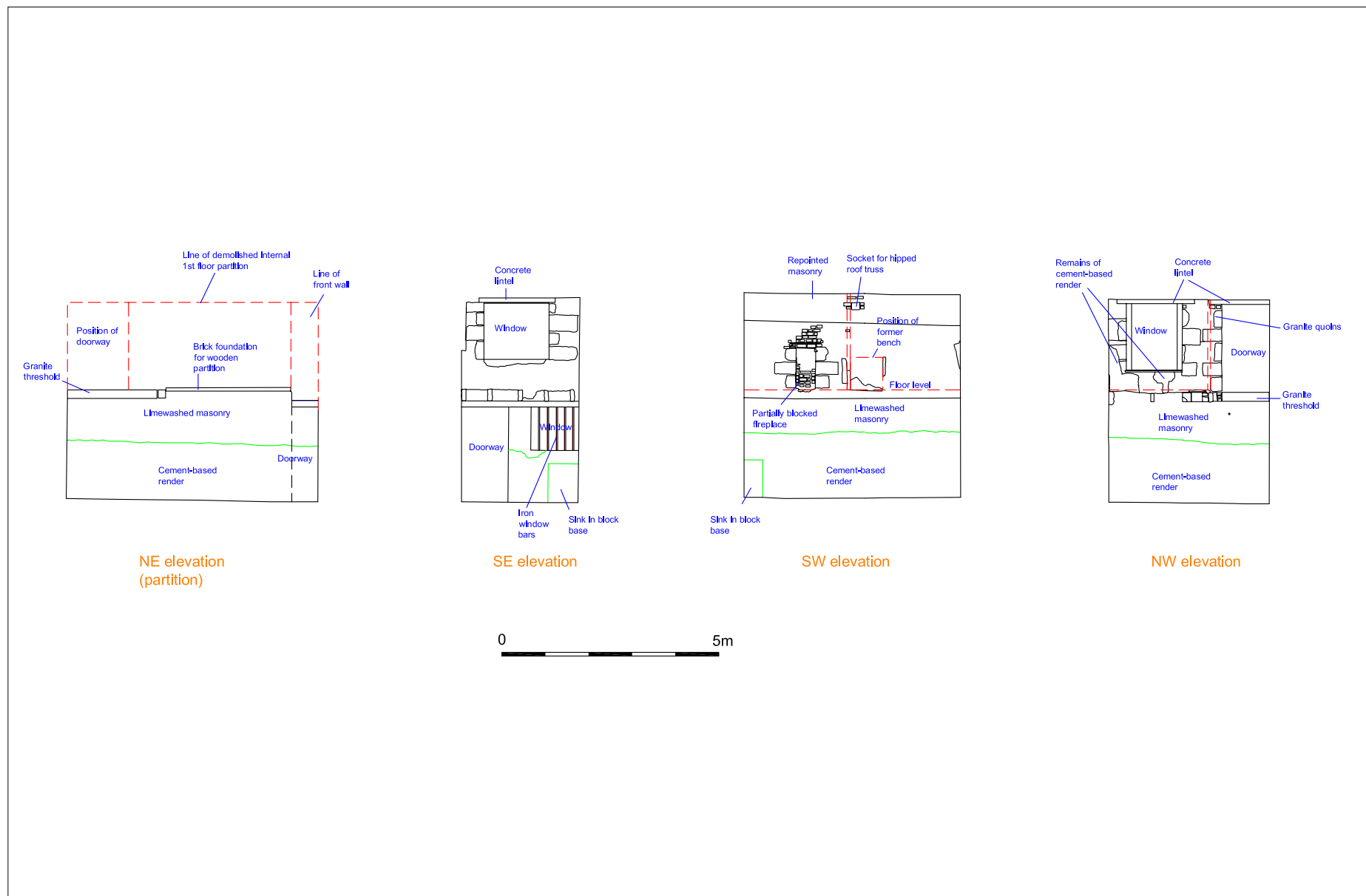


Fig 14 Internal elevations of the tack room

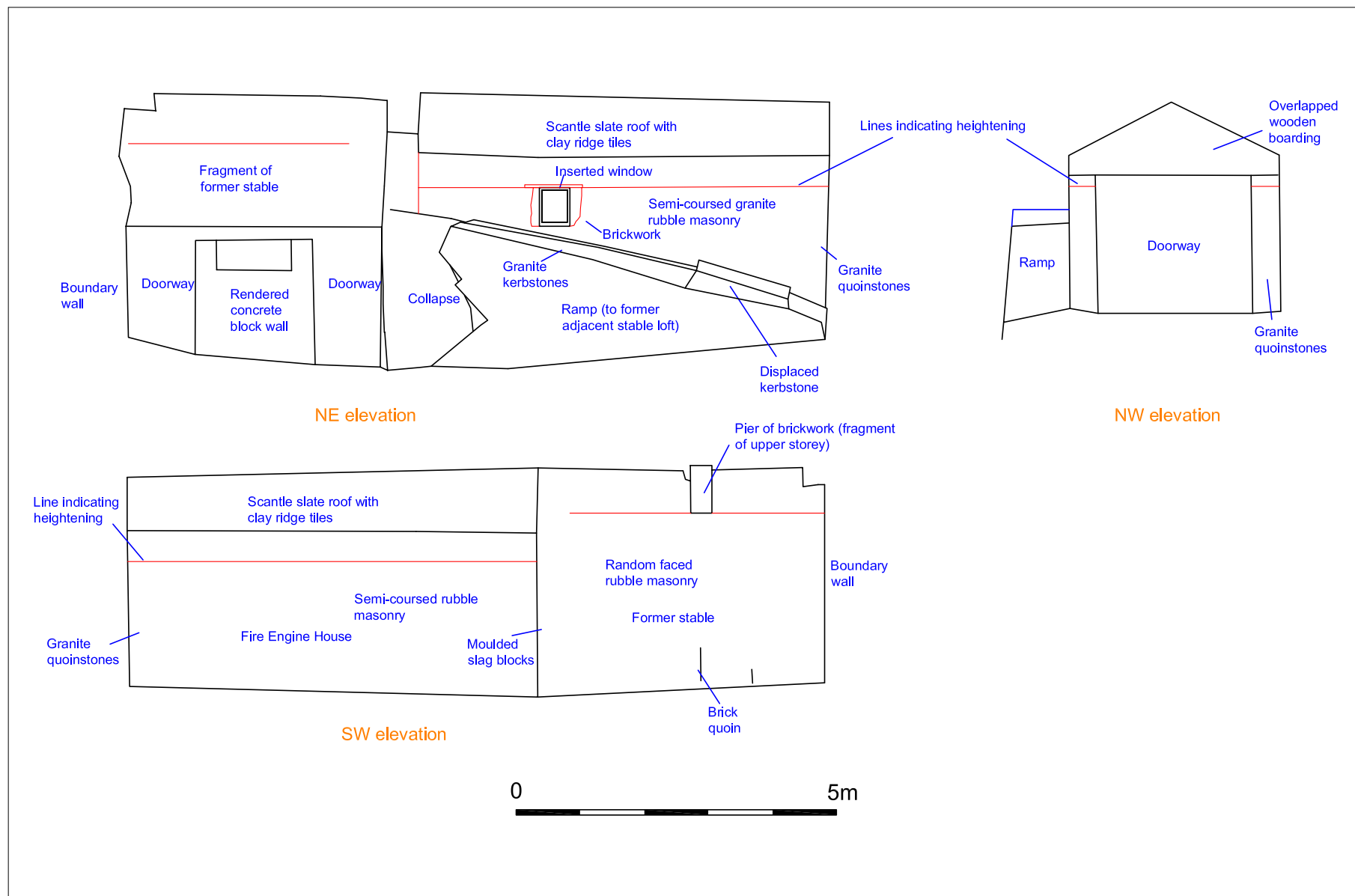


Fig 15 Outline external elevations of the Fire Engine House (surveyed 2000)

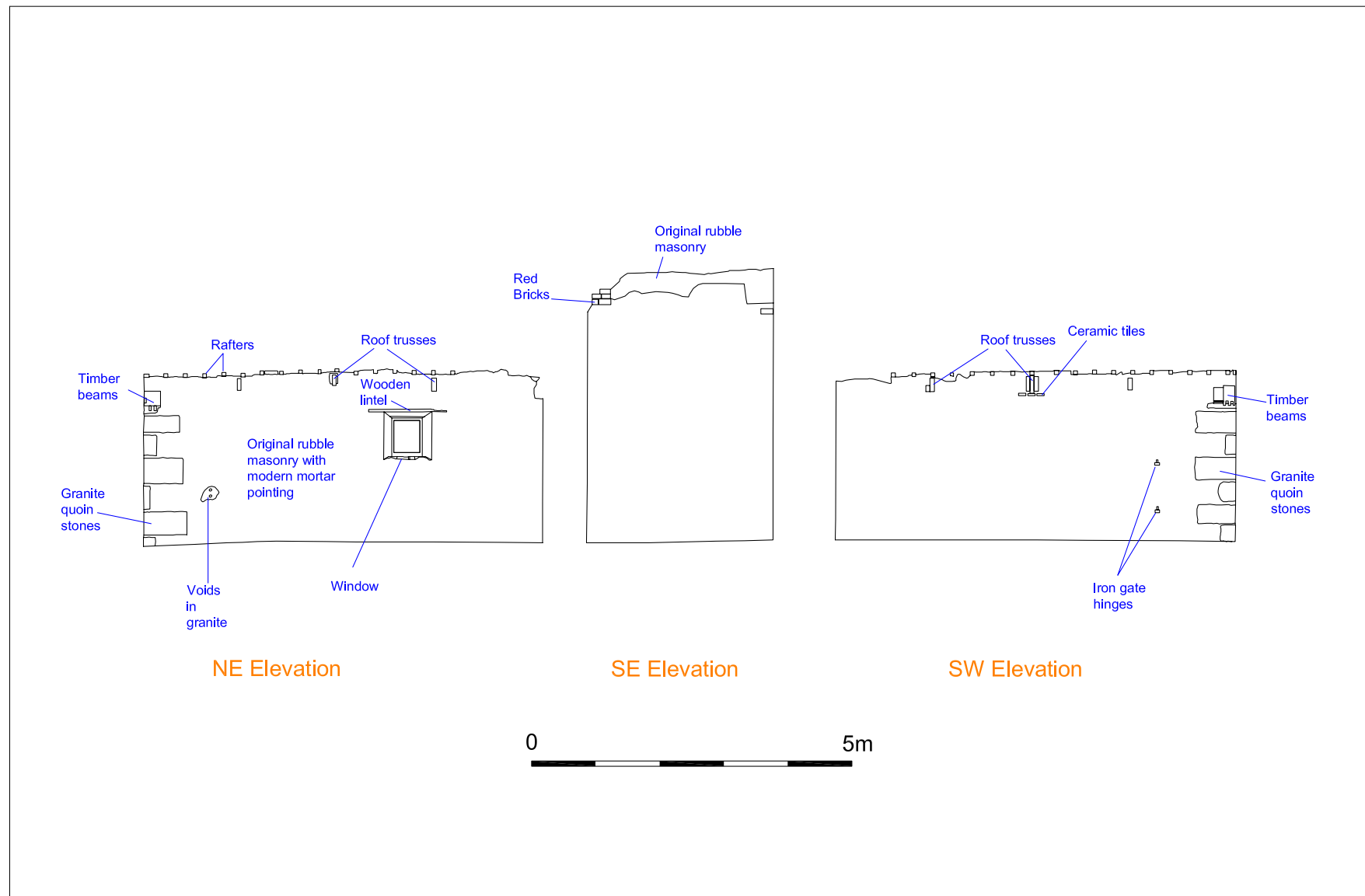
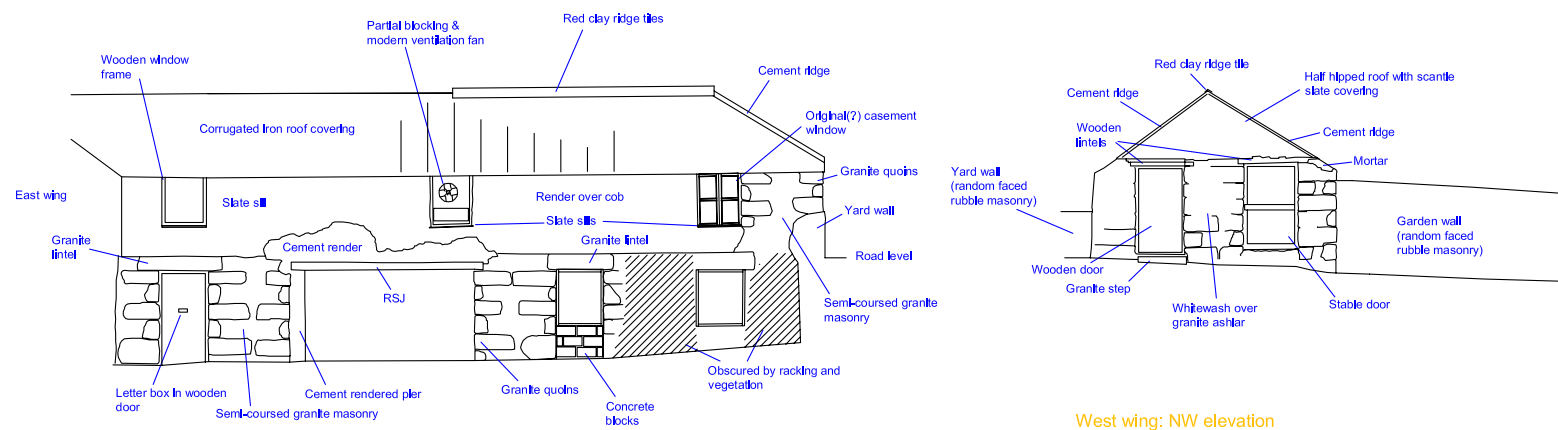
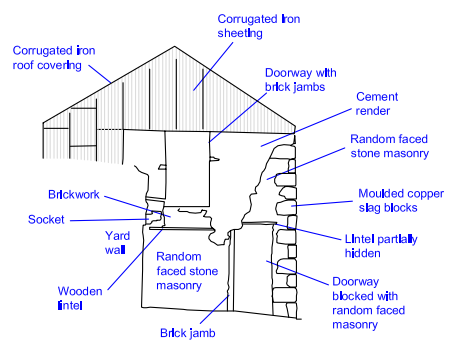


Fig 16 Internal elevations of the Fire Engine House

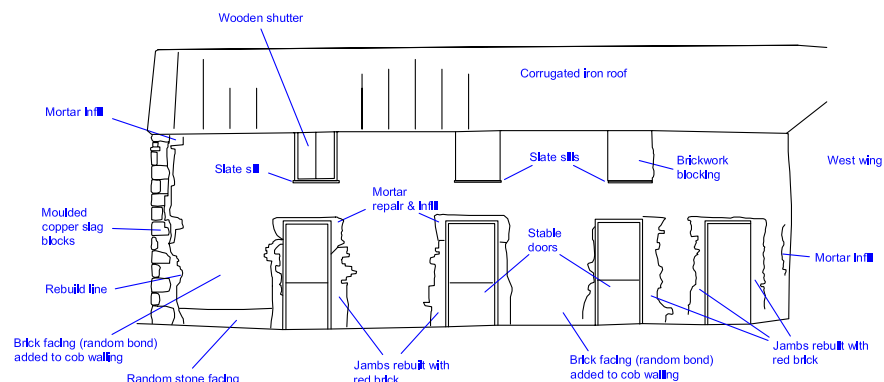


West wing: NE elevation

West wing: NW elevation



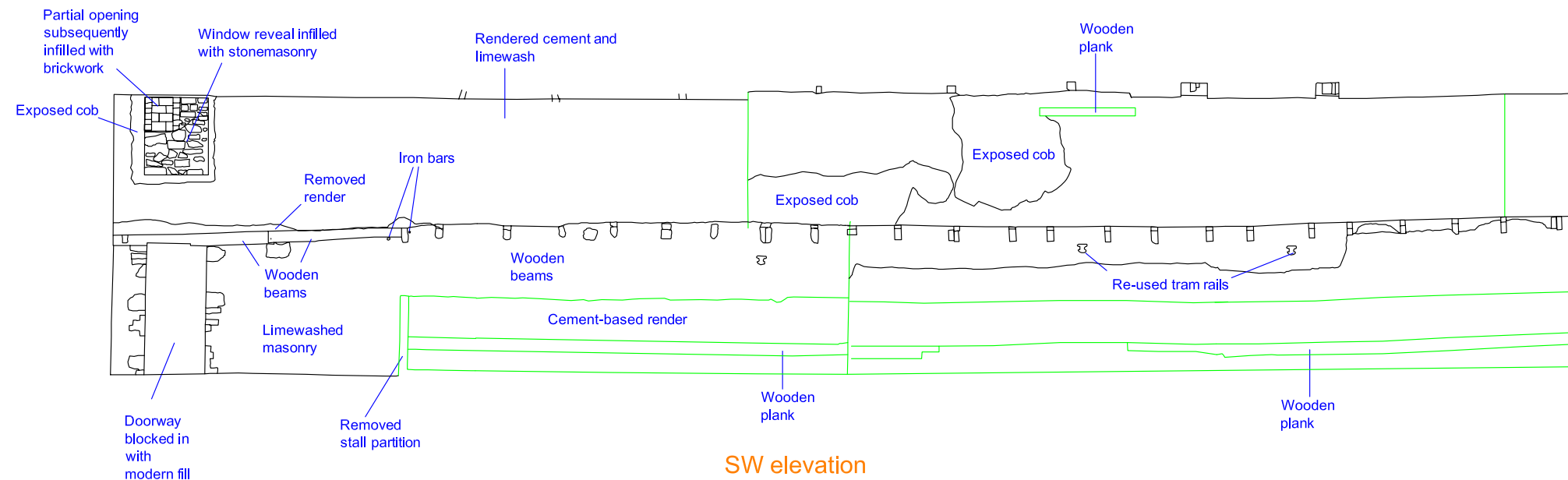
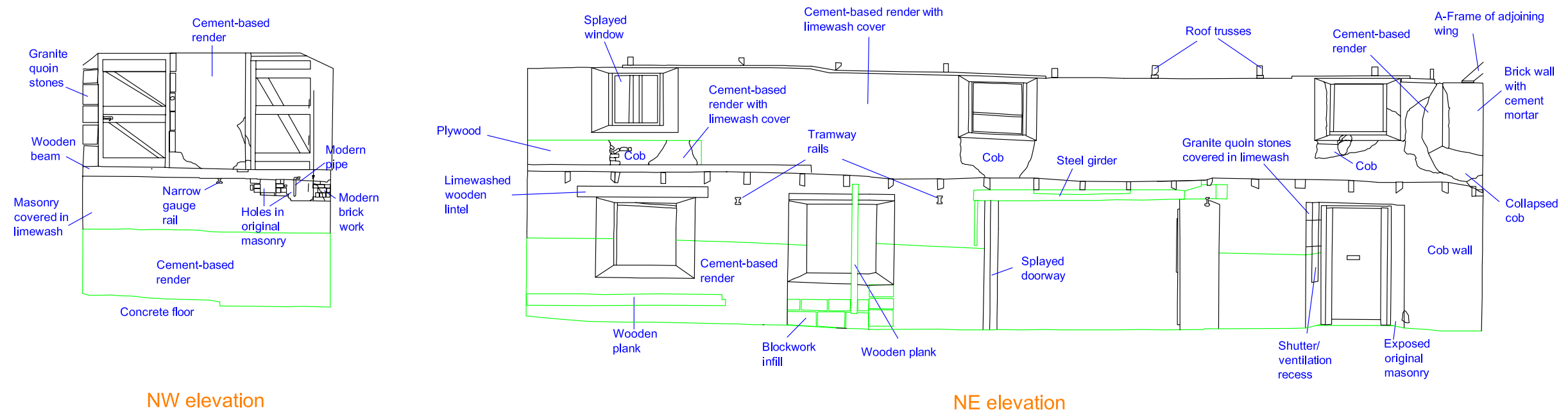
East wing: NE elevation



East wing: NW elevation



Fig 17 External elevations of the Stables (surveyed 2000)



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Fig 18 Internal elevations of the Stables (NW wing)

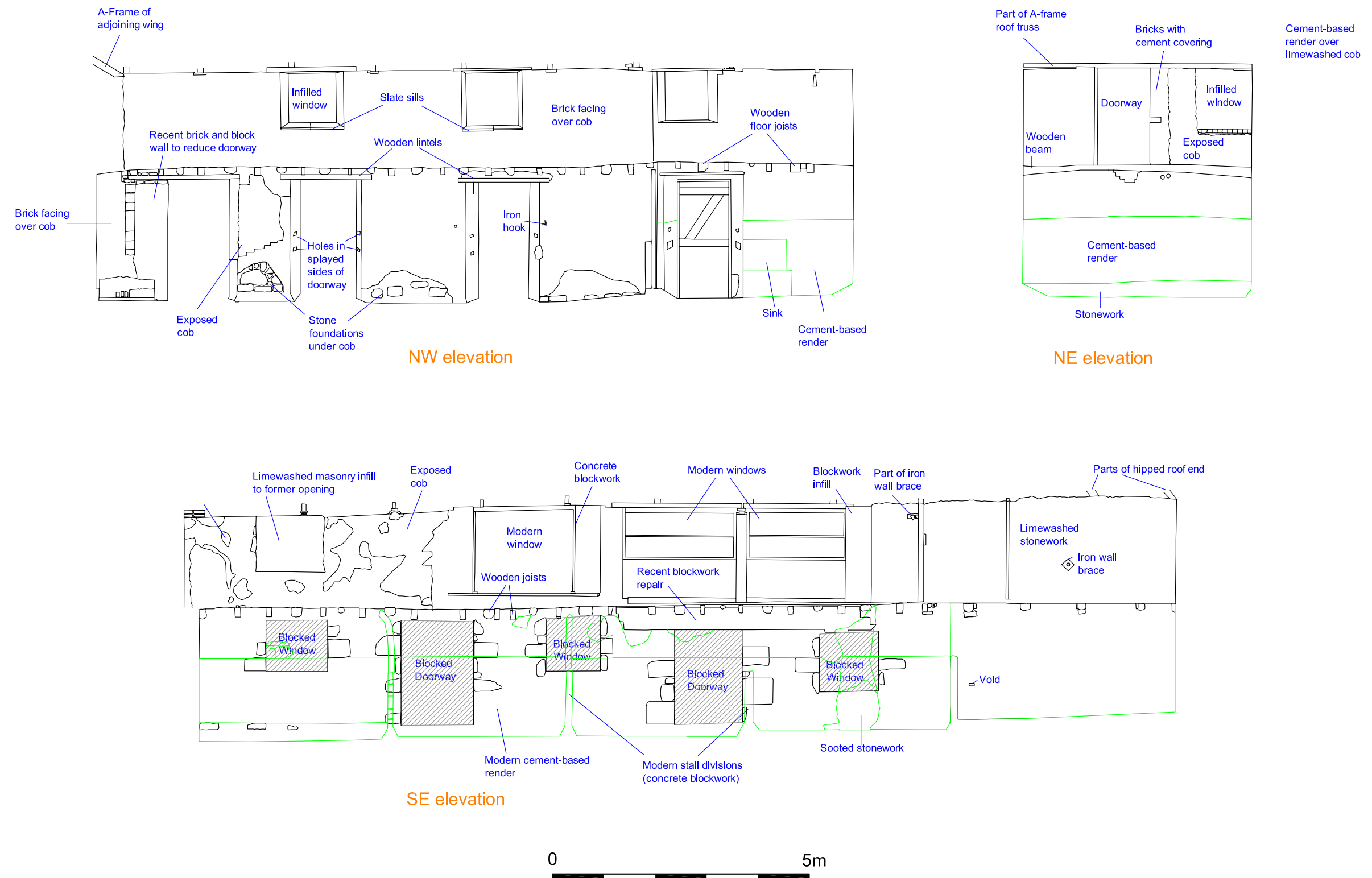


Fig 19 Internal elevations of the Stables (NE wing)



Fig 20 The Wagon House, photographed in 2000



Fig 21 The same building, 2004 after removal of the shelter to the front, partial demolition of the upper storey and temporary consolidation



Fig 22 Interior of the Wagon house, showing recesses and secondary floor timbers



Fig 23 The Stables, photographed prior to restoration



Fig 24 Interior of the original north-west wing of the Stables: upper floor showing cob walls and roof timbers



Fig 25 Timbers supporting the first floor within the Stables



Fig 26 Fire Engine House, 2004



Fig 27 Fire Engine House, after removal of the ramp and partial renewal of its roof, April 2005