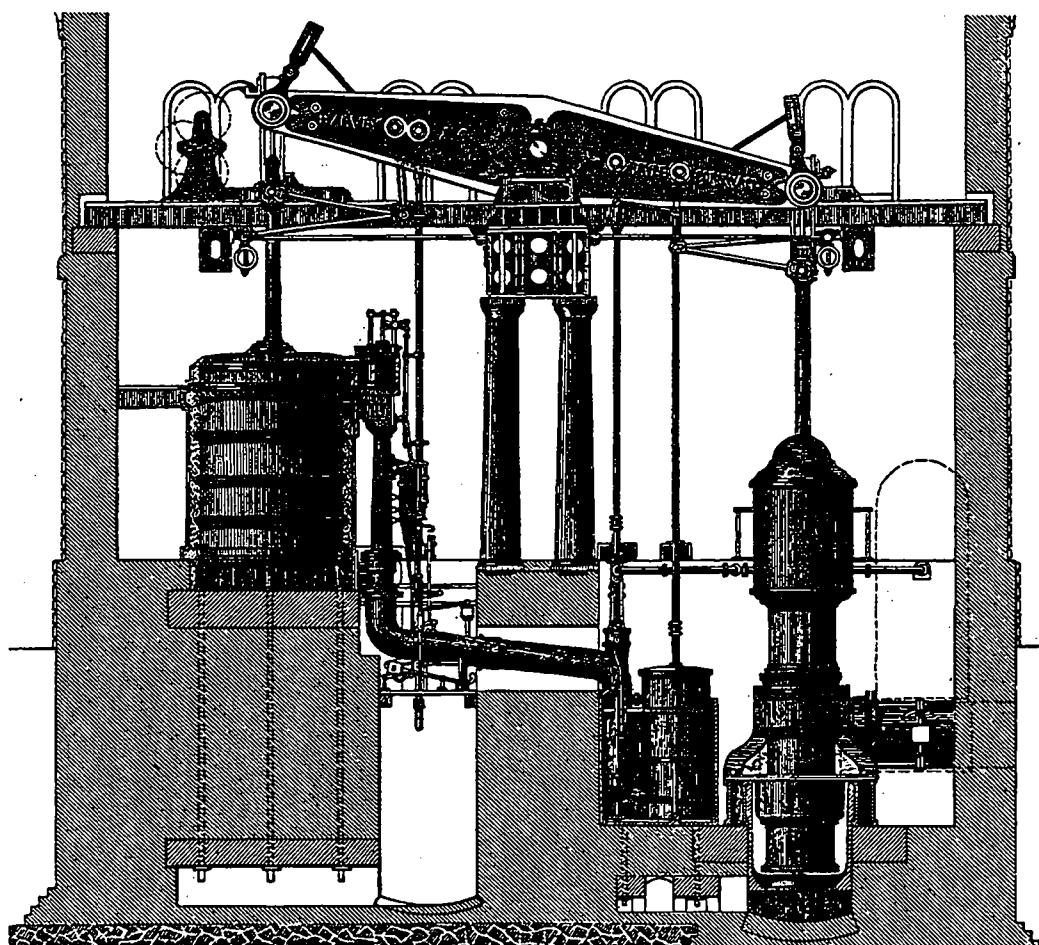


Harvey's Foundry, Hayle, Cornwall

Historic Buildings Survey and Archaeological Evaluation



Cornwall Archaeological Unit

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A Report for Cornwall County Council
Land Reclamation Team

Harvey's Foundry, Hayle, Cornwall

Historic Buildings Survey and Archaeological Evaluation

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August 2001

CORNWALL ARCHAEOLOGICAL UNIT

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Co-ordination on site was provided by David Fergusson on behalf of the John Knevitt Practice. The clearance of modern debris from the old foundry buildings (and demolition of the Rowe Building) was carried out by DRS National. Vegetation clearance from the historic buildings, as well as supply of a JCB for the evaluation trenching, was undertaken by Chris Lello.

Stuart Cartwright and Ben Opie of the Land Survey Section, Transportation and Estates Department (Cornwall County Council) carried out a traverse survey to provide control points within the LRF site, and also worked with Nigel Thomas to record the floor plans of 24 Foundry Square and the Plantation Store.

Within Cornwall Archaeological Unit, the Project Manager was Jeanette Ratcliffe. Nigel Thomas supervised the historic building survey and was assisted by Bryn Tapper, Jo Sturgess, Colin Buck, Carl Thorpe and Sean Taylor. Jo Sturgess undertook the recording of the evaluation trenches and was assisted by Charles Johns. Help with the historical research was provided by John Smith.

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Cover illustration

Cornish single-acting beam pumping engine for waterworks, reproduced from Harveys catalogue for 1884.

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Abbreviations used in the text

CAD	Computer aided design
CAU	Cornwall Archaeological Unit
CCC	Cornwall County Council
CRO	Cornwall County Record Office
GIS	Geographical information system (electronic mapping)
EH	English Heritage
LRF	Land Reclamation Fund
NGR	National Grid Reference
OS	Ordnance Survey
PDC	Penwith District Council
PRN	Primary Record Number in Cornwall SMR
RCM	Royal Cornwall Museum
SMR	Cornwall and the Isles of Scilly Sites and Monuments Record

1 Summary

The development of Harvey's Foundry complex in the later 18th and 19th centuries was instrumental to the creation of Hayle as an industrial centre. Although the foundry and associated buildings of the Harvey's business once covered a considerable area, much of the former complex has been demolished after the foundry closed in 1903. The remaining buildings of the foundry and its former stable yard are now subject to plans for their redevelopment as part of an urban regeneration scheme for Hayle. A project funded by the Land Reclamation Fund was set up to establish the condition of the structures and carry out initial consolidation work in advance of their redevelopment.

Cornwall Archaeological Unit (CAU) were commissioned by Nigel Sumpter of the Land Reclamation Team (CCC) to carry out a programme of archaeological recording work based on the recommendations contained in an earlier assessment of the foundry buildings (Smith 1999). The following report sets out the results of the fieldwork that has so far been undertaken. This includes a photographic survey of buildings recently damaged by fire, an archaeological watching brief during removal of flytipped and other modern debris, an initial measured survey of all the historic buildings and structures within the LRF site, and evaluation trenching on the site of the Rowe Building (within an area once partially occupied by a reservoir, an open yard-like area and a small structure). The results of a separately commissioned survey of the former Harveys office at 24 Foundry Square (Excaliburs building) are also presented in this report.

The project area (centred at NGR SW 557 372) adjoins Foundry Lane in the heart of the western part of Hayle known as Foundry, immediately to the south of the main Penzance to London railway line (see Fig 1). The archaeological building survey has created an initial record of the buildings and structures in their current state and has also led to a greater understanding of their functions and development. The evaluation of the site of the Rowe Building and reservoir revealed slate bedrock less than 0.5m below the existing surface, indicating that the ground surface in this area had been reduced by a maximum of 1m, probably immediately prior to the construction of the Rowe Building (during the 1960s). Remains of the reservoir in the northern half of the area were not present and had been removed during earlier ground reduction. Compacted cobbled surfaces were revealed along the frontage of Foundry Lane and in the southern part of the area, probably representing former yard surfaces. Part of a sunken linear feature, probably a ditch, was recorded in Trench 2.

In the light of this fieldwork and in line with the requirements identified by the Harvey's Foundry Action Plan (2000), further archaeological work is recommended. These are set out in Sections 4 and 6, and include more detailed recording of standing structures as each becomes part of the redevelopment scheme. In addition, detailed building-by-building historical research should be carried out, and any details of buildings or structures not yet recorded (such as a tunnel leading off from the Plantation Store) should be completed. A watching brief has been suggested to monitor the redevelopment of the Rowe Building site in order to record a sunken feature identified during evaluation trenching, and the investigation of a possible tunnel below this area (visible as a blocked opening in the retaining wall to the east) should be carried out prior to any groundworks.

2 Introduction

2.1 Project background

Harvey and Company's premises formerly occupied a significant area within Hayle and the formation and expansion of this business was a primary factor in the development of the town as an industrial centre and port. The company, particularly its foundry, became renowned for its mining machinery and steam engines, which were used throughout Cornwall and items were also exported to many parts of the world. The foundry closed in 1903 and since that time considerable parts of the complex have been sold off, demolished or built over. The remaining historic structures on the site are in a derelict condition and in recent years have been subject to vandalism and fire damage. An Action Plan for the site was compiled in 1999 (Gordon Lewis Associates 2000). An urban regeneration scheme for Hayle now has the support of Penwith District Council and a trust has been formed to acquire and sympathetically redevelop the remaining buildings.

A Land Reclamation Fund (LRF) scheme was approved in order to acquire land and consolidate buildings that were once part of Harvey's Foundry. The application for LRF funding was based on the need to address the public safety aspects of the buildings on the site, whilst at the same time following planning and archaeological guidelines in relation to future conservation and sympathetic redevelopment (Smith 1999). The LRF project area adjoins Foundry Lane in the heart of Hayle (Foundry) (see Figs 1 and 2) and the extent of the site is described in Section 3.5.

Following an assessment of the LRF site by Cornwall Archaeological Unit (*op cit* 1999), CAU submitted a quotation for a programme of archaeological recording work based upon the recommendations contained in the assessment report. This included three elements: photographic recording (and some ground plans) of the historic buildings and other structures; investigative trenching on the site of the former reservoir; and a watching brief during Land Reclamation ground investigation (e.g. in areas of potential contaminated ground). CAU's costing was accepted by Nigel Sumpter of the Land Reclamation Team (CCC) on 16.3.2000.

Three of the key buildings on the site suffered severe fire damage in April 2000 and it was necessary to allocate some of the LRF archaeological recording budget to carry out an emergency photographic survey of these buildings in advance of most of their (burnt) timbers being removed.

CAU was asked to provide an estimate for the cost of carrying out a detailed ground plan and buildings survey for the LRF site, to form the basis for a condition survey to be carried out by the John Knevitt Practice. The Project Design and costing for this survey was submitted to Nigel Sumpter on 24.7.2000 and accepted.

In October 2000 Cornwall Enterprise Limited (as agents for Penwith District Council) commissioned CAU to survey the floor plans of 24 Foundry Square. This building, the former offices and headquarters of Harvey and Company (and more recently occupied as Excalibur's theme restaurant), has been acquired by PDC, who are currently considering options for the structure's regeneration under an Objective One funded redevelopment scheme for the Foundry site.

2.2 Aims

The aims of the archaeological recording project were as follows:

- To record three fire-damaged buildings (Plantation Store, pattern store and lean-to cartshed) prior to their burnt timbers being removed (for health and safety reasons).
- To make a general photographic record of the LRF site prior to any site works taking place.
- To provide ground plans and elevation drawings that can be used to record the condition of the buildings and other structures that lie within the LRF site.
- To provide a basis for future recording work that will be carried out as the structures become consolidated and re-used as part of the regeneration of the Harvey's Foundry site as a whole.
- To advise contractors carrying out debris clearance works at the LRF site as to which objects within or outside the buildings should be retained *in situ* owing to the fact that they are associated with early uses of the structures.
- To establish the nature of buried deposits within the area of the former reservoir and beneath the Rowe Building.
- To maintain an archaeological watching brief during LRF ground investigations.
- To create metrically accurate ground and first floor plans of 24 Foundry Square.

2.3 Methods

2.3.1 Fieldwork

2.3.1.1 Photographic record of fire-damaged buildings

An arson attack in April 2000 caused severe fire damage to three buildings adjoining Foundry Lane (the Plantation Store, PRN 138972; pattern store, PRN 138977; and a lean-to annexe of the pattern store, PRN 138979). Health and safety requirements necessitated rapid stabilisation of these buildings (including removal of collapsed roofs and other damaged structural elements) but there was a risk that additional historic features may become lost in the process. Emergency recording work comprising general photography (black and white prints and colour slides) was undertaken to record burnt timbers and other remains.

2.3.1.2 Pre-clearance photographic record of LRF site

A general photographic record (black and white prints and some colour slides) was made of the site in order to record its condition prior to commencement of site works. This recorded, for example, the general condition of the standing buildings, walls and surfaces, together with the extent of fly tipping and invasive vegetation.

2.3.1.3 Advising on site clearance work

The disused foundry buildings had become littered with flytipped rubbish over many years and it was essential to remove all this modern material so that the condition of the buildings could be assessed for their long-term refurbishment. Removal of the rubbish would also help prevent further fire damage.

A few objects lying loose in and around the site were originally fixtures and fittings representing processes associated with the foundry or its ancillary buildings and it was equally important to prevent these becoming lost. This applied particularly to the buildings around the stable yard where items such as grain chutes and feeding troughs lay amongst modern rubbish such as armchairs and mattresses. It was imperative that the contractors carrying out clearance of debris knew which objects to leave *in situ*. An archaeologist worked alongside the contractors whilst the modern debris was removed from the buildings so that any older material that was uncovered could be set aside.

2.3.1.4 Site/Historic building survey

Survey data collected during the fieldwork was designed to produce the following.

- A ground plan of the LRF site showing all buildings and other structures, the extent of cobbled and other surfaces, the bases of any removed buildings and any other above ground features that survive within the site.
- Ground floor plans of the individual buildings showing the location of principal openings, internal walls and other internal features (e.g. the positions of feeding troughs and drains inside the stable blocks).
- Metrically accurate external and internal elevations of all structural walls. This included virtually all the walls, since there are few non-structural walls still standing. The elevations were to include all significant architectural and archaeological features (e.g. detail around openings, arches, corners, changes in build/material, collapsed rooflines, fixtures etc). A number of elevations could not be recorded owing to topography (e.g. the south-west side of the Plantation Store) or the proximity of modern development (such as the southern side of the stable complex). In some instances health and safety considerations prevented access to the building interiors and recording of internal details was not possible during this project (to complete the measured survey additional recording will need to take place after initial consolidation work has been carried out and before/during the redevelopment of the site).

It was envisaged that the measured survey be undertaken using electronic means so that the results could prove accessible and reliable for numerous end users. The LRF site at the disused Foundry covers approximately 5687m² and is also split level, which could cause difficulties for survey. It was therefore essential, as a first stage of measured survey, to accurately position a traverse of fixed points around the site, using a total station (electronic theodolite). This stage was carried out by the Land Survey section of the Planning, Transportation and Estates Department of Cornwall County Council, working with staff from CAU. These fixed points were referenced to a local OS bench mark (on a masonry pier of Hayle viaduct) so that accurate levels across the site can be established. The traverse was also referenced to OS electronic map data.

The structures themselves were measured with a Leica reflectorless total station. Data from the total station was read directly on a ruggedised laptop computer running Leica TPS-CAD and AutoCAD software. This had the advantage that a 3-dimensional survey model of the buildings could be developed on site and that the drawing could be edited as required in the field using AutoCAD. It was anticipated that the survey could be used as a valuable tool for visualisation of the structures and also provide information such as levels.

Ruinous industrial buildings tend to be large and complex in their form so the total station recording was limited to measuring in extents of walling and major features, including all openings and changes of build. Photographic prints were taken of each elevation to record more subtle architectural and archaeological details.

2.3.1.5 Evaluation trenching

Six trenches were excavated across the area recently occupied by the Rowe Building and its immediate surroundings in order to determine the nature of buried deposits. There was some potential for early surfaces (e.g. cobbling) to survive below the Rowe Building, which appears historically to have been an open yard-like area, with no buildings shown on any of the early maps so far consulted. The reservoir was demolished sometime after 1940.

The trenches were located using the total station and incorporated into the plan of the LRF site being produced as part of the Site Survey. Trenching was carried out under archaeological supervision, using a combination of machine digging and hand excavation. A photographic record was made of each trench, and plan(s) and section drawing(s) were completed of appropriate trenches.

During the excavation of these trenches David Fergusson of John Knevitt Partnership monitored the nature of the exposed underlying stratigraphy.

2.3.2 Drawing up of site/historic building survey

The survey drawings were edited and finalised in AutoCAD. This involved the following.

- The required elevations and plans were extracted from the survey model and saved as individual data files.
- Photographic prints of the building elevations were electronically scanned and then rectified to become vertical planes, using photo rectification software (Aerial 5.11 and Air Photo). The resultant images were viewed and scaled in AutoCAD so that archaeological and architectural details could be traced onto the elevations.
- The drawings were interpreted, annotated 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.

2.3.3 Archiving

- Indexing of photographs & field drawings
- Deposition of project archive

3 Background

3.1 Location and setting

Harvey and Company's premises once occupied the core of the western part of Hayle, the part which became 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. It included the casting shops, boring mill, erecting shops and stores, the foundry offices and shops, Foundry House, a stable complex at Foundry Farm, wagon houses and a gasworks. These structures are all depicted and named on plans of the foundry made in 1853 and 1864 (see Fig 3 for the latter).

Today, the core area of the foundry site is 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.

A former hammer mill and older boring mill, grist mill and ropewalk lie to the south of Foundry Hill. This complex was part of the earliest phase of the foundry, and was as important a part of the whole as those within the principal area, certainly up to the building of the new boring mill in 1840.

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 the 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. (Action Plan, 2000, 38).

The LRF project area (centred at NGR SW 557 372, see Figs 1 and 2) includes remnants of the former foundry complex which mostly adjoin Foundry Lane and include the mostly intact stable yard complex. Surviving buildings within the LRF site are outlined in Section 2.1 and described in more detail in Section 4.1.

The buildings and shops along the frontage of Foundry Square are mostly still occupied. No. 24 Foundry Square, the former offices, shop and drawing office of Harvey and Company, was more recently used as Excalibur's theme restaurant. When it became vacant, the premises were purchased by Penwith District Council for inclusion in the Foundry regeneration scheme.

3.2 History of Harvey's Foundry

(Reproduced from Hayle Action Plan 2000).

John Harvey (1720-1803) was a blacksmith at Gwinear who moved to Hayle in 1779. He had the vision and commercial instinct to realise that the Cornish mining industry would welcome and benefit from a county-based foundry and engineering works capable of supplying their needs. Although his business remained localised and small-scale for the first few years, by 1800 50 men were employed by Harvey. The early years of the 19th century were characterised by the establishment of many Cornish industrial enterprises set up to serve mining and quarrying, where previously such services had of necessity been sought outside the county. Gunpowder manufacture, fuse-making, brick-making, engineering and iron-founding all flourished with the great expansion of hard-rock mining as the century progressed.

John Harvey's son, Henry Harvey (1775-1850), expanded the Foundry business and made Harvey's an international and greatly respected firm, largely due to the management and energy of the noted engineer and engine designer Arthur Woolfe. Close family ties with Richard Trevithick and later professional partnerships with great engineers such as William West gave the firm a continued level of expertise unmatched by other engineering works in Cornwall.

By the 1870s the Foundry included a forge and smithy, two machine shops, a boring mill, two fitting shops, hammer mills, pattern shops and stores, and the foundry itself with five cupolas and two air furnaces.

Their reputation was built on the design and manufacture of Cornish beam engines, but these machines were merely the most spectacular and visible portion of a great range of mining machinery and equipment.

The bedrock of the business was not the great engines, splendid though they were, but the wholly mundane though essential import and sale of coal, timber, and building materials through the now rapidly expanding port of Hayle.

Harvey's influence and prosperity peaked from around 1820 to 1870, and 460 were employed in the Foundry in 1841, with another 400 engaged in the wharves, building and coal trades. Engines were built for mines in Cornwall, many other metal and coal mines in Britain, Australia, South Africa, South America and Spain; engines were also supplied to waterworks in Britain and Holland (the Haarlem Mere engines). During this period (and especially in the 1840s during the period of the Haarlem Meer contracts) the works in Foundry Square adapted and expanded to cope with an ever-increasing volume of work.

Two years after the death of Henry Harvey in 1850, the firm was divided between his nephews, the Harveys retaining the foundry, shipping and general merchandising business, the Trevithicks taking the milling, baking, farm and grocery business, this change has had a notable impact on the character and appearance of the surviving buildings on site.

Harvey & Company's main competitors during this period were the Copperhouse Foundry of Hayle, and the Perran Foundry at Perran Wharf between Truro and Falmouth. By 1876-7 both of these had gone out of business, victims of the decline in Cornish mining, and Harvey's was also forced to diversify in order to survive. A new shipbuilding yard was constructed with slipways and boilerworks, intended to compete on a national level with other yards producing vessels up to 4000 tons. The foundry was gradually run down as the century ebbed, having been subsidised by the trading branch for many years; final closure came in 1903, and the firm concentrated on the trading and shipping sides of business. The firm of Harvey & Co. continued to act as builder's merchants, and merged with UBM in 1969.

3.3 Development of the foundry site

The study area covers only a part of a major 19th century industrial complex. Little is known of the early years of the foundry, from 1779 to 1840. The place chosen by John Harvey for his enterprise was a greenfield site in the late 18th century; the earliest casting foundry was sited in much the same locality as the later casting shops (immediately to the south of the later West Cornwall Railway (WCR) viaduct). The hammer mills and first boring mill south of Foundry Hill also pre-date 1815 and were one of the first developments, once John Harvey had decided to venture into the manufacture and erection of Cornish engines after 1800. John Phillip's map of 1841 (County Record Office (CRO) DDH 166/11) shows the Foundry in a developed state, before the building of the WCR. The site included the casting shops, stores, offices, retail stores, pattern shop, erecting shop, boiler works, smith's shops, pattern store, and transport section (Foundry Farm); across the Helston road to the south were the hammer mills, boring mill, grist mill and millpond; to the east were the White Hart Hotel, stables and dwelling houses also owned by Harvey's.

By the 1880s the works had consolidated on the foundry site, and expanded to the north with the new gasworks, shipyard, boiler works, and slipways. Virtually every building, yard and quay at this end of Hayle was either owned or controlled by Harvey & Co.; Hayle's very existence centred around this concern now that the Copperhouse Company had closed.

In 1903 the entire foundry and engineering works was dismantled and the materials sold off or scrapped. During the succeeding years, the buildings were partly reused by Harvey's

for the building trade, but gradually became more derelict. After closure of the Foundry, many of the buildings continued in use as stores and warehouses. Even as late as the 1960s, the majority of the structures associated with Harvey's were intact, although dilapidated and in some cases roofless. After 1970, there ensued a progressive episode of dereliction and demolition, ostensibly to clear areas of the site for re-development. In the 1980s UBM Harvey sold the site to a firm of developers who demolished many of the structures. The LRF study area has suffered less from this process than other parts of the Foundry, and no features other than the reservoir and a small structure to the southeast have entirely disappeared.

3.4 Summary of past archaeological recording

3.4.1 Foundry Square: archaeological assessment and evaluation, 1993 & 1995

Harvey's Foundry site: information about the history of the site and the sequence of buildings that were constructed on it; a record of the surviving structures; establishes the impact of the Guinness Housing Trust development on below ground remains. (Smith 1993, Smith and Buck 1995).

3.4.2 Hayle Town Survey, 1993-5

A short history of Hayle, Harvey's Foundry, the Cornish Copper Company and other industries; 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.

3.4.3 Listing assessment for Harvey's Foundry properties, 1998

Limited research into buildings in the area surrounding the foundry site which were associated with Harvey's Foundry and which are potential candidates for Listing. A brief historical description of each building was produced, together with a GIS generated location map.

3.4.4 GIS mapping of Harvey's ownership and archaeological potential, 1999

CAU subsequently extended the GIS mapping of historic structures to include South Quay and the Foundry site, in order to inform the County Archaeologist's response to a planning application for redevelopment of Hayle Harbour.

3.4.5 Excalibur's site visit, 1999

The present building incorporates: parts of the original pre-1800 foundry, yard, and office block; the new, pre-1845 office block (with clock tower) and strongrooms; and the pre-1880 wooden framed drawing office to the rear. A brief report of the results of CAU's visit was produced in the form of a letter to Councillor Rob Lello.

3.4.6 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).

3.4.7 Harvey's Foundry Action Plan

Gordon Lewis Associates have recently produced an Action Plan for Cornwall Enterprise Company, who are acting as financial and technical agent for the Hayle Town Trust. The Plan identifies 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 reuse.

3.4.8 Excaliburs: survey of floor plans

In October 2000 the floor plans of the former Harveys offices, strongrooms and drawing office (more recently occupied as Excaliburs theme restaurant) were recorded by CAU staff, working with colleagues from the Land Survey section of Transportation and Estates Department, CCC. This recording work was a response to a request from Cornwall Enterprise Limited, who wished to have drawings of the buildings in order to work up redevelopment proposals. The archaeological recording identified historic fabric and features and distinguished modern elements which could be removed.

3.5 The site today and extent of LRF scheme

The LRF project area, centred at NGR SW 557 372 (shown in Figs 1 and 2), adjoins Foundry Lane in the heart of Hayle (Foundry) and comprises all the derelict buildings that are located to the south of the Penzance to London railway line. Many of the structures here are designated as Listed Buildings. The site covers an area of approximately 5687m² and includes:

- the former pattern store (PRN 138977) and site of its annexe (PRN 138979).
- a building known as the Plantation Store (PRN 138972) and associated tunnel (PRN 138986, currently inaccessible).
- structures referred to as cattle houses in 1864 (PRN 138987), a ramp adjoining them and a tunnel beneath (PRN 138981).
- the former stable yard (PRN 140933) and associated buildings (PRNs 138988, 138989, 138975).
- a large building range known as the Foundry Barn (PRN 138974), with a former boiler house (PRN 138984), engine house and a surviving gable of the boring mill (PRN 138973).
- a length of retaining wall between the boring mill and the pattern store.
- a former yard, site of a reservoir (PRN 138982) and a small structure, more recently partially occupied by the 1960s Rowe Building.

The mid 19th century core of the foundry site, which included the casting shops, (the major part of) the boring mill and erecting shops has been demolished and built over (the site is currently occupied by Bookers Cash and Carry warehouse).

4 Results

4.1 Standing structures

4.1.1 Store/wagon shed

SW 5572 3711 Listed Building Grade II, ref. 10/171

PRN 138972 See Figs 7-9

History

Map evidence shows that this building was in existence by the 1850s, and is identified as a granary on a plan dated 1853 and as Trevithick's Stores in 1864. It is also known as the Plantation Store(s). Until recent years it was occupied as a garage and workshop by Ford Spares, Hayle (Smith 1999).

Extent of survey

A ground plan of the building was recorded by CAU and the Land Survey section, Transportation and Estates in October 2000. In the following month a total station survey was carried out by CAU to record the northeast, southwest and southeast external elevations, (the rear elevation being inaccessible due to vegetation and adjacent steeply sloping ground). The ground floor interior was also recorded. Details of the archway in the northern elevation was recorded by dimensioned sketch with measurements then drawn in AutoCAD, and these details subsequently merged with the main elevation.

Description

The structure is two storey, rectangular in plan (37.4m long, 8.4m wide and 7m high) and aligned roughly NW-SE. It is built of granite rubble masonry, with dressed granite quoins and seven evenly spaced arches to the ground floor front elevation. The seven openings (each 3.9m wide and up to 4m high) are framed with dressed granite jambs, with shallow brick arches above. Of these openings, five have since been infilled and two remain open with wooden doors. The infill masonry is itself multi-phase; the earliest infill (visible in the northernmost archway) comprises slate rubble masonry with windows framed with granite jambs. Later changes to these openings include insertion of cast iron window frames (and a later 20th century wooden window into the easternmost opening) with sloping brick sills and irregular brick rebuilds around the window frames.

At the northern end of the building is a similar infilled brick arch to those in the roadside elevation. This opening has at sometime been reduced to a tall 12-pane sash window and the glazing protected by an iron grille. The rear wall of the building projects northwards to form a ragged buttress of unbonded masonry. This may have once extended slightly to the north, perhaps to form a small yard accessed from the archway. Removal of the yard and closure of the opening may be associated with construction of the West Cornwall Railway line (in 1852) whose embankment now adjoins the building.

At first floor level in the front elevation are a series of openings and each opening is centred above an archway. The majority of these openings are windows but there are also two doorways, presumably for loading materials into or from the upper floor of the building onto carts.

When examined by CAU in 1999, the structure had a roof (hipped at both ends) covered with asbestos slates (Smith 1999). In April 2000 this building suffered severe fire damage after an arson attack and the remains of the roof were subsequently removed for health and safety reasons. The fire also damaged the boarding of the upper floor; this was also subsequently removed (although leaving the majority of the supporting joists intact) and rendered the interior of the upper storey inaccessible to survey.

The ground floor of the interior of the building gives little information about the building's former function. Its walls are lime washed and the original flooring (if it still exists) has been overlain with concrete. Two concrete block units close to the front of the building are not associated with the historic use of the building. A small sash window survives in the northernmost archway in the front elevation, the opening now infilled on the exterior side with concrete blockwork. On the rear wall of the building are a series of internal buttresses reaching to almost the first floor level. The wall that these help to support is noticeably battered to first floor level as here the structure acts as a retaining wall against higher ground outside. At the southern end of this wall is an infilled archway which leads into a tunnel at the rear of the building (see 4.1.3 below).

Interpretation

Phases of infill within the arched openings to the front represent changes in the use of the building probably through the mid- to later 19th century and early 20th century. The building, complete with open front archways and probable wooden doors would strongly suggest original use as a wagon house (or a very large stable) with a loft above. Infilling of the arches with windows and doorways then suggests conversion to a store or warehouse, and this function is attributed to the structure in 1864. Arrival of the mainline railway in Hayle might have also had implications as the foundry may not then have needed such a large horse and wagon fleet for moving finished products to their destinations.

Recommendations for further recording and conservation

- Some areas of the structure have not been included in the present survey due to problems of accessibility and these will need to be completed in advance of consolidation works. These include the exterior of the rear wall of the building (where levelled into the steep hillside) and the interior of the upper storey (when the interior can be suitably scaffolded).
- Despite the fact that it is now roofless the building appears to be still in relatively sound condition and some form of adaptive re-use is highly recommended to ensure its long term survival. The open nature of the interior of the building (without any partitions/divisions on either of its floors) would help in this respect. Deterioration of the walls and interior will occur if the structure remains roofless in ensuing years so it is highly desirable that a temporary roof (perhaps a full replacement timber roof structure based upon the original style but fitted with a temporary covering) be added to minimise any further losses.
- Longer term conservation work should include replacement of the fenestration in the upper floor, using remnants of existing earlier windows as patterns. The wooden boarded upper floor also needs replacement.
- The infilled ground floor front archways are an integral part of the building's history and appear to represent a change of use from an open fronted wagon shed to a store building/warehouse. That said, the masonry in the original arched structure is of much higher quality and conservation of the building with open arches would more easily reflect its original purpose.

4.1.2 Ramp adjoining Store

SW 5573 3708

See Fig 2

History

At the southern end of the wagon house/store building (4.1.1) is a ramp revetted by stone walls above Foundry Lane. It is shown on a plan dated 1864.

Extent of survey

The ramp was measured by total station. Its retaining walls were photographed.

Description

The unsurfaced hardcore ramp is 35.1m long and up to 6.7m wide. At its lower end it is revetted by granite walling capped with kerbstones and the higher section incorporates a parapet wall 0.6m high above the ramp. In places the revetment has been roughly rebuilt and about 1.5m of the parapet wall has been recently damaged by a vehicle turning near the top. On the other side the ramp is bounded by walling of the cattle houses (4.1.7) and a tunnel (4.1.6) located beneath them.

Interpretation

This ramp leads towards a first floor doorway in the south end of the wagon house/store building and therefore appears to be directly associated with it. It also provided access to loading doorways in adjoining cattle houses (see 4.1.7 below).

Recommendations for further recording and conservation

- No further measured survey is required.
- The damaged revetment walling should be replaced, to match the style of the original.

4.1.3 Tunnel

SW 5571 3710

PRN 138986

See Fig 2

History

At the rear of the wagon house/store building (4.1.1) a tunnel has been driven into the hillside. Its history is not known and it does not appear on any plans of the foundry. It appears to be contemporary with the wagon house/store building (4.1.1), as an entrance into the tunnel leads from this building.

Note that this feature is currently inaccessible and its description is based on a previous site visit by John Smith of CAU. It was not included in the measured survey.

Description

The tunnel has a brick and masonry entrance within the wagon house/store building [now blocked], but the remainder of this feature is now obscured by debris and vegetation. Inside, the tunnel is clearly unfinished rather than blocked or collapsed and terminates in solid rock, with a heading continuing for a further few metres. The intended purpose of the tunnel is unknown (Smith 1999).

Interpretation

The tunnels associated with the Foundry site are still unexplained in terms of their intended function. They are one of the mysteries of Hayle (Smith 1999).

Recommendations for further recording and conservation

- Unblock tunnel entrance at the rear of 4.1.1 and clear vegetation around the rear of the building to permit a full condition assessment.
- Survey if possible using a total station (add information to the existing site survey) and carry out a photographic record before remedial works.

4.1.4 Pattern Store

SW 5573 3713 Listed Building Grade II ref. 10/172

PRN 138977 See Figs 10-12

History

The Pattern Shed or Store is named as such on plans dated 1853 and 1864.

Extent of survey

All of the exterior elevations were measured by total station and were photographed, and the photographs were later rectified to add more details. The front (south-east) elevation was, however, covered in dense ivy growth which rendered some areas of walling inaccessible to survey. The interior was not available for recording.

Description

A large rectangular building 28.2m long, 9.4m wide and 8.6m high (to eaves level). This building, levelled into the slope so that its front elevation is a full three storeys high but from the rear appears to be single storey only, is constructed of rubble masonry with granite quoins and brick arches to some openings. When examined by CAU in 1999, this building had a hipped-roof structure, covered with corrugated asbestos sheets. In April 2000 this building suffered fire damage as the result of an arson attack and the roof of the building, as well as its interior floor structure were destroyed. The remaining walls still appear to be relatively sound and remains of fenestration and other fittings within the walls are extant.

Two large doorways are extant at ground floor level, the northern most of which is framed by granite jambs and surmounted by a shallow brick arch. Wooden painted double doors, possibly original, are still extant. The other doorway has been modified to incorporate a sliding door suspended from an overhead track. In the middle floor a loading doorway with wooden doors is still present; the other openings in this floor and that above appear to be windows, some of which retain their frames and traces of multi-pane windows whilst others have been boarded over.

In the north elevation joist sockets suggest that a small lean-to building once existed here. The rear of the building was formerly abutted by a large wooden lean-to structure (4.1.5) and a tall opening (since blocked) visible towards the southern end once connected the two structures. This opening appears too tall to be a conventional doorway so may have been an access for machinery (such as a belt drive) that once operated here.

Interpretation

A building used for storage of wooden patterns (used for casting machinery parts). This building was originally located adjacent to the casting shops (the site of which is now occupied by Bookers Cash and Carry warehouse).

Recommendations for further recording and conservation

- Remaining vegetation should be removed from the walls and further measured survey carried out to add details to the elevations and also to fully record the interior. A photographic record of exterior and interior should be produced prior to remedial works.
- This fine building would easily lend itself to adaptive re-use. Urgent remedial works will be required to replace the roof, in order to safeguard the remainder of the building. It may be feasible to add a new permanent timber hipped roof structure, based upon details recorded before the fire damage, and to cover this roof structure with a temporary covering, pending the final design.

4.1.5 Pattern Store annexe (wagon shed)

SW 5572 3712 Listed Building Grade II ref. 10/172

PRN 138979 See Fig 12

History

A former wagon shed, first recorded in 1864. This building shares the rear wall of the pattern store (4.1.4). In 1999 this structure was recorded as an open fronted lean-to building, with wooden octagonal piers to the front beneath a roof of corrugated asbestos sheets. Each of the bays was closed by more modern wooden doors. A shallow loft existed within the roof area. In April 2000 this building was almost entirely destroyed by fire and the remains were removed for health and safety reasons.

Extent of survey

The site of this building was fully surveyed by total station, supported by a photographic survey.

Description

The only remains of this building are the rear wall (shared with the pattern store, see 4.1.4), a return wall at the southern end and a line of granite pier bases to the front which once supported the wooden columns of the lean-to.

The face of the rear wall has been severely burned, resulting in spalling of the surfaces of the stone masonry. Two lines of sockets containing the burnt ends of joists are visible; the lower line indicates the height of the first floor loft and the higher one represents bracing for the roof structure. A granite lintelled and jambed opening (now blocked) is visible within the rear wall, toward the southern end of the building. This resembles a doorway but is rather tall and narrow (3m high and 1.2m wide); it may therefore instead be an access for machinery (such as a belt drive) which passed through this wall into the pattern store. The lines of joist sockets are also visible in the infilling of the opening, indicating that construction of the lean-to post-dates the opening.

A short and curved section of return wall at the southern end of the building contains former granite jambed openings into the first floor of the lean-to structure. The curved wall section abuts the end of the pattern store (at least at first floor height, where there is a

line of quoin stones) and this section of wall is probably contemporary with construction of the lean-to.

Along the front of the former building is a line of square granite pier bases, representing the bays of the former lean-to. Some of these bases have been damaged or dislodged due to the fire and subsequent machinery activity on the site to remove debris. One base was unfortunately removed during this activity but remains on the site.

Interpretation

A former cart or wagon shed, with a loft above. Survey has indicated that construction of this building post-dates the adjacent pattern store.

Recommendations for recording and conservation

The loss of this structure is unfortunate; its site is a prime candidate for use as part of the Harvey's Foundry regeneration scheme. It is essential that the historic character of the site is preserved and sufficient available information exists to attempt a modern reconstruction of this building. CAU has a useful archive of this building comprising:

- Photographs taken some years before the fire
- Photographs taken after the fire damage occurred but before removal of burnt debris
- Survey data

These sources should be used to create a design to emulate the historic form of the building (at least from the exterior). It should also incorporate internal additions for adaptation to modern uses.

4.1.6 Tunnel

SW 5574 3706

PRN 138981 See Fig 2

History

This tunnel is not shown on any historic survey of the foundry complex but feeding sheds above it are shown on a plan dated 1853, implying that this feature was in existence by that date.

Extent of survey

The mouth and the whole of the interior of the tunnel were measured using a total station.

Description

A brick-arched entrance 3m wide and 2.4m high leads into a tunnel which descends on a gentle slope for 10.6m. For a further 11.9m the tunnel increases in size to 4.5m wide and 4.9m high; in this widened chamber is a brick lined boiler with a firebox beneath and a brick chimney above (resembling a domestic laundry boiler) and an adjoining coal store. The chamber is terminated by an end wall containing two smaller parallel brick-arched tunnels or chambers which run on into blind ends.

At the ends of the parallel tunnels (each 7.7m long, 2.1m wide and 3.1m high) are walls of stone masonry with stepped-in rectangular openings beneath the vaulting, bonded into the remainder of the masonry, indicating that these are not secondary blockings. The rectangular openings at the ends of the chambers suggest some form of loading chutes existed from structures above. The brick vaulting of the tunnel roofs have also been

breached, perhaps to create later loading chutes. The short parallel tunnels were once linked to each other by a pair of brick arches (since infilled).

The structure containing the two parallel tunnels is abutted by the widened single tunnel and is therefore constructionally earlier. Pintails surviving at the entrances of the smaller tunnels indicate that these once had pairs of double doors or gates. The single tunnel structure abuts these entrances at a slightly awkward angle and the pintails are partially covered, indicating the later build of the adjoining structure.

A hatchway is visible mounted centrally in the brick vault of the larger tunnel, where it joins the structure containing the two smaller tunnels. This hatchway may have been for loading materials. The long and even slope of the tunnel floor suggests an access for draught animals into this area.

Measured survey has indicated that the subterranean structures relate directly to (and are contemporary) with buildings that overlie them.

Interpretation

The functions of these structures is still unknown but survey has provided an opportunity to examine them in more detail. The upper part of the structure containing the two parallel tunnels or chambers can also be seen at ground level. It appears that this building was originally set into the slope and had a basement containing the two brick vaulted chambers. The chambers may have been loading bays for material processed in the upper storeys of the building.

Later, there appears to have been a need to build in the area in front of the chambers but to preserve access to them. It appears that this was achieved by the construction of the larger single tunnel, with a gently sloping ramp for access by animals and perhaps carts. The vaulted roof of the secondary tunnel also formed the foundation for the cattle houses above.

The function of the underground boiler is not known. Its flue extends from the tunnel and may also be seen at ground level. The boiler may have been used for processing swill for animals retained on the site.

Recommendations for further recording and conservation

- Although it appears to be sound a full condition survey of the tunnel is required. Photography was not carried out as part of this survey due to difficult lighting conditions; the site should be professionally photographed before any remedial works are carried out.
- In past years this site has been a favourite spot for fly-tipping and all the existing rubbish was cleared out in advance of the measured survey and a temporary gate fitted at the tunnel entrance. In the longer term this gate will need to be replaced by a more permanent fixing and in a style that befits the historic nature of the site.

4.1.7 Cattle houses

SW 5573 3707

PRN 138987 See Figs 13 and 14

History

Feeding sheds or cattle houses are shown on historic plans dated 1853 and 1864.

Extent of survey

The southernmost part of these structures was cleared of vegetation, fully surveyed by total station and photographed. As the northernmost structure is within a different ownership this area was not cleared and therefore not available for survey.

Description

Now represented by roofless upstanding walls 2 to 3m high, originally covering an area of 384m², built above tunnel 4.1.6 and to the west side of ramp 4.1.2. The interior of the structure is open to the lane on the west. Construction is of rubble masonry, with evidence for door and window openings with granite quoinstones (southern part, eastern side) and also some granite and brick detail to the northern part. A rectangular brick chimney from a subterranean boiler (within tunnel 4.1.6) forms part of the building range but the peculiar angle of the chimney relative to the buildings might suggest it is earlier.

Interpretation

These buildings are identified on the foundry plan of 1864 as cattle houses.

Recommendations for further recording and conservation

- The remaining area within the northernmost building should be cleared of vegetation, fully surveyed and photographed.
- The existing external elevations would benefit from additional information derived from rectified photography.
- Due to their ruinous and fragmentary condition, these buildings do not easily lend themselves for re-use as part of a regeneration scheme. They are of historic importance, especially given their relationship with the tunnel. They should be monumentalised as part of the industrial landscape of the foundry (stabilised and re-pointed as required).

4.1.8 Stables/wagon house

SW 5577 3706 Listed Building Grade II ref 10/10001

PRN 138975 See Figs 19 and 20

History

A stable block forming part of the stable yard was first depicted on a plan dated 1828. This building is abutted by the Foundry Barn and boiler house/engine house.

Extent of survey

The exterior of the building was surveyed by total station, with additional detail added by rectified photography. The building has been fire damaged in the past and the part nearer the Foundry Barn is unroofed. Part of the south wall is in danger of collapse and the unroofed section is full of fallen timbers and is now also overgrown with vegetation. As a result the interior was only recorded within the roofed section. The first floor rooms were not accessible for survey.

Description

A two-storey building levelled into a slope, so that its front (south) wall facing onto the stable yard is a full two storeys high but the rear appears to be only single storey. In this respect it is built as a typical bank barn. It measures 30.7m long, 6.3m wide and 4.8m high to eaves level. At the front, a crude wood and galvanised iron lean-to has been added.

The south-west part is constructed of rubble masonry with granite and some scoria blocks and brickwork used as quoins, beneath a scantle slate hipped roof. The front wall has two finely built shallow segmental arched doorways once closed off with double wooden doors. Another adjacent wide opening, since altered, may have been similar. Inside, the wooden partitions, mangers, cupboards and fittings survive. To the left of the wider openings is a smaller doorway and window to a small stable or tack room. The first floor is accessed from granite steps to the rear of the building. Inside this section there are small rooms separated by partitions. A small fireplace indicates that it may have served as accommodation for a groom.

The upper walls of the now roofless section are built of brick, and part of the central wall leans outward. Concrete walled stalling, representing later re-use, is visible on the ground floor.

Interpretation

The buildings around the yard would have accommodated the Foundry's numerous draught horses, which each working day delivered goods from Harveys to the whole of West and Central Cornwall. Huge engine beams and boilers were transported in this fashion to mines in the area, and to the harbour for shipment overseas. This building is an excellent example of a typical early 19th century purpose-built range for the accommodation of wagons and horses.

Recommendations for further recording and conservation

This building, containing many good architectural features, would lend itself to consolidation and re-use as part of a regeneration scheme. The building has suffered fire damage in the past, and as a result is mostly unroofed. Water penetration has led to further damage within the structure, and the wall facing onto the yard is close to collapse at the top.

- Clear the remaining vegetation, remove the lean-to, assess condition and produce a scheme for conservation which will preserve the interior fittings.
- It has only been partially surveyed as a large proportion is currently inaccessible. A full and detailed measured survey will be required when the building is cleared of vegetation and collapsed material. Produce photographic record of exterior and interior prior to remedial works.

4.1.9 Stables

SW 5576 3702

PRN 138988 See Figs 16 and 17

History

An L-shaped building, first depicted on maps in 1828, forms the southern corner of the stable yard area. This is a former stable block (and is named as such on plans dated 1853 and 1864).

Extent of survey

Exterior elevations recorded using total station include the front walls and the two ends. As the rear elevations of this building adjoin neighbouring property there were unavailable for survey. The interior of the ground floor has also been recorded.

Description

A two-storey building measuring 16.4m long and 5.7m wide on the visible part of the western wing and 14.9m long and 5.89m wide on the visible part of the eastern wing (the overall length of the west wing is 22.2m and the east wing 20.2m). It is 4.6m high to eaves level.

Two distinct forms of construction are visible in this building. The ground floor of the western wing is built of granite masonry with dressed detailing to the openings. Doorways in this part have splayed openings to admit more light. Small slots or recesses within the sides of the doorways were probably for fitting shutters or ventilators. At first floor level, rendered cob construction is used. Originally this elevation had five openings into stalls for horses. A modern wide opening formed with a steel girder has removed parts of two original openings (one original pier of masonry removed).

The eastern wing appears at first sight to be of red brick but closer examination reveals that this is a brick facing over a cob wall and therefore appears to be a rebuild. The eastern end gable is of mixed material including rubble masonry and some brick, with quoins of scoria block. This wing has four entrances into stalling.

First floor joists and flooring within this building appear to be original; otherwise no early stall divisions survive. The present floor and stalling is of concrete, part of a 20th century re-use.

The roof is now covered with corrugated iron; scantle slate survives on a half hipped section at the west end. Access to the loft above the stables is via a pair of doorways at this end and a single doorway at the end of the eastern wing.

Interpretation

A former stable block, used for housing the numerous draught horses that would have been required by the foundry. A loft above the stables was probably used for storage of feed.

Recommendations for further recording and conservation

- The remainder of the building should be subject to measured survey and the interior photographed before a suitable restoration scheme is drawn up and enacted.
- The structure is an integral part of the stable yard complex and should be statutorily protected by Listing.
- This building is of relatively simple design and would repay restoration and re-use as part of a regeneration scheme. Its layout with numerous doorways at ground floor level and its open interior design would easily lend itself to conversion to small workshops or similar uses.

4.1.10 Stable yard

SW 5576 3704

PRN 140933 See Fig 16

History

The stable yard is first shown on a plan of the foundry dated 1828.

Extent of survey

The entire stable yard area was surveyed by total station.

Description

The stable yard is enclosed by rubble stone walls (2-3m high) which incorporate some scoria blocks. The south wall incorporates an infilled section which represents a former cart access from Foundry House. This was probably blocked after the demolition of the house in the later 19th century.

At its western end, where partially enclosed by stable block 4.1.9, the yard retains its fine granite cobbled surface. The area of cobbled surface is defined by flat granite kerbstones. Adjoining the cobbled yard is a granite plinth, the purpose of which is unknown.

Interpretation

A former yard used for stabling and housing wagons. It appears likely that in later years when need for wagons was increased, these were housed in bigger and more accessible buildings elsewhere (such as lean-to 4.1.5). Access to the stable yard from the former adjacent Foundry House (itself demolished before 1907) suggests that some private use was made of the yard.

Recommendations for further recording and conservation

No further measured survey seems necessary. Preserve the cobbled surface in any scheme for adaptive re-use. The walls form the boundaries of the site.

4.1.11 Fire engine shed

SW 5577 3704

PRN 138989 See Figs 18 and 19

History

The former fire engine house in the stable yard at Harveys Foundry is first depicted and is labelled as a fire engine house on a plan of the foundry dated 1853.

Extent of survey

The exterior elevations of the building were surveyed by total station and were also photographed (but due to time constraints these photographs have not been rectified to enhance the drawn elevations). Interior elevations were not fully recorded, due to extensive vegetation growing inside the structure's roof and danger of collapse of the slate roof covering at the rear. Enough data was recorded to obtain a plan of the building.

To the rear (exterior) of the fire engine house is a small stone-built bay that has been infilled in more recent years with a concrete block building. This area was not readily accessible and was not fully surveyed.

Description

A rectangular single storey shed measuring 6.38m long, 2.43m wide and 3.2m high to eaves level. It is largely built of rubble masonry which incorporates some scoria block. Granite quoinstones are used at the front gable; the entrance to the shed was once closed with a pair of wooden double doors supported on wooden jambs. Above the entrance, the gable end has been finished with black painted wooden overlapped cladding. The roof, supported on simple tie beam trusses, has a covering of scantle slates. Viewed from the front, the left hand side elevation has a small window below the roof line and there is also a stone-built ramp 1.3m wide and edged with granite kerbstones on the exterior.

Interpretation

The former fire engine house is likely to have housed a horse-drawn pump held on standby to extinguish fires in the foundry's workshops, as well as its extensive lofts and storehouses, which would have held a variety of combustible materials. The ramp to the side of the building may have been associated with loading the water tanks of the fire engine.

Recommendations for further recording and conservation

- The building requires further measured survey to the interior before remedial works are carried out.
- The existing external elevations would benefit from additional information derived from rectified photography.
- This building is of great historic significance to the Harvey's site and merits a full restoration (Smith 1999). It contributes much character to the stable yard complex. The open fronted single cell design of the building suggests it could easily be adapted for a modern use and retain all its historic features.

4.1.12 Lean-to shed

SW 5578 3704

See figs 19 and 21

History

Several small buildings are shown on the south side of the stable yard in 1853. This surviving lean-to structure may therefore be part of a larger complex of small sheds that have since disappeared.

Extent of survey

The exterior and interior of the building were measured by total station and also photographed. No photo rectification has been carried out to enhance the drawn elevations.

Description

A lean-to shed 10.9m long, 6.12m wide and 3.6m high, built of a variety of materials and beneath a roof of corrugated iron sheets. This building is located parallel to and a few metres from the fire engine house. Its rear wall is built of rubble stone masonry and with an upper section of brick, indicating that this wall was raised in order to construct the lean-to. The front wall is in two bays divided by a pier of scoria block, with the left hand bay infilled with rubble masonry. The end of the building facing onto the yard has wooden framing and some surviving cladding.

Inside the building, the site boundary wall can be seen to incorporate blocked openings framed by granite quoinstones.

Interpretation

An ancillary building, the purpose of which is not certain; it may be additional stabling/stalling.

Recommendations for further recording and conservation

- Further documentary research is required to determine the original purpose of this structure.

- The existing elevations would benefit from additional information derived from rectified photography.
- Although this building is clearly ancillary, it is part of the historic fabric of the stable yard and should be retained and refurbished.

4.1.13 Foundry Barn

SW 5579 3706

Listed Building Grade II, ref 10/10001

PRN 138974

See Figs 19, 22, 23, and 24

History

The building known as the Foundry Barn or granary appears from map evidence to date from c1825 (Smith 1999). Although it was used as a grain store (and was labelled as a granary on a plan dated 1853), the form of the building would suggest that it was originally designed for some other industrial purpose. This building is part of a range and its northern end adjoins the boiler and engine house (4.1.14) of the boring mill (4.1.15).

Extent of survey

All exterior elevations were measured using a reflectorless total station and were photographed. The photographs were later rectified and used to enhance the information on the drawn elevations.

The upper four floors of the interior were also measured with the reflectorless total station but some parts of the upper walls could not be measured using the laser beam from the instrument. Access to the ground floor was not obtained (entrances to this area are currently barred with grilles).

The northernmost part of the structure (which connects with the adjoining wagon house) is full of vegetation and collapsed material and was therefore not accessible for survey.

Description

This building is rectangular in plan and measures 25.2m long, 6.9m wide and 11.4m high. It is levelled into the slope and is a full five storeys high on its north-eastern side and four storeys when viewed from the stable yard on the south-west. It is largely of semi-coursed granite masonry construction, with dressed granite quoins to door and window openings. Brick arches are used for major openings (principally in the ground floor) and also for shallow arches of the upper windows. Unusually, a section of walling facing the stable yard is built of studwork infilled with masonry and covered on the exterior side with slate cladding.

The building formerly had a slate covered roof which was hipped at the south end. A large rectangular internal chimney stack is visible against the south-eastern wall, and an infilled rectangular hole on the exterior wall face is probably a flue into this chimney. Traces of joist sockets and mortar lines representing former lean-to roofs on this side may be part of an adjacent boiler house. Other traces of lean-to roofs are visible on the southern end of the structure.

At ground level on the north-eastern elevation (toward the southern end) there is a brick-arched opening which leads into a vaulted chamber. This chamber is now barred and therefore was not fully surveyed. Its entrance has pintails which once supported double doors or gates. Granite foundation blocks and deep recesses visible may represent holding down arrangements for machinery mounted at first floor level.

Some elements representing phases of construction are visible: two lines of granite quoinstones in the central part of the south-eastern elevation, indicating that the building has been extended towards the south and north. Expansion of the building range also appears to have included creation of the adjoining boiler and engine house (4.1.14).

Inside the building are the remains of divisions and floor levels. Within the central part of the building is a pair of large and tall doorways with brick arched heads. These doorways are placed opposite one another in the north-east and south-west elevations. Inside the building, stone walled divisions prevent access from the arched areas into other parts of the structure. A small doorway built into a central dividing wall is the only access through the central part of the building. The function of this layout is not currently understood.

At first floor level is a solid floor, now covered with cement mortar screed, whilst the others are all wooden floors supported on joists (the timbers themselves have mostly been removed, leaving joist sockets in the walls or sawn off joist stubs). Wall faces are mostly rendered with traces of limewash visible. Line-shafts on the upper floors probably provided power for sack hoists or other machinery.

The building has recently been partially consolidated and the exterior re-pointed as part of the Guinness Trust housing scheme. The building was probably made safe with the addition of the metal grilles at ground floor level (preventing public access into this area) and removal of the floor timbers from the upper floors.

Interpretation

Documentary evidence indicate that in the middle years of the 19th century this structure was in use as a store for animal feedstuffs, and probably was used to supply horses housed the neighbouring stables. Architectural and archaeological evidence, however, suggest that this building was originally designed for a purpose other than storage. A solid floor at first floor level, together with the foundation blocks visible in the chambers below suggests this was a floor which housed heavy machinery. The internal chimney, associated with a probable external boiler house, might also indicate that machinery inside was driven from an engine located outside the building. The numerous windows in the upper floors, together with the rendered and limewashed internal walls suggest a more elaborate building than one associated with storage of grain. Render and limewash would also suggest that this building was associated with 'clean' processes (ie. not metalworking).

The dimensions and form of the building, taken with the presence of these internal features would suggest that this building was once a roller mill, used for production of flour. It is known that Harvey and Company, when associated with JH Trevithick's business, did operate such processes. It appears that the building changed function after the de-merger of these businesses.

Recommendations for further recording and conservation

- Before any remedial works are undertaken, it is essential that the remaining parts of the building are fully archaeologically recorded (i.e. the ground floor chambers and the area linked to the wagon house).
- Full interior elevations can be created when the building is scaffolded.
- Schemes for adaptive re-use of the structure are at the planning stage. The building has already been partly stabilised and monumentalised, but this would not prevent its re-use in the future. A section of the south-west wall formerly covered with slate cladding is still unstable. As the cladding has now largely disappeared, timbers and areas of mortar have been left exposed and this elevation is in danger of severe weathering and

eventual collapse. It appears that the only way to safeguard the long term survival of this section of wall is to re-roof the building, so that the interior wall face is protected from the elements, and to renew the slate hanging on the exterior.

4.1.14 Engine and boiler house

SW 5579 3708

Listed Building Grade II, ref 10/10001

PRN 138984

See Figs 19, 22, 23 and 24

History

Cartographic sources indicate that the Foundry Barn and other parts of this range were in existence before 1853.

Extent of survey

North-east and south-west external elevations were surveyed by total station. Photographs taken during fieldwork were rectified and used to enhance the drawn elevations. The interior was not accessible due to grilles fixed across ground floor doorways. Description of the interior is provided by an earlier CAU visit to the site (Smith 1999) with some additional information.

Description

A four storey building 10.5m long and 10.8m high, located at the northern end of the range known as the Foundry Barn (see 4.1.13). It is levelled into a slope so that the rear of the building appears only two storeys high. Construction is of semi-coursed rubble masonry with dressed granite quoins. There is a fine arched window to the front of the engine house, another arch at ground level giving access to the boiler house and inside clear evidence of the flywheel position, supporting cross beam for the bob, and the flue of the boiler house leading to an external chimney stack, of which the semi-circular base survives at the rear. The floor above the boiler house may have provided office space or to workshops; there are line-shafts to convey power from the engine on the upper floors. At the rear of the building access is provided to the third storey by a doorway, with another access to a doorway on the upper floor by a flight of granite steps.

Interpretation

Originally this was part of the boring mill and former erecting shop (4.1.15), and should be interpreted as part of that structure. Power from the beam engine was transmitted from here directly to the boring mill and via line-shafts to lathes, drills, and milling machines throughout the works. The engine would appear to have been larger than was necessarily required for this purpose, and it is assumed that it formed a Foundry showpiece to be shown to potential customers.

Recommendations for further recording and conservation

The interior of the building should be fully surveyed and a photographic record made prior to commencement of remedial works.

The structure has recently been consolidated and re-pointed as part of the Guinness Trust housing scheme and is currently in sound condition. Schemes for adaptive re-use are at the planning stage.

4.1.15 Boring mill

SW 5578 3709 Listed Building Grade II, ref 10/10001

PRN 138974 See Figs 24 and 25

History

Cartographic sources indicate that the Foundry Barn and other parts of this range were in existence before 1853.

Extent of survey

The remains of the boring mill were measured by total station and photographed. Rectified photographs were used to enhance the drawn elevations.

Description

The south gable wall (15.2m wide and 15.3m high) survives, together with one short bay and massive sloping buttress representing the beginning of the eastern elevation (approximately 8m of exterior wall face surviving), and a similar stub of the rear wall. Its walls are of rubble masonry with ashlar granite blocks in the quoins and openings. Openings in the gable wall provided access for line shafting from the steam engine once sited in the adjoining engine house. The floor space of the original building is now tarmac and in use as a car-park for an adjacent cash and carry warehouse.

Interpretation

This building was the second boring mill used by Harveys Foundry, and replaced an earlier water-powered boring mill within the hammer mill complex. Boring mills were used for the finishing of castings; here large steam cylinders (up to 144 inches) were bored to finished size.

Recommendations for further recording and conservation

- Internal elevations, with detail added from rectified photography, of the remaining short bay have not been created. These should be made to complete the record.
- The upstanding remains of the boring mill have been consolidated and re-pointed as part of the Guinness Trust housing scheme. Schemes for adaptive re-use are at the planning stage.

4.1.16 Rowe Building

SW 5576 3709 See Fig 2

Description

A post-1945 sectional building has been inserted into an area of the site which was historically an open space, most likely used as a yard. The structure was steel-framed and clad with corrugated asbestos, with a concrete floor. It was demolished and cleared away in October 2000 as part of the LRF scheme; only the concrete floor now remains on the site. The footprint of the building was surveyed using a total station and parts of the area were trenched to evaluate any surviving stratigraphy in this area (see Section 5).

Recommendations for further recording and conservation

The remaining concrete floor of this building is not part of the Harvey's Foundry complex and has no historic significance. Map evidence indicates that this area was always an open space during the foundry's operation.

A watching brief to observe and record subterranean features and yard surfaces (see Section 5) should be undertaken in advance of any works in this area.

4.1.17 Ramp adjacent to Stables/wagon house

SW 5576 3707

See Fig 2

History

Map evidence indicates that the space on the east side of Foundry Lane (between the stables/wagon house and the pattern store/pattern store annexe) was formerly open, with the northern part of this area occupied by a rectangular reservoir. The southern part was probably a yard, likely to have been used for marshalling horses and wagons.

Extent of survey

This area was surveyed using a total station (but survey was undertaken before the ramp was fully exposed).

Description

On the north side of the stables/wagon house the ground slopes gently down from the walls of the boiler house and Foundry Barn to Foundry Lane, forming a ramp about 6.5m wide. An evaluation trench (Trench 3, see below) was dug in this area to examine the nature of the ground levels and any surfaces present. Results indicated that this area has a compacted metallised surface. After completion of the evaluation trench, some further clearance works were undertaken to remove modern debris lying around the foundations of the Rowe Building. Removal of the debris re-exposed the edge of the ramp and confirmed that only slight damage had been caused when the Rowe Building had been constructed here. Modern debris was also removed from the side of the ramp which abuts the stables/wagon house. This work exposed a well constructed brick-lined gully to carry run-off water from the cambered surface of the ramp (and also from the stables/wagon house roof) to Foundry Lane.

Interpretation

The ramp facilitated access to the upper floors of the boiler house and also to a small brick-built building which adjoins it.

Recommendations

- Retain as an integral part of the foundry complex.
- The exposed ramp and drainage gully need to be added to the existing measured survey.

4.1.18 Site of reservoir

SW 5574 3710

PRN 138982

See Figs 2, 3 and 4

History

Historic plans of Harvey's Foundry show a rectangular reservoir approximately 20m long and 14m wide (oriented SW-NE) to the south-east of the pattern store and pattern store annexe. The reservoir was still extant in the earlier part of the 20th century (ie. after the foundry had closed).

Extent of survey

The site of the reservoir was surveyed using a total station. Evaluation trenches were also dug in this area to test for remains of the site (see Section 5 below). The trenches indicated that ground levels have been reduced in this area and that the reservoir has been entirely removed. A length of horizontal cast iron pipe lying *in situ* adjacent to retaining wall 4.1.19 may have been an outflow from the reservoir.

Interpretation

An above-ground reservoir, probably used to supply water to the boiler house (for the steam engine which powered the boring mill and other steam engines on the foundry site). The reservoir was probably destroyed during levelling works prior to construction of the Rowe Building.

4.1.19 Retaining wall

SW 5577 3708 to SW 5575 3712

See Fig 2

History

The remains of the foundry complex are predominantly on a split level site, the upper part containing the Plantation Store, its adjacent buildings and the stable yard, with the lower level representing the site of the casting shops, the pattern store, remains of the boring mill, boiler house/engine house and Foundry Barn. Lengths of retaining wall between the pattern store and the remaining gable wall of the boring mill separate the two levels.

Historic plans of the foundry show that the lengths of retaining wall were once abutted by other structures, including a narrow 'Pattern House' or store between the boring mill and the wall.

Extent of survey

The lengths of wall were surveyed using a total station.

Description

Lengths of masonry up to 6.8m high and including some large blocks of granite. One part of the wall incorporates a sloping buttress. The angle close to the pattern store has no built walling present, just a slope of natural rock/cliff.

Approximately halfway along the length of wall which once adjoined the narrow pattern store is a brick arched opening 1.8m wide and 2.6m high (now blocked), located partway up the wall.

Interpretation

This wall was originally abutted by various structures and this accounts for its irregular form. The purpose of the arched opening is not known.

Recommendations for further recording and conservation

The blocked arched opening backs onto the area until recently occupied by the Rowe Building. It has been suggested to be an entrance to a tunnel, similar to those adjacent to the Plantation Store. The blocking should be removed (perhaps temporarily) and a condition survey carried out, and the feature surveyed by archaeologists.

4.2 Underlying stratigraphy (see Fig. 25)

During the evaluation six trenches were excavated in order to establish the nature of buried deposits within the area of the former reservoir (see Fig 3) and beneath the Rowe Building, and to establish the nature of the stratigraphy in the area as a whole. It was anticipated that there would be some potential for early surfaces (eg cobbling) to survive below the Rowe Building, which appears historically to have been an open yard-like area, with no substantial buildings shown on any of the early maps so far consulted. The reservoir to the north of this yard was known to have been either infilled or demolished sometime during the 20th century and there was potential for uncovering remains associated with it. In addition, there was also the potential for remains associated with a tunnel and a small structure situated behind a blocked opening along the retaining wall to the east of the area (Figs 2 and 4). The results of the evaluation trenches established that at some time after the 1930s the majority of the area had been levelled, probably prior to the construction of the Rowe Building. Only two strips of land immediately to the south and the west of the Rowe Building had retained their original topography. Within these strips trenches 3 and 5 revealed *in situ* metalled yard surfaces; elsewhere in the area surfaces had not survived. During the evaluation it also became evident that remains of the reservoir and small structure along the retaining wall had not survived the ground reduction. The question of the presence of a possible tunnel running through the area from east to west was not resolved, although Trench 2 crossed the anticipated location and revealed that the concrete footings of the Rowe Building in this area had been reinforced (suggesting the presence of a cavity beneath).

4.2.1 Trench 1 – north of Rowe Building

Trench 1 was located within the north-western quarter of the evaluation area. It was aligned northwest-southeast and was approximately 13m long by 1.5m wide and was excavated to a maximum depth of approximately 0.35m at its south-eastern end and 0.10m at its north-western end. This trench was initially targeted in order to sample the interior and southern side of the back filled reservoir. The aim of this trench was to determine how the reservoir had been constructed and the nature of the material that had been used to backfill it.

During the initial machine excavation of this trench it was clear that the reservoir had not survived below-ground. Immediately below a thin layer of hardcore comprising small fragments of killas (approximately 0.1m deep) was a modern layer or dump of very dark brownish grey silty sand, approximately 0.25m deep. This lay immediately on top of the natural, a mottled orange silty clay with light bluish grey decaying killas blocks. No archaeological features were present.

Interpretation

This trench clearly illustrated that any remains of the structure of the reservoir were no longer present and that it must have been built in an elevated position to the present ground level. It is obvious that remains of the reservoir were lost when the whole of this area was levelled, probably prior to the construction of the Rowe Building.

4.2.2 Trench 2 – eastern side of Rowe Building

Trench 2 was located on the eastern side of the evaluation area. This L-shaped trench was aligned north-south along one arm with an east-west aligned trench at right angles to its southern end. The north-south arm was approximately 6.6m long by 2.1m wide and was

excavated to a maximum depth of approximately 0.2m, whilst the east-west arm was approximately 6m long by 2.1m wide and was excavated to a maximum depth of approximately 0.75m. This trench was initially targeted in order to determine the make-up of the ground behind the revetment wall; investigate the area lying behind a blocked opening in the face of this wall; and investigate any other buried archaeological remains (a small building is shown here abutting the wall on the First Edition 25 Inch OS map (1876-7; see Fig 4) and there was also potential for the survival of early surfaces, e.g. cobbling).

Removal of the concrete slab floor of the recently demolished Rowe Building in this area showed immediately in the north-south arm of the trench that the concrete lay directly on top of natural (a mottled orange silty clay with light bluish grey decaying killas blocks). Notably the concrete overlying the northern half of this arm of the trench was reinforced, whereas concrete removed from other areas was not. This indicates that there was a need for strengthening this area and may suggest the presence of a tunnel connected with the opening at a lower level on the opposite side of the revetment wall (within what was once the pattern shop). The east-west arm of the trench also comprised concrete immediately overlying natural. However, at its western end was one side of a possible ditch or quarry (see Plate 15). The visible eastern edge was linear, and aligned north-south. This side of the feature sloped down to the base at a 45° angle, and the base itself was regular and flat, stretching at least as far as the western end of the trench. It was approximately 0.5m deep. The fill of this feature comprised mixed modern deposits of mid greyish brown sandy clay (topsoil) and mid yellowish brown silty clay with frequent grit (redeposited natural). Fragments of a modern water pipe were present in the fill. No other archaeological features were encountered in this trench.

Interpretation

This trench illustrated that any remains of the small structure depicted on the First Edition 25 Inch OS map (1876-7) and any early surfaces were no longer present, and that they must have been built in an elevated position to the present ground level. It seems that the whole of this area was levelled, probably prior to the construction of the Rowe Building. In addition, the reinforced concrete at the northern end of the trench may indicate the presence of a tunnel directly below, associated with the opening (approximately 1.5m-2m below this level) on the other side of the revetment wall (see Plate 14). The function of the possible ditch or quarry at the western end of the trench is unknown, although its fill suggests that it was open (or in use) up until the erection of the Rowe Building.

4.2.3 Trench 3 – south-east of Rowe Building

Trench 3 was located within the south-eastern quarter of the evaluation area on an elevated piece of land approximately 1m above the concrete slab floor of the Rowe Building. It was aligned north-south and was approximately 2.4m long by 1.5m wide and was excavated to a maximum depth of approximately 0.16m. This trench was initially targeted in order to investigate the ground profile in this part of the site and ascertain whether there were any earlier surfaces (e.g. cobbling) lying below current ground level (the area was historically a marshalling yard for the stables).

Immediately below a thin layer of topsoil (0.16m deep) in this trench lay a metallised surface, comprising small angular stones (average stone dimension: 0.05m x 0.03m x 0.01m), with occasional iron and brick fragments. This surface was approximately 0.05m deep and immediately overlay the natural, a light brownish yellow silty clay. At the northern end of the trench the surface only survived in patches.

Interpretation

This section of elevated land to the south of the Rowe Building slopes from the engine and boiler house at the top, gently down to Foundry Lane (see Fig. 25). This appears to be the original, surviving topography in this section of the evaluation area. Further to the north the ground level has been reduced, probably to accommodate the Rowe Building. The metalled surface encountered in the trench may have been associated with the marshalling yard which was once located here, or with an access track to the engine and boiler house.

4.2.4 Trench 4— south-western corner of Rowe Building

Trench 4 was located on the south-western edge of the Rowe Building. It was roughly square in plan (approximately 1.8m²) and was excavated to a depth of approximately 0.25m. This trench was initially targeted in order to investigate the ground profile in this part of the site and ascertain whether there were any earlier surfaces (e.g. cobbling) lying below current ground level (the area probably once served as a marshalling yard for horses and wagons housed in the nearby stables).

The machine excavation of this trench made it clear that the original ground level had been reduced in this area. Immediately below 0.15m depth of the concrete slab was a very thin layer of topsoil (approximately 0.06m deep) which, in turn, overlay the natural, a mottled orange silty clay with light bluish grey decaying killas blocks. No archaeological features were present.

Interpretation

This trench illustrates that the ground level in this area had also been reduced, and that no former surfaces connected with the marshalling yard survive here.

4.2.5 Trench 5— south-western side of Rowe Building

Trench 5 was located at the centre of the south-western side of the Rowe Building. It was aligned east-west and was approximately 2.9m long by 2.4m wide and was excavated to a depth of approximately 0.3m. This trench was initially targeted in order to investigate the ground profile in this part of the site and ascertain whether there were any earlier surfaces (e.g. cobbling) lying below current ground level.

Immediately below the concrete slab (0.15m deep) in this trench was a layer of topsoil 0.2m deep which overlay a metalled surface. The surface was both concreted and very compact and comprised small angular stones (average stone dimension: 0.05m x 0.03m x 0.01m), with occasional iron fragments and frequent grit in a dark greyish brown sandy silt matrix. Its average depth was 0.03m. A test slot was sunk at the eastern end of the trench to establish what lay beneath. This surface, in turn, overlay an earlier metalled surface which was also both concreted and very compact. The earlier surface comprised 50% stone and iron fragments in a dark greyish brown sandy silt matrix. In order to preserve these surfaces the trench was not excavated to greater depth.

Interpretation

This trench has illustrated that the original ground level along the road frontage at this location has not been reduced, and, therefore, that the area to the east of it must have originally sloped upwards to a similar height as Trench 3 (approximately 1m above the present ground level). The two metalled surfaces encountered in this trench probably belonged to different phases of the marshalling yard.

4.2.6 Trench 6– north-east of Rowe Building

Trench 6 was located within the north-eastern quarter of the evaluation area. It was aligned northwest-southeast and was approximately 2.5m long by 1.6m wide and was excavated to a maximum depth of approximately 0.35m. It was located behind the revetment wall, to the east of the reservoir area and was initially targeted to determine the makeup of the ground in this area.

During the initial machine excavation of this trench it was clear that the original ground level had been reduced in this area also. Immediately below a thin layer of hardcore comprising small fragments of killas (approximately 0.15m deep) was a modern layer or dump of very dark brownish grey silty sand, approximately 0.2m deep. This lay immediately on top of the natural, a mottled orange silty clay with light bluish grey decaying killas blocks. No archaeological features were present.

Interpretation

It is obvious that the original ground surface here was lost when the whole of this area was levelled, probably prior to the construction of the Rowe Building.

5 Discussion

Previous studies of the foundry complex which have involved a degree of historical research have already provided outline interpretation for many of the buildings (see Cahill and CAU 2000; Smith and Buck 1995; Smith 1999). The rapid nature of survey used in this project did not allow opportunity to expand interpretation except in areas that were previously unexamined.

5.1 Tunnel and overlying structures

The functions of tunnel 4.1.6 and the buildings above are still unclear. The upper part of the structure containing the two parallel tunnels or chambers can be seen at ground level. It appears that this building was originally set into the slope and had a basement containing the two brick vaulted chambers. The chambers may have been loading bays for material processed in the upper storeys of the building. Later, there appears to have been a need to expand the buildings above ground but to preserve access to the basement. It appears that this was achieved by vaulting across the space with the larger single tunnel, containing a gently sloping ramp for access by animals and carts. The secondary tunnel also formed the foundation for the cattle houses above.

The function of the underground boiler is not known. Its flue extends from the tunnel and may also be seen above ground. The boiler may have been used for processing animal feed.

5.2 General interpretation of stratigraphic results

During the evaluation of the area within and around the footprint of the Rowe Building, it was revealed that the majority of the topography here had been levelled after 1930, probably during the construction of the Rowe Building itself. Note that Fig 4 shows hachures south of the reservoir which suggests that historically this part of the site was split level, or at least that the south side of the reservoir was formed by a raised/artificially constructed bank. The 20th century levelling had entailed a ground reduction of at least 1m along the eastern side of the area. Along the southern side, however, some of the historic

ground surface survived in the form of a ramp from the engine and boiler house down towards Foundry Lane (see 4.1.17 and Fig. 25).

One of the main targets of the trenching was to evaluate a reservoir marked on the First Edition, Second Edition and c1930s OS 25 Inch Maps. It was quickly concluded that nothing of the structure or footings of the reservoir had survived. However, a horizontal line of mortar was visible along the south-east elevation of the cart shed and pattern store at approximately 2m above the present ground surface, and either spoil or undisturbed ground was present up to approximately the same level against the revetment wall to the east. This level (i.e. the top of the mortar and the top of the soil against the revetment wall) probably indicates the original height of the top of the reservoir. On the First Edition, Second Edition and c1930s OS 25 Inch Maps a steep break in slope is shown immediately to the south of the reservoir where the ground would have stepped to a lower level. This suggests that the reservoir was built on an elevated, artificial platform since metalled surfaces associated with the marshalling yard still survived in trench 5 to the south of the reservoir, originally on the lower level.

The evaluation as a whole was also designed to investigate the ground profile in all parts of the area. This was fulfilled with the exception of the discovery of a possible tunnel running beneath the area. The entrance to this possible tunnel is on the eastern side of the revetment wall adjacent to the northern end of trench 2, where reinforcement was found in the concrete slab of the Rowe Building. This possible tunnel should be investigated prior to plans being made for any groundworks in this area.

6 Recommendations

The following recommendations reinforce those previously stated in the Action Plan and also present the need for additional work brought to light by the recent study.

6.1 Recommendations arising from the site/historic building survey

1. Building-by-building historical research should take place as each structure is refurbished and redeveloped.
2. Detailed historic building recording should take place as each structure is refurbished and redeveloped. This should aim to fill in any gaps within the extent and detail of the LRF funded survey, such as areas at present inaccessible due to health and safety reasons and/or vegetation.
3. A few structures have not yet had any level of recording and will need to be opened up for a condition survey and archaeological survey to take place, such as the tunnel leading off from the rear elevation of the Plantation Store.

6.2 Recommendations arising from the evaluation trenching

1. Any groundworks associated with the redevelopment of the Rowe Building site should be monitored by an archaeological watching brief. This would be implemented in order to record the extent and nature of certain features i.e. the possible ditch or quarry in trench 2 and surfaces in trench 3 and 5.

2. The boarded opening in the eastern side of the revetment wall (see Fig. 26 and Plate 14) should be investigated to assess whether a tunnel exists behind it, and if so to record its nature and extent.

7 References

7.1 Primary sources

- Ordnance Survey, 1876-7. *25 Inch Map First Edition* (microfiche copy at CAU)
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7.2 Publications

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- Gordon Lewis Associates, 2000. *Harvey's Foundry Action Plan* Cardiff.
- Harvey's of Hayle, 1884. *Foundry Catalogue*. Facsimile edition reproduced by Bradford Barton, Truro.
- Smith, J, 1999. *Harvey's Foundry, Hayle, Cornwall: An Archaeological Assessment* CAU report.
- Smith, J and Buck, C, 1995. *Foundry Square Hayle, An Archaeological and Historical Evaluation* CAU report.

8 Project archive

The CAU project number is 2000027

The project's documentary, photographic and drawn archive is housed at the offices of Cornwall Archaeological Unit, 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. An information file containing copies of documentary/cartographic source material (file no SW53NE).
3. Field plans and copies of historic maps stored in an A2-size plastic envelope (GRE 408).
4. Digital drawings stored in the directory G:\CAU\DRAWINGS\ARCHIVE\HAYLE FOUNDRY 2000027
5. Black and white photographs archived under the following index numbers: GBP 1170, 1219 and 1349
6. Colour prints archived under the following index numbers: GCP 82

7. This report held in digital form as: G:\CAU\DOCUMENT\SITES\SITES H\HARVEYS
LRF MITIGATION 2000027\HARVEYS FOUNDRY LRF REPORT.DOC



Fig 1 Location plan

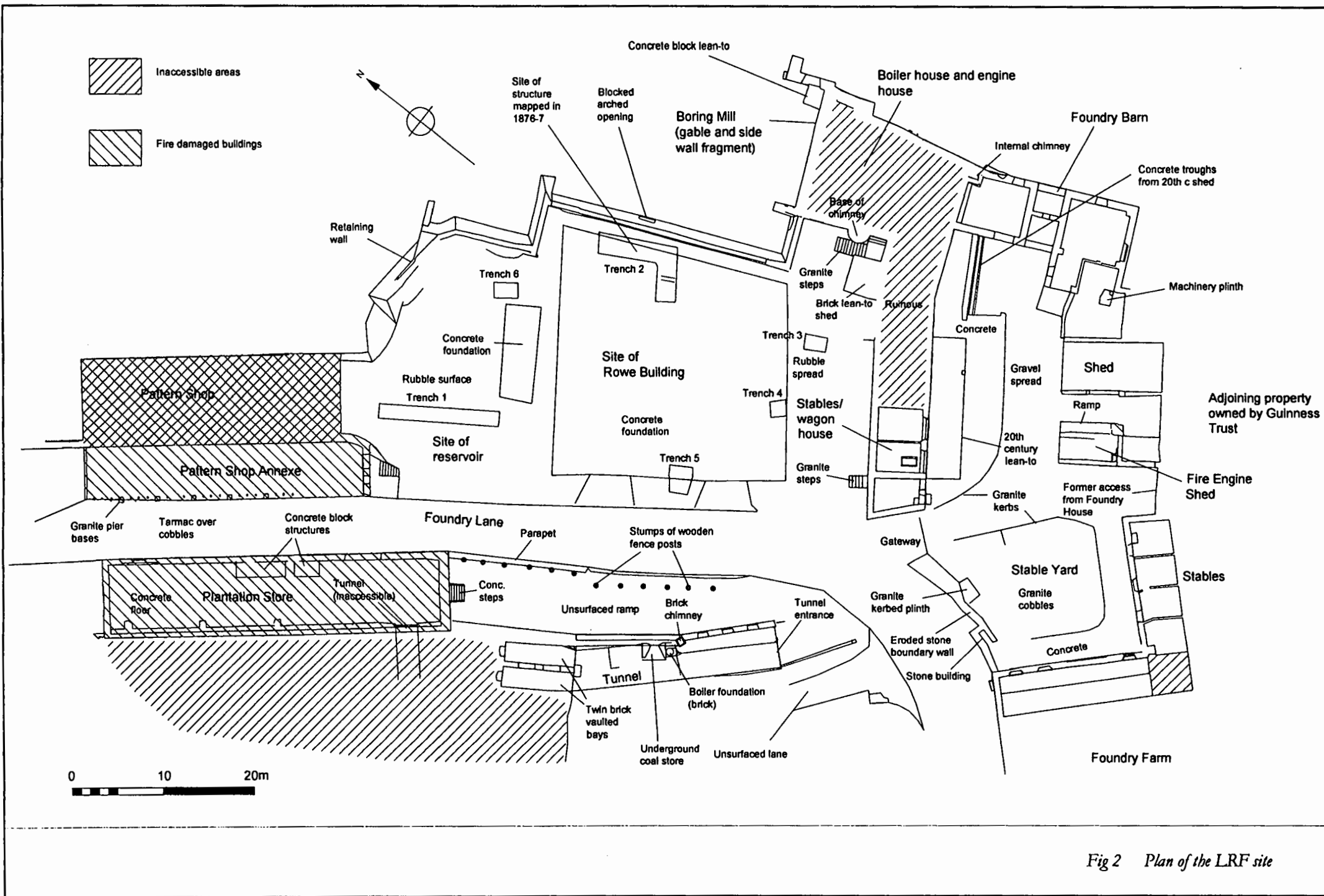


Fig 2 Plan of the LRF site

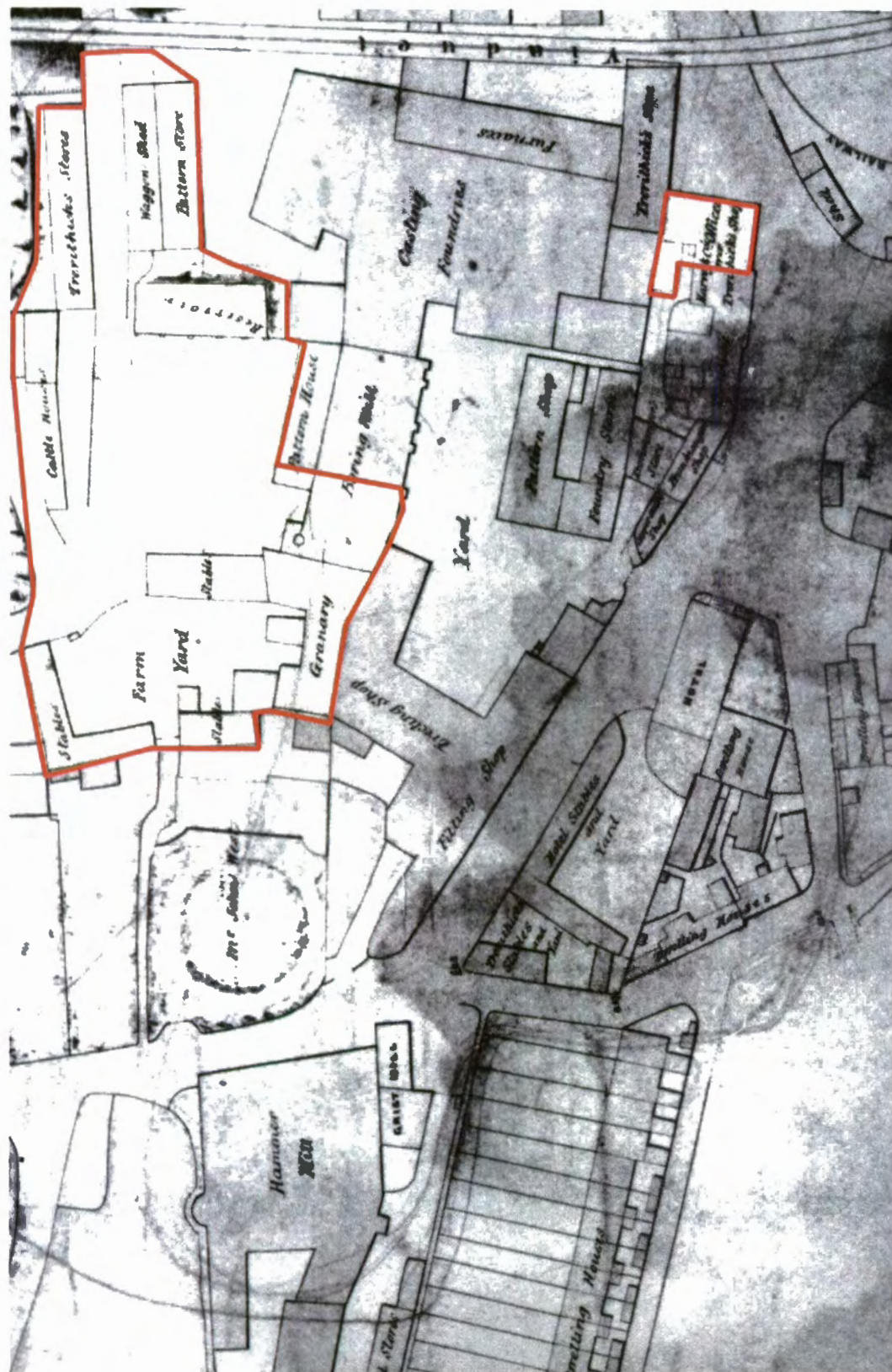


Fig 3 An extract from a plan of Harvey's Foundry, surveyed 1864. The LRF site and 24 Foundry Square are highlighted. Reproduced by permission; copyright is reserved to Cornwall Record Office.

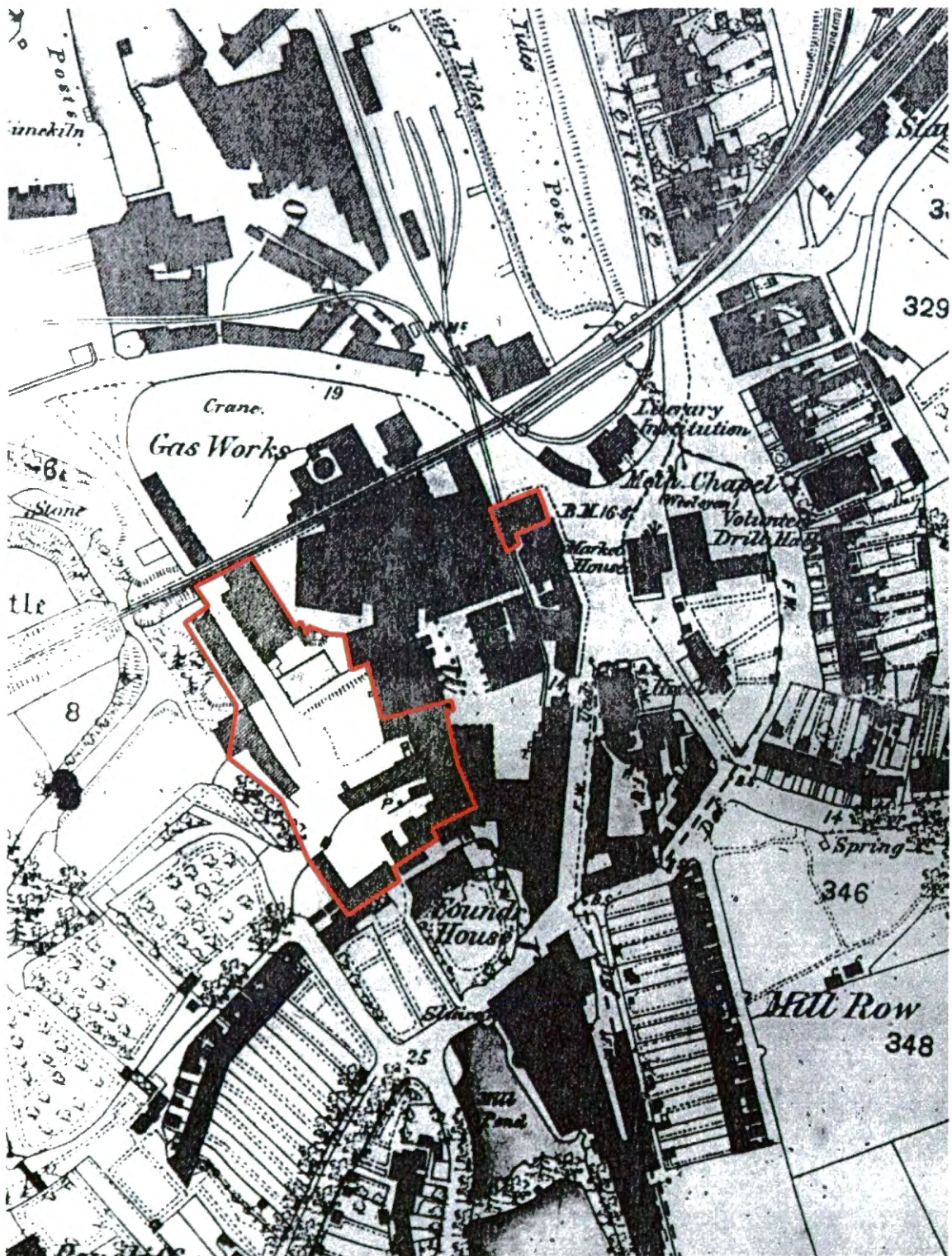


Fig 4 An extract from the Ordnance Survey 25 Inch Map (surveyed 1876-7). The LRF site and 24 Foundry Square are highlighted.

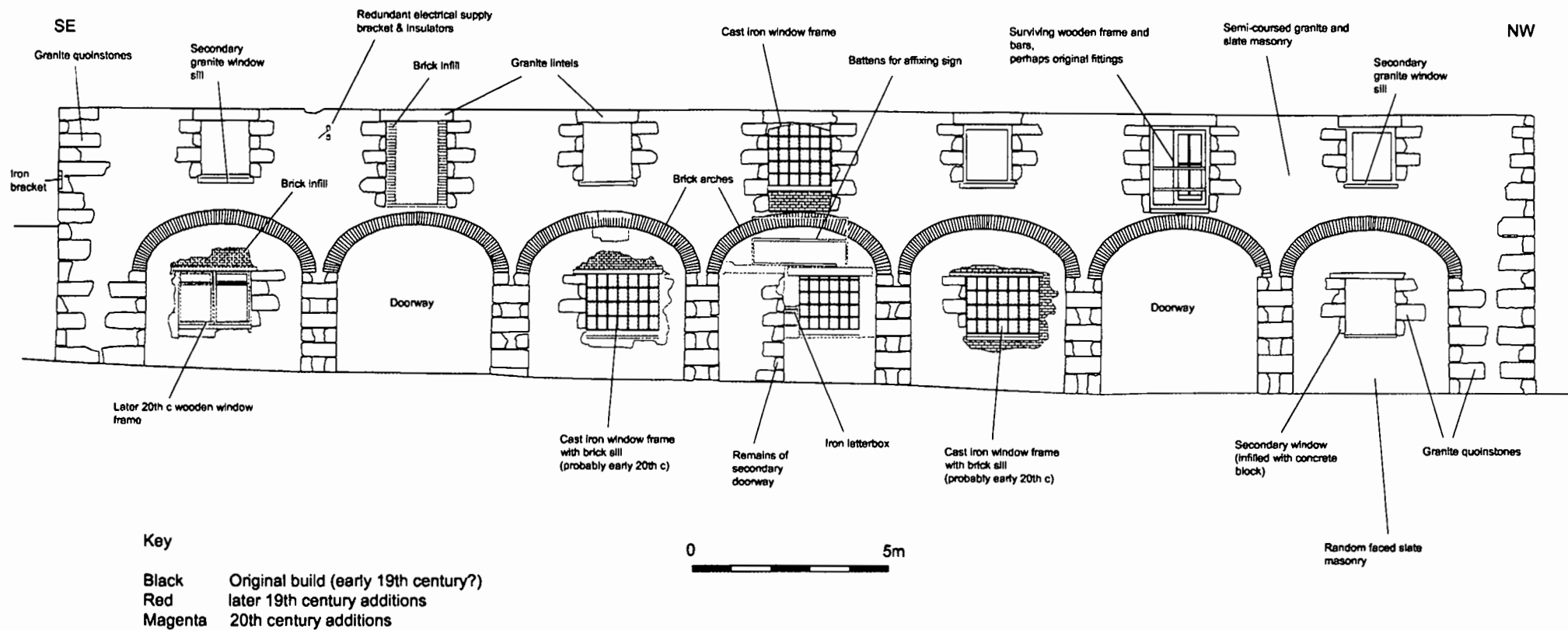
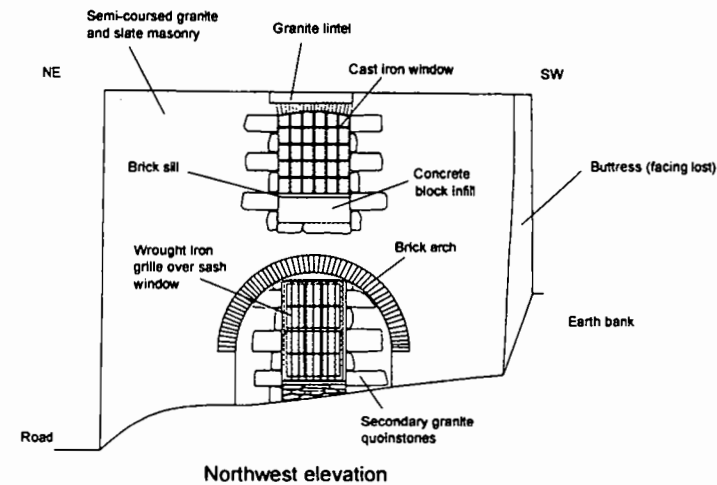
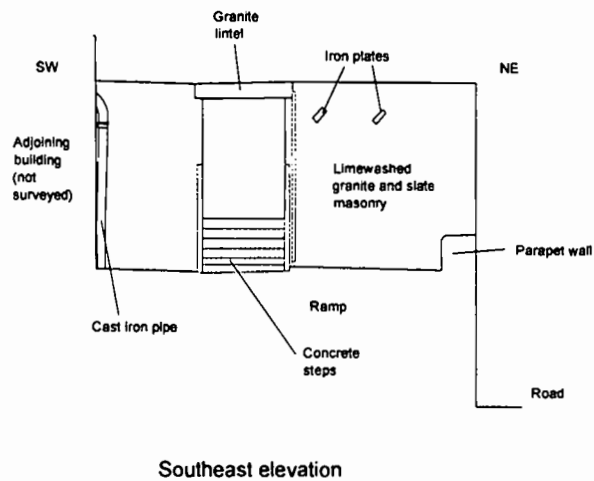


Fig 8 NE elevation of the Plantation Store
(PRN 138972)



Key

- Black Original build (early 19th century?)
- Red later 19th century additions
- Magenta 20th century additions

0 5m

Fig 9 NW and SE elevations of the Plantation Store (PRN 138972)

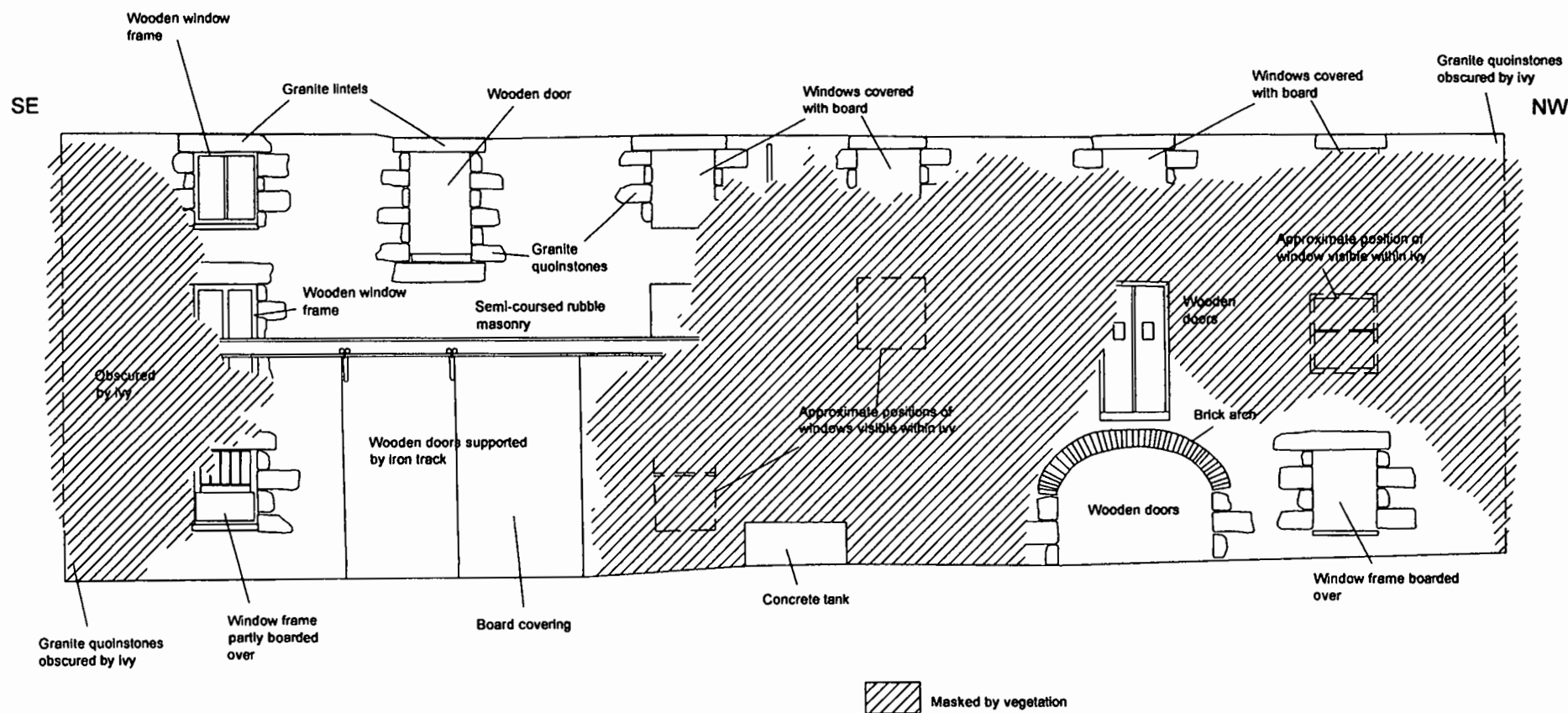
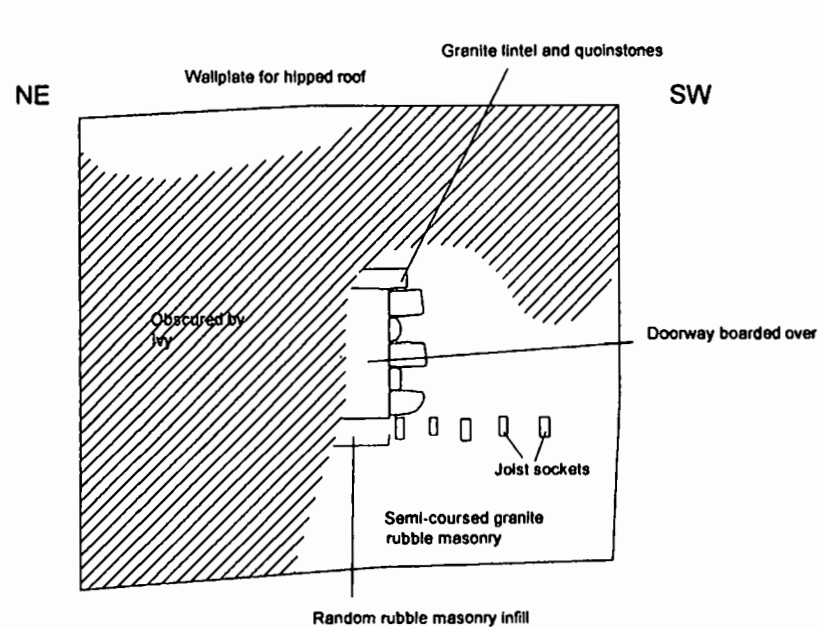
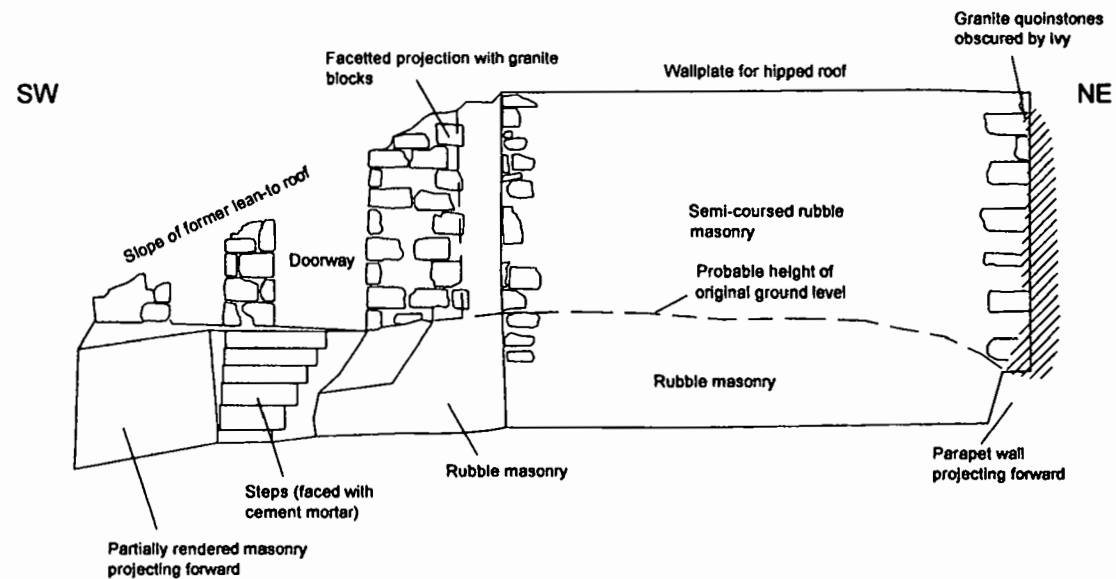


Fig 10 NE elevation of the pattern store
(PRN 138977)



Northwest elevation



Southeast elevation



Fig 11 NW and SE elevations of the pattern store (PRN 138977) and pattern store annexe (PRN 138979)

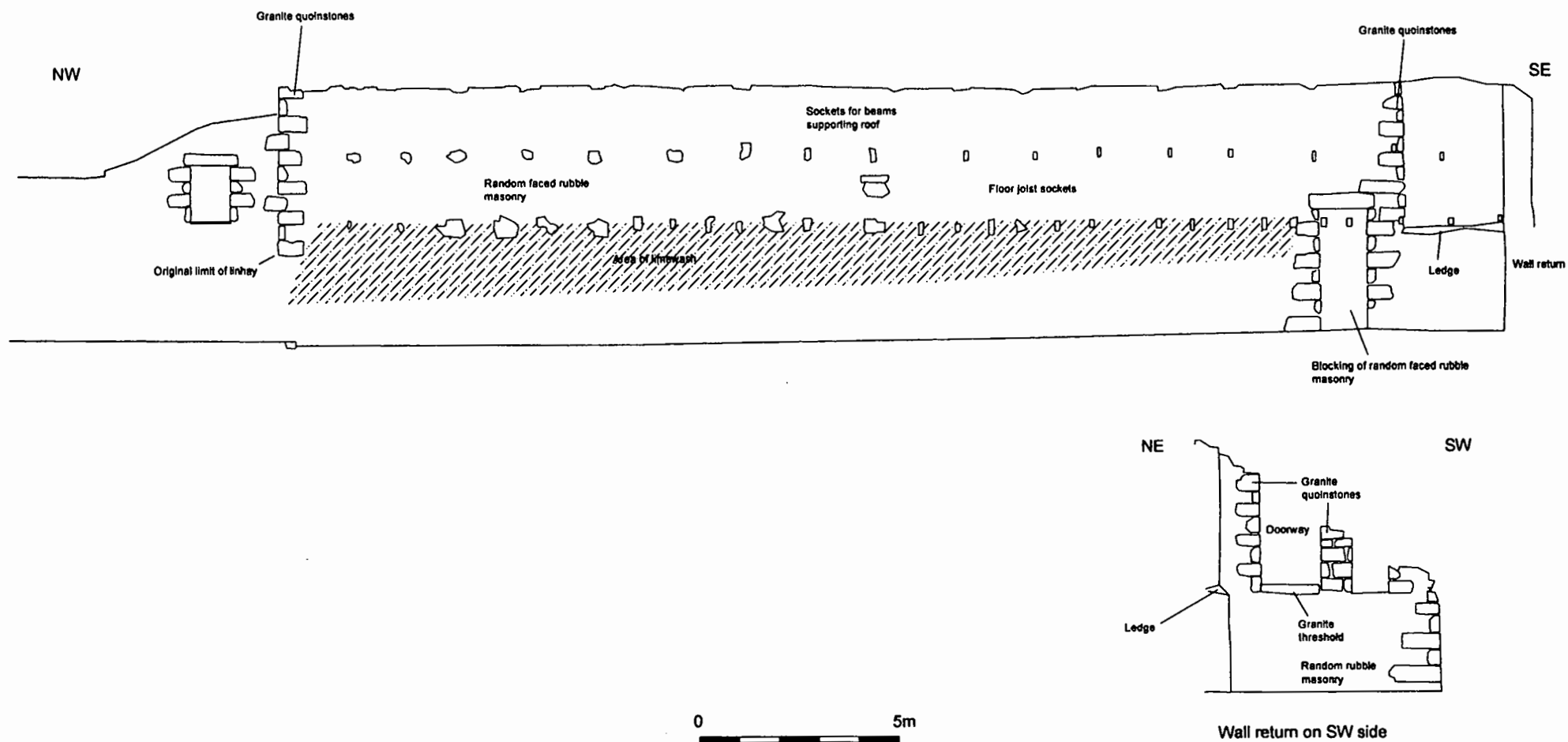


Fig 12 SW elevation of the pattern store (PRN 138977) and pattern store annexe (PRN 138979)

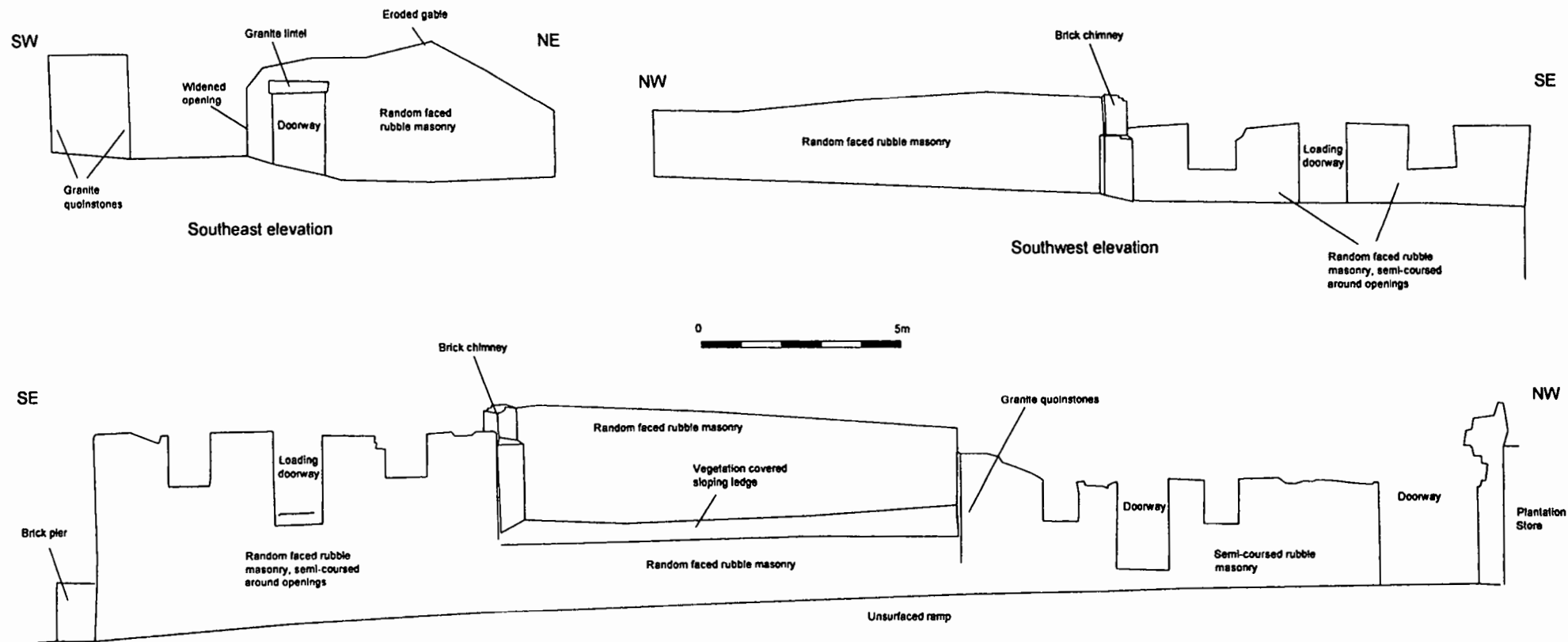


Fig 13 Outline elevations of former cattle houses (PRN 138987)

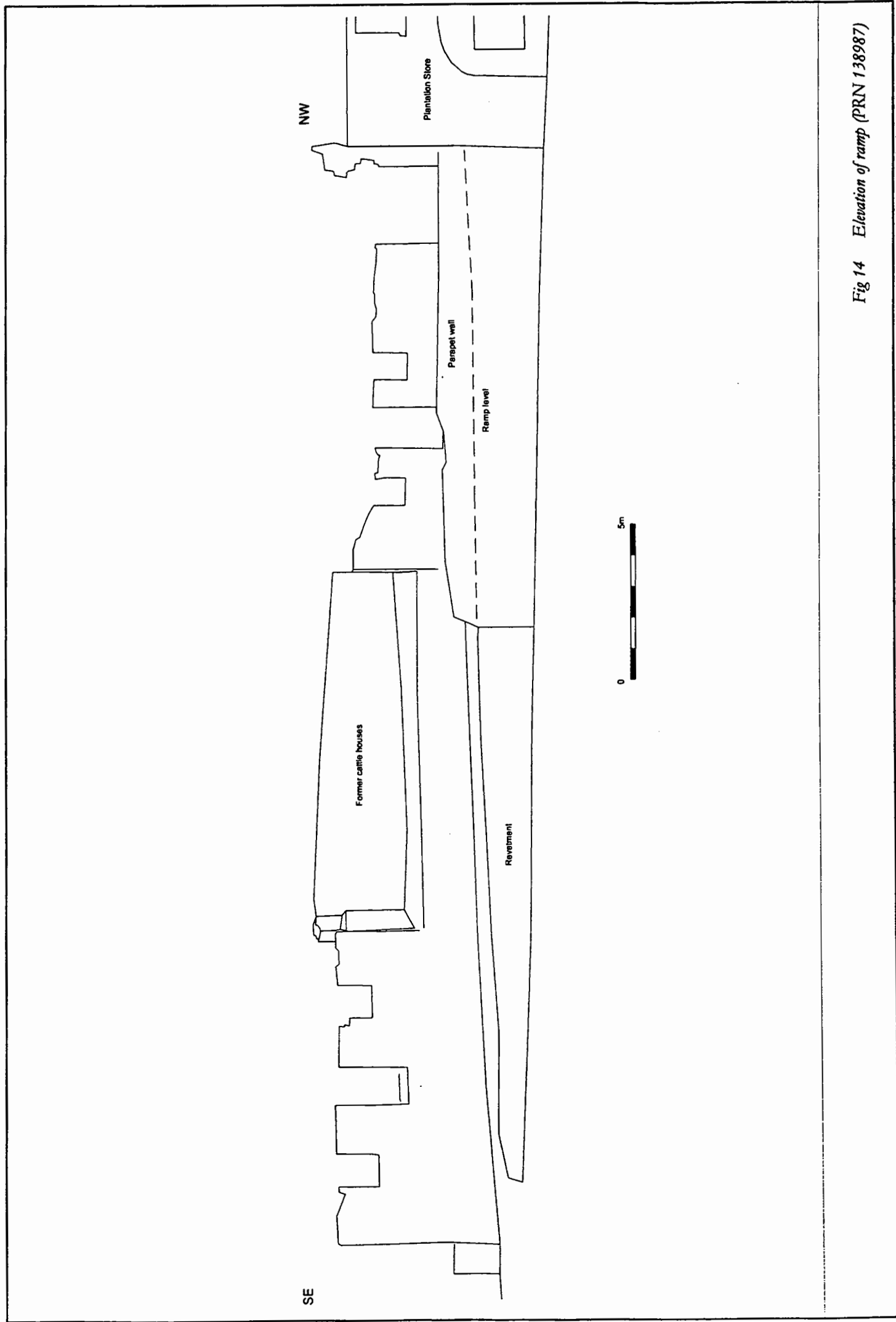


Fig 14 Elevation of ramp (PRN 138987)

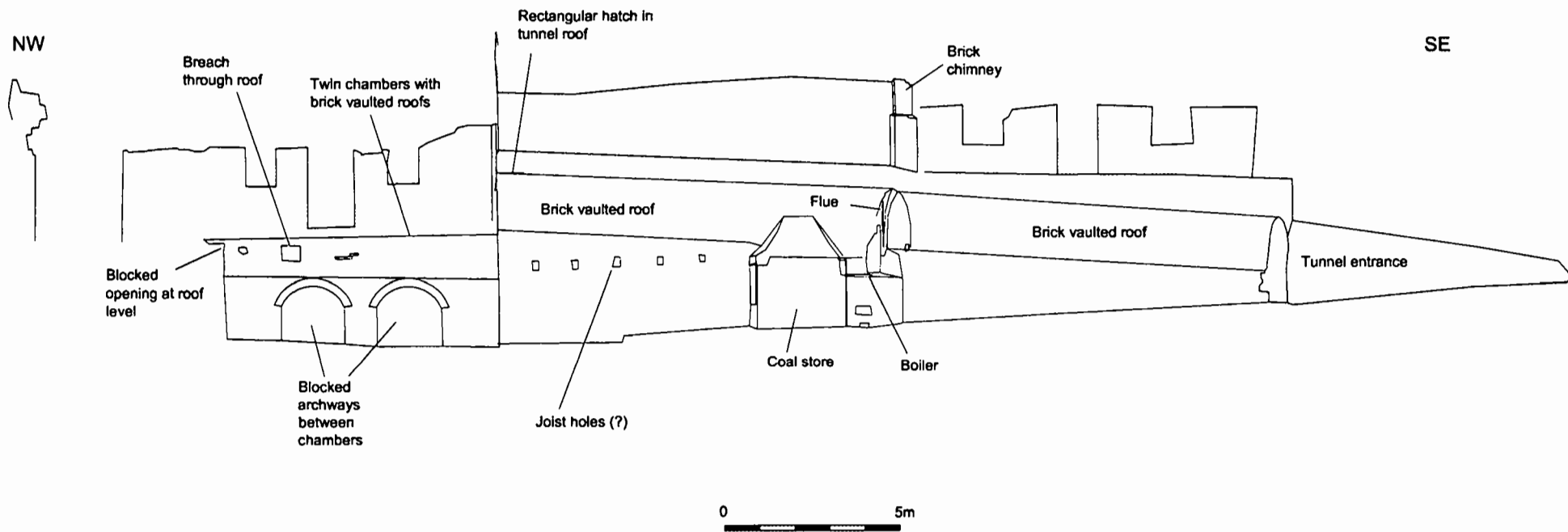


Fig 15 Section of tunnel (PRN 138981)

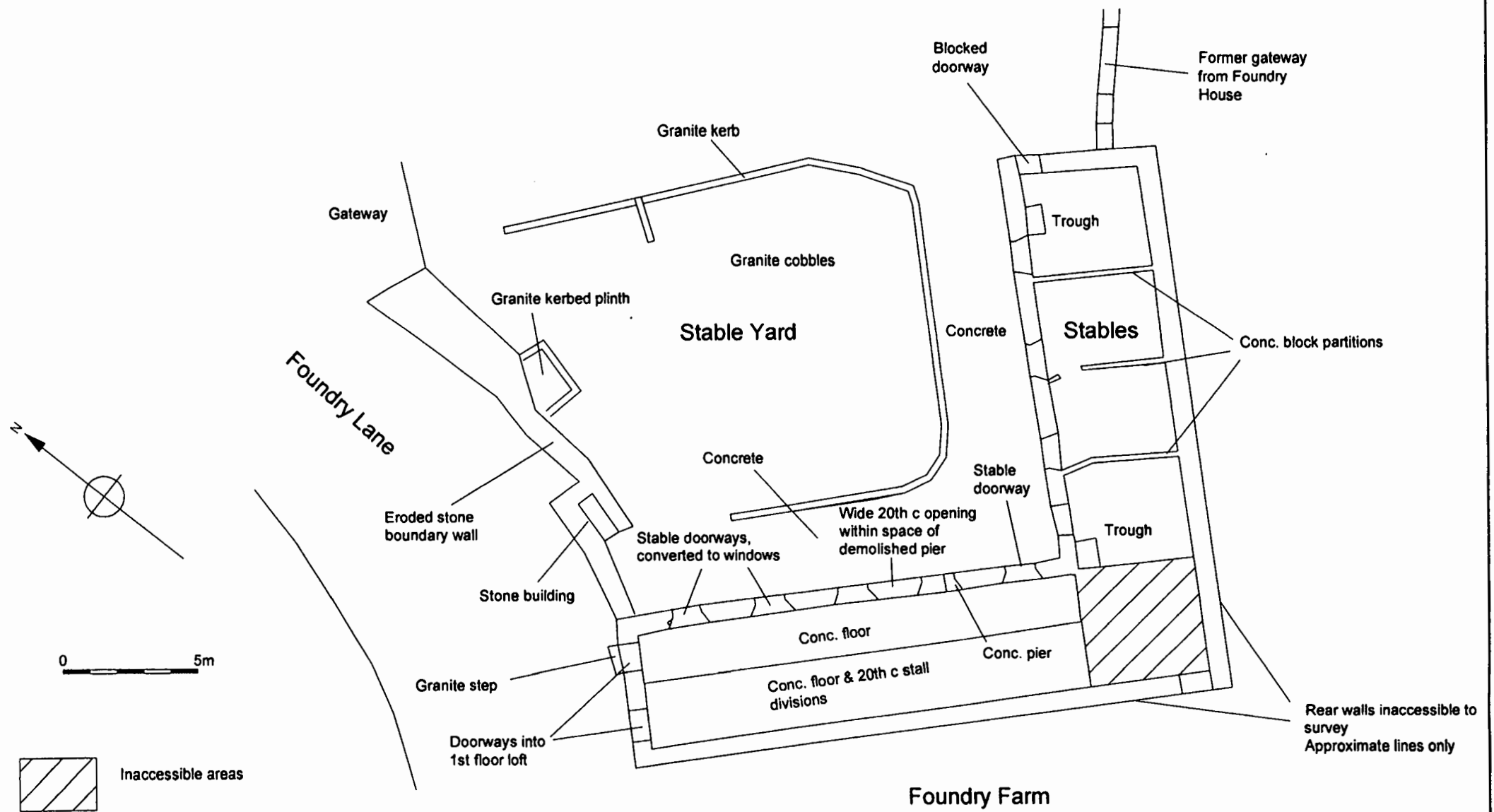
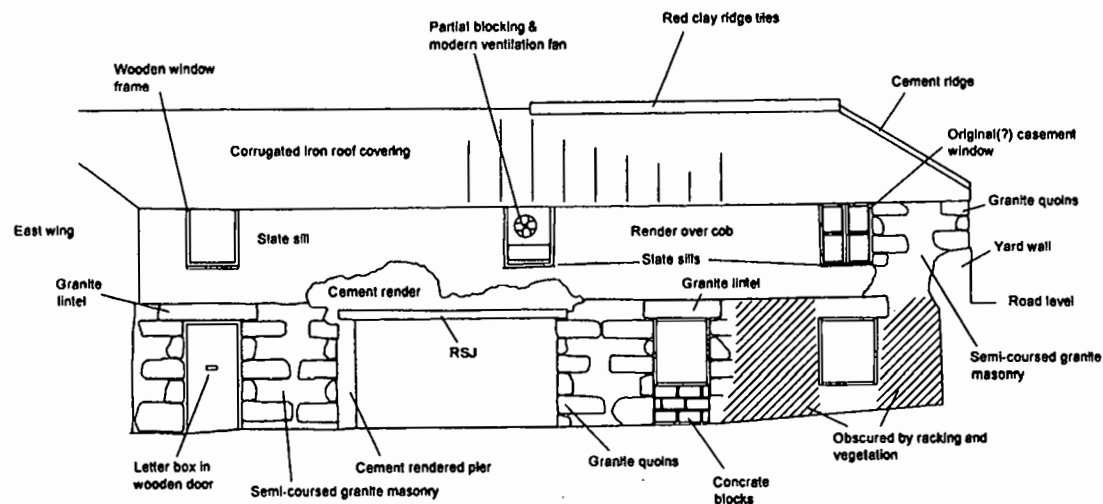
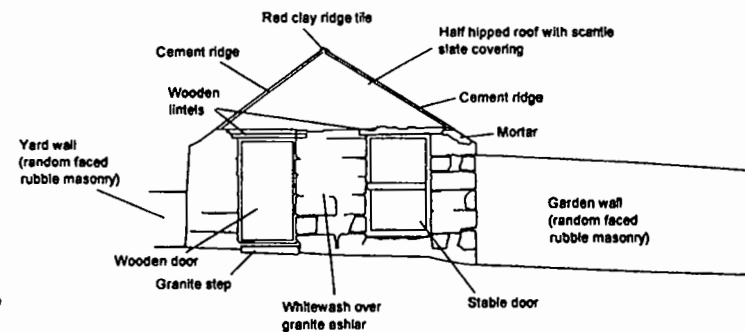


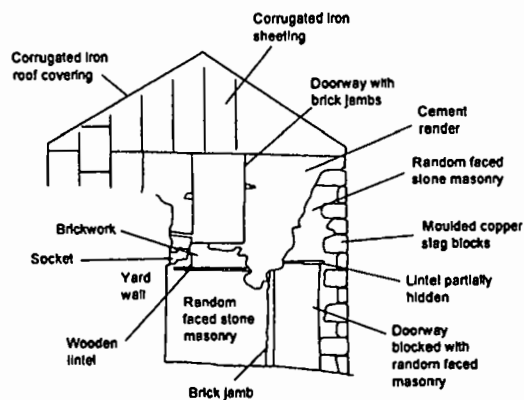
Fig 16 Plan of stable block (PRN 138988)
and adjacent yard PRN 140933)



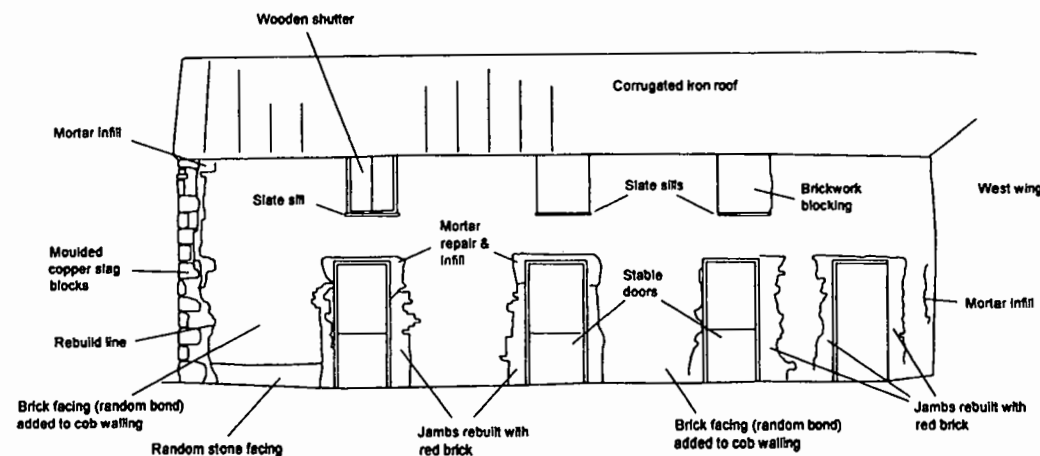
West wing: NE elevation



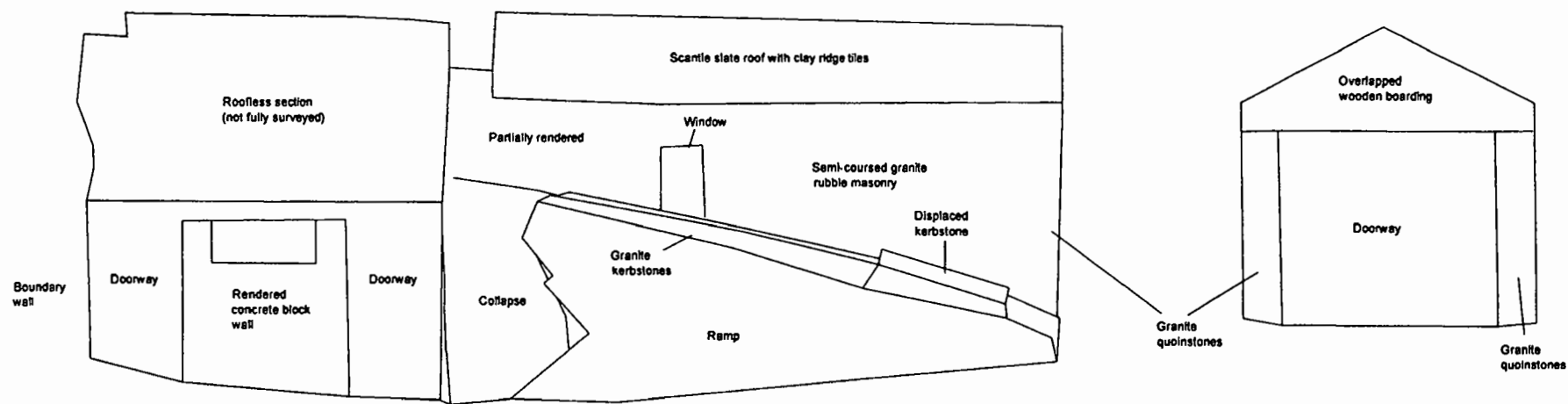
West wing: NW elevation



East wing: NE elevation

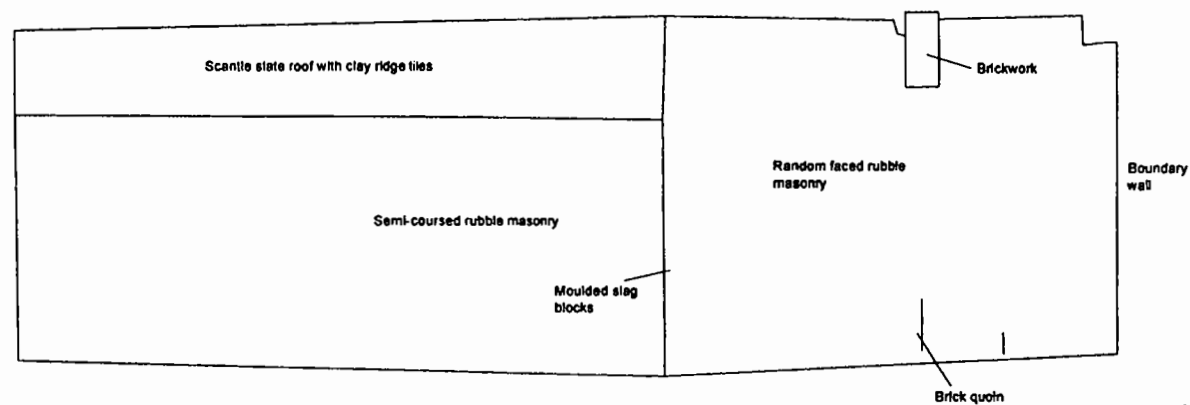


East wing: NW elevation



Northeast elevation

Northwest elevation



Southwest elevation



Fig 18 Outline elevations of fire engine house (PRN 138989)

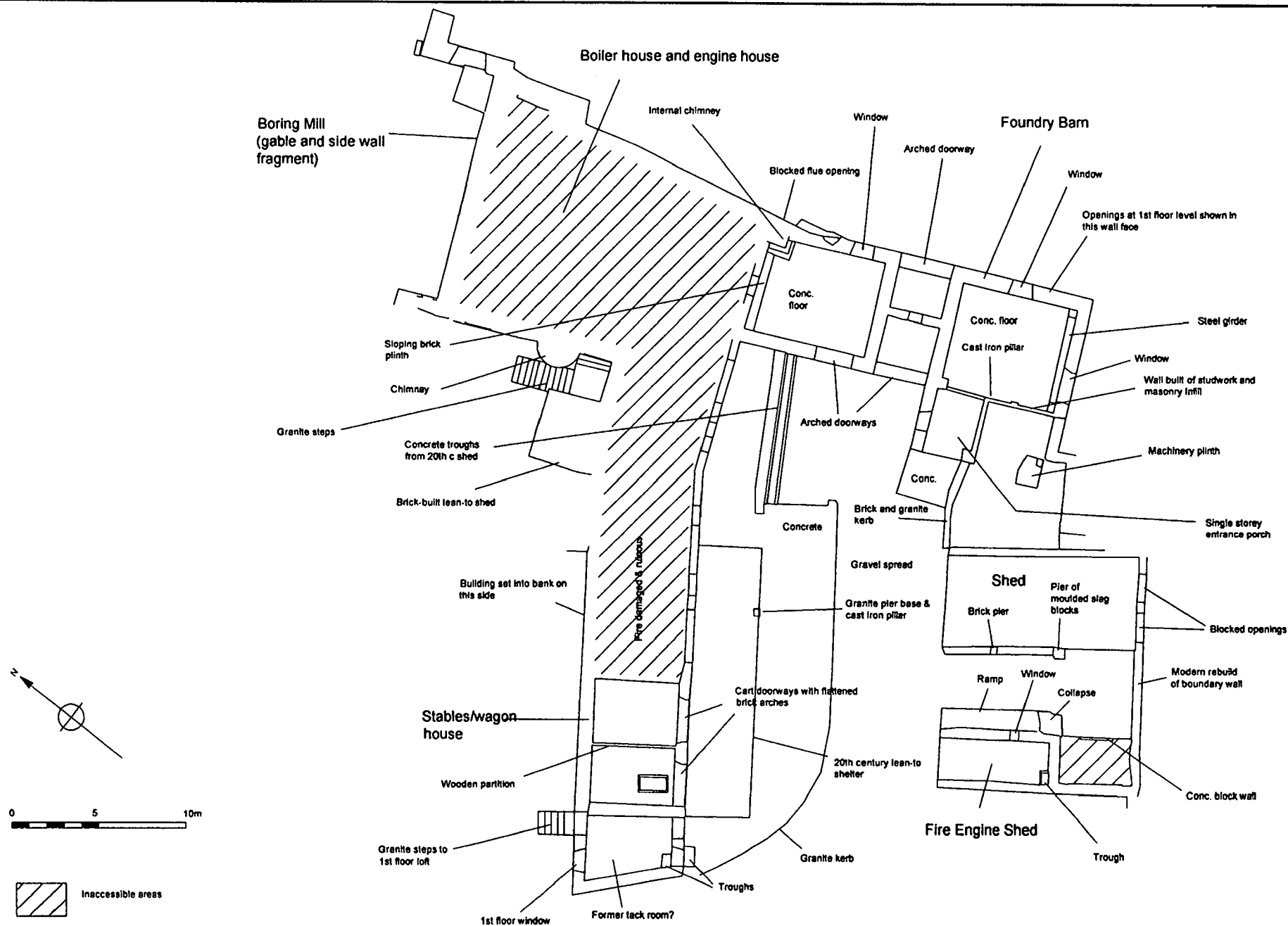


Fig 19 Plan of the Foundry Barn range (PRN 138974) and adjoining stables/wagon house (PRN 138975)

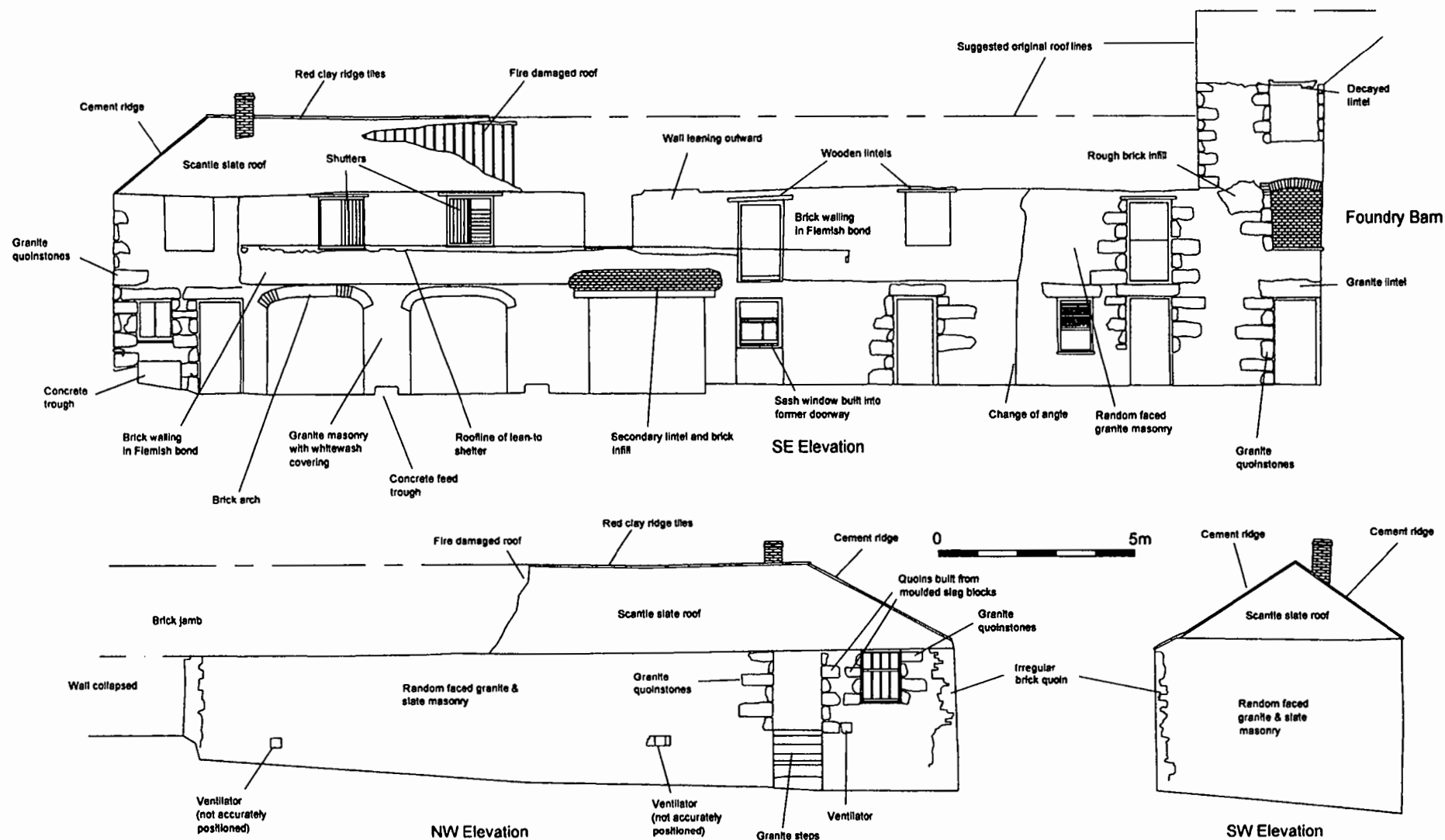
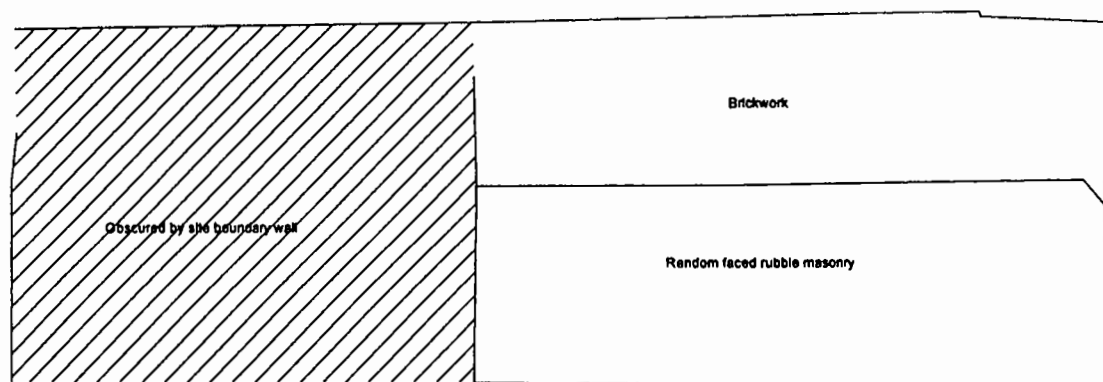
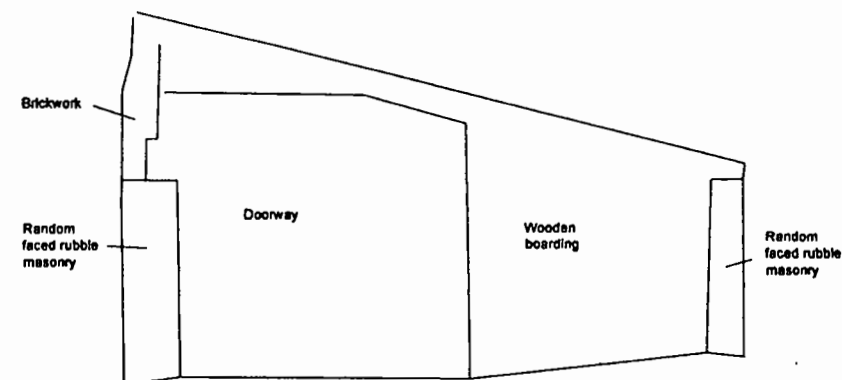


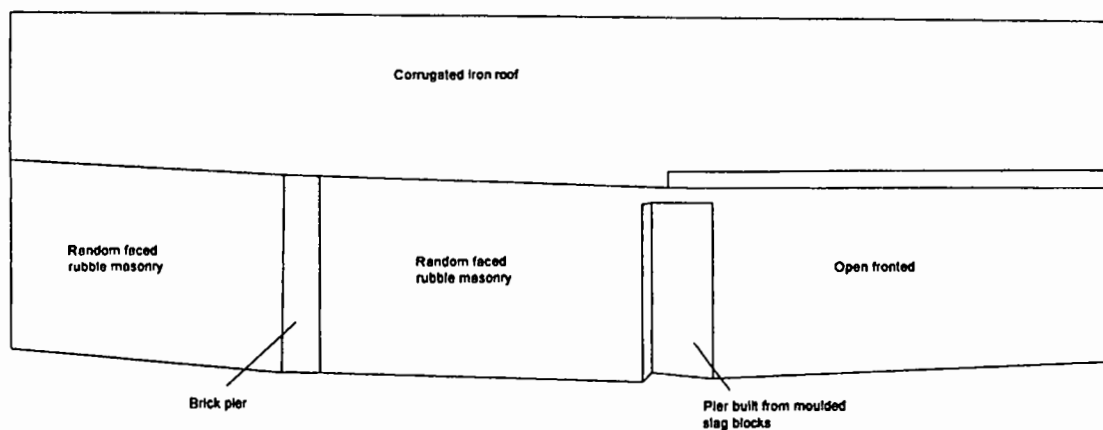
Fig 20 Elevations of the stables/wagon house (PRN 138975)



Northeast elevation



Northwest elevation



Southwest elevation



Fig 21 Outline elevations of lean-to shed

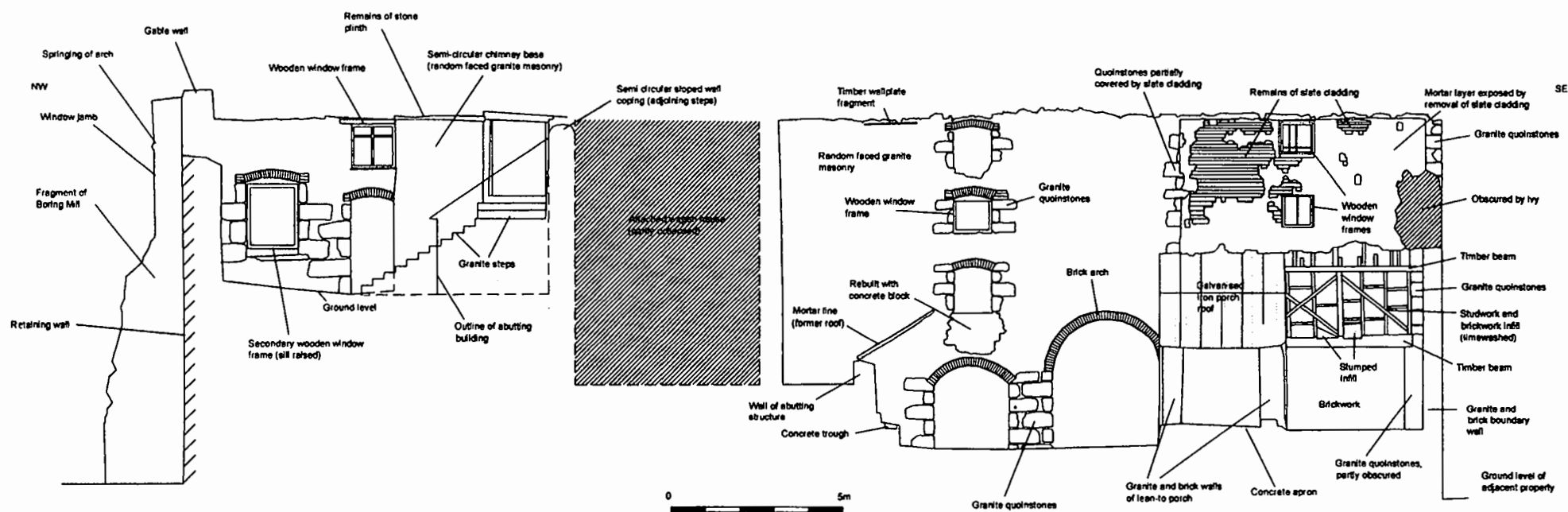


Fig 22 SW elevation of the Foundry Barn
(PRN 138974)

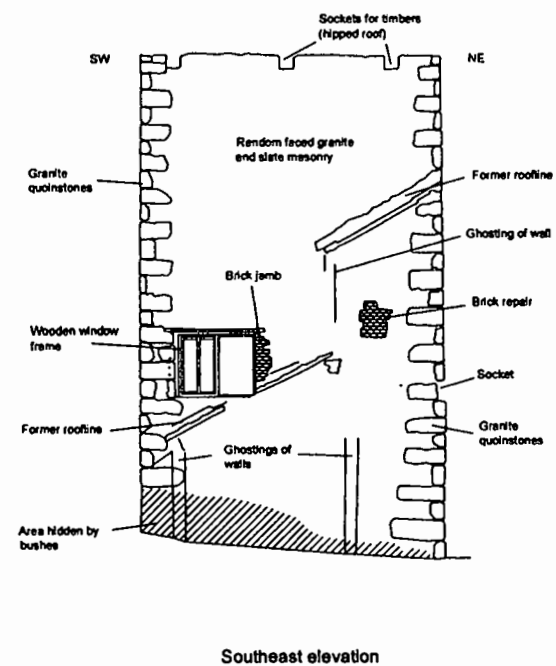
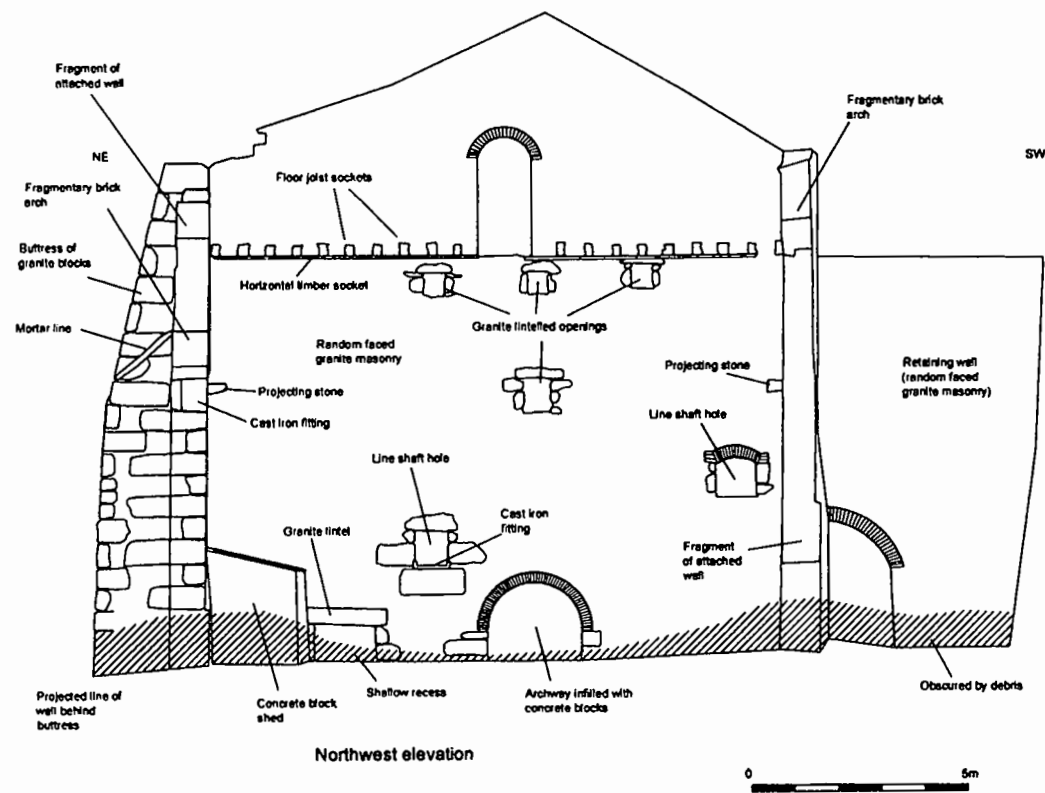


Fig 23 Elevation of the surviving gable of the boring mill (PRN 138973) and the SE elevation of the Foundry Barn (PRN 138974)

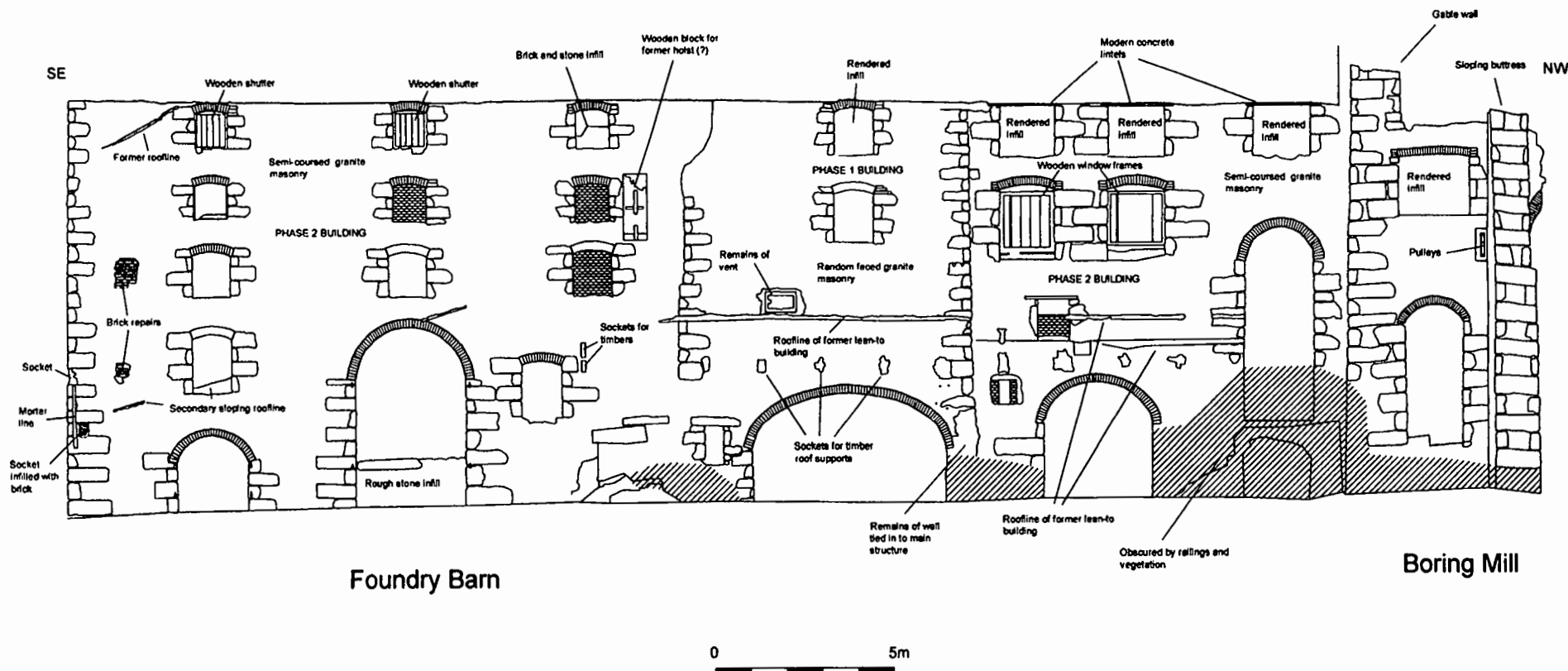


Fig 24 NE elevation of the Foundry Barn (PRN 138974), boiler house/engine house (PRN 138984) and boring mill (PRN 138973)

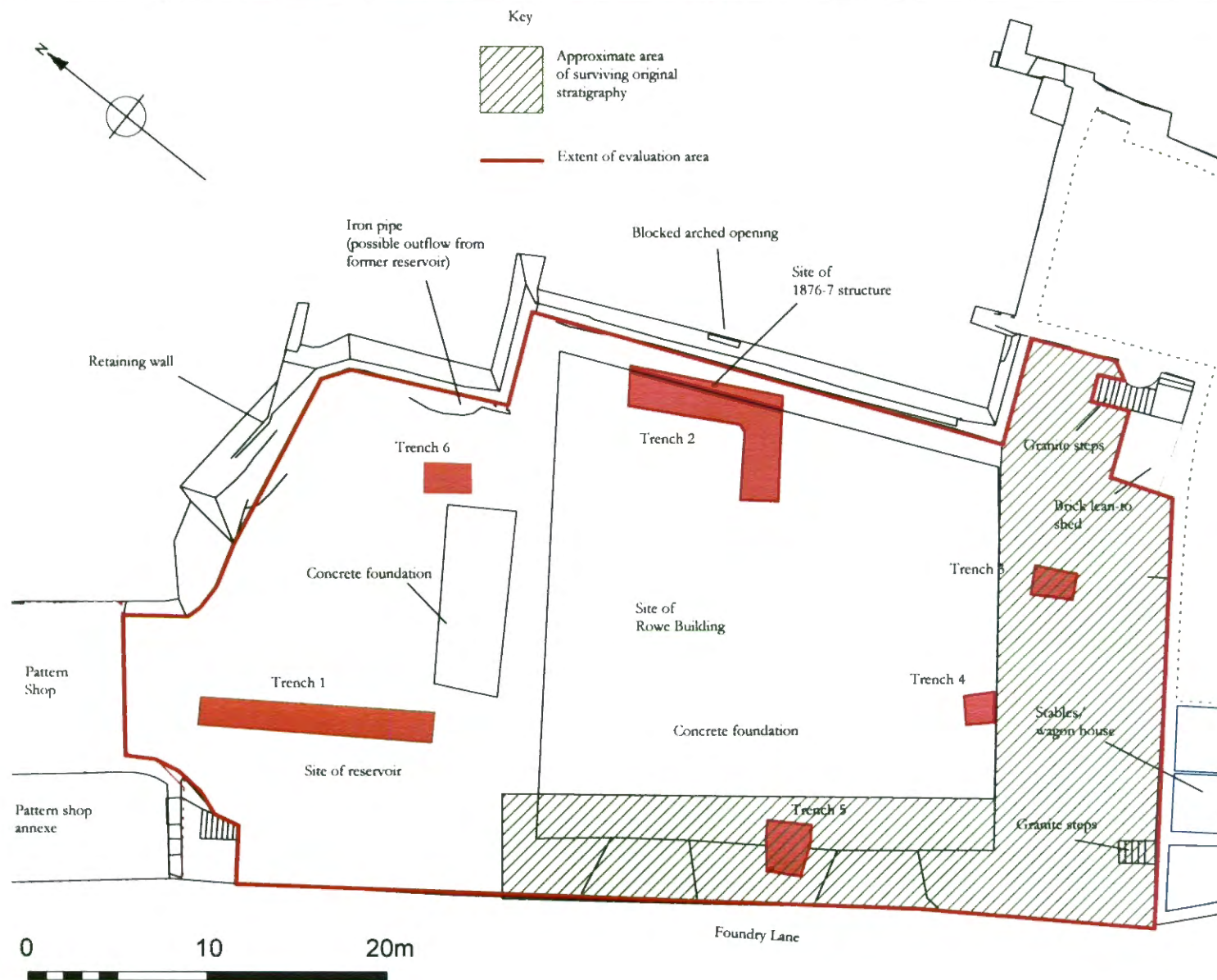


Figure 25 Location plan of evaluation trenches showing extent of surviving original stratigraphy



Plate 1 The Pattern store annexe (PRN 138979) from Foundry Lane (1991)

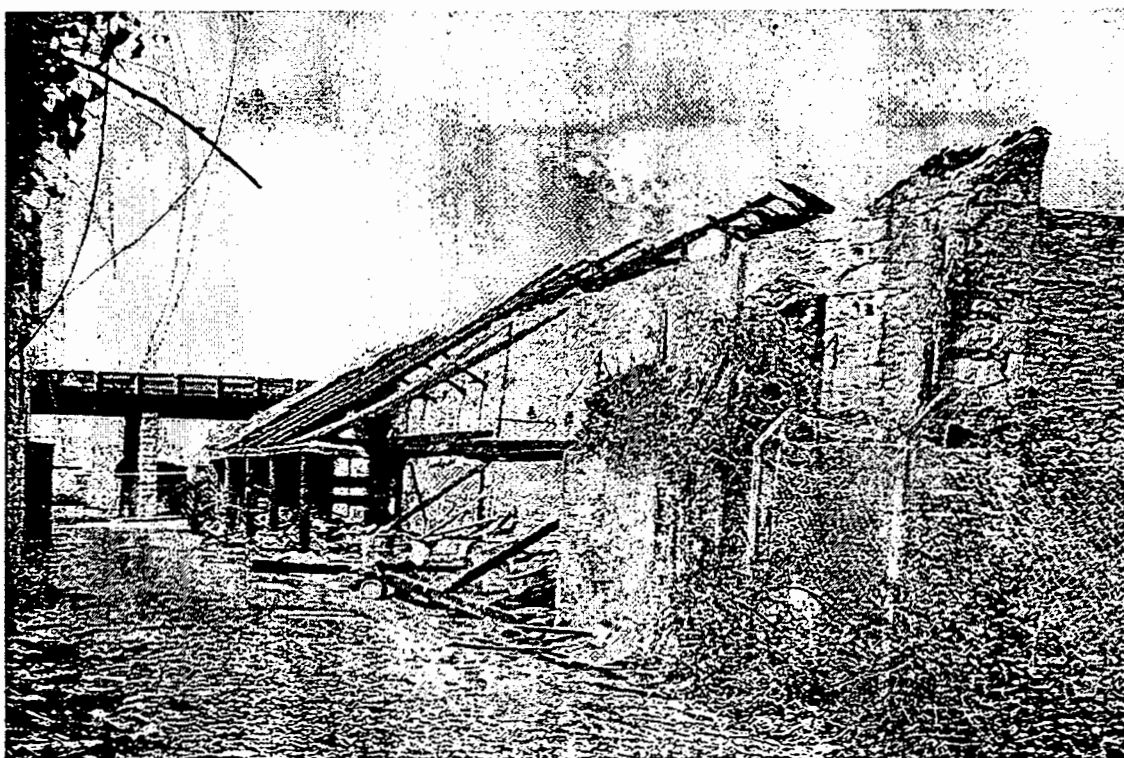


Plate 2 The same building after fire damage in April 2000

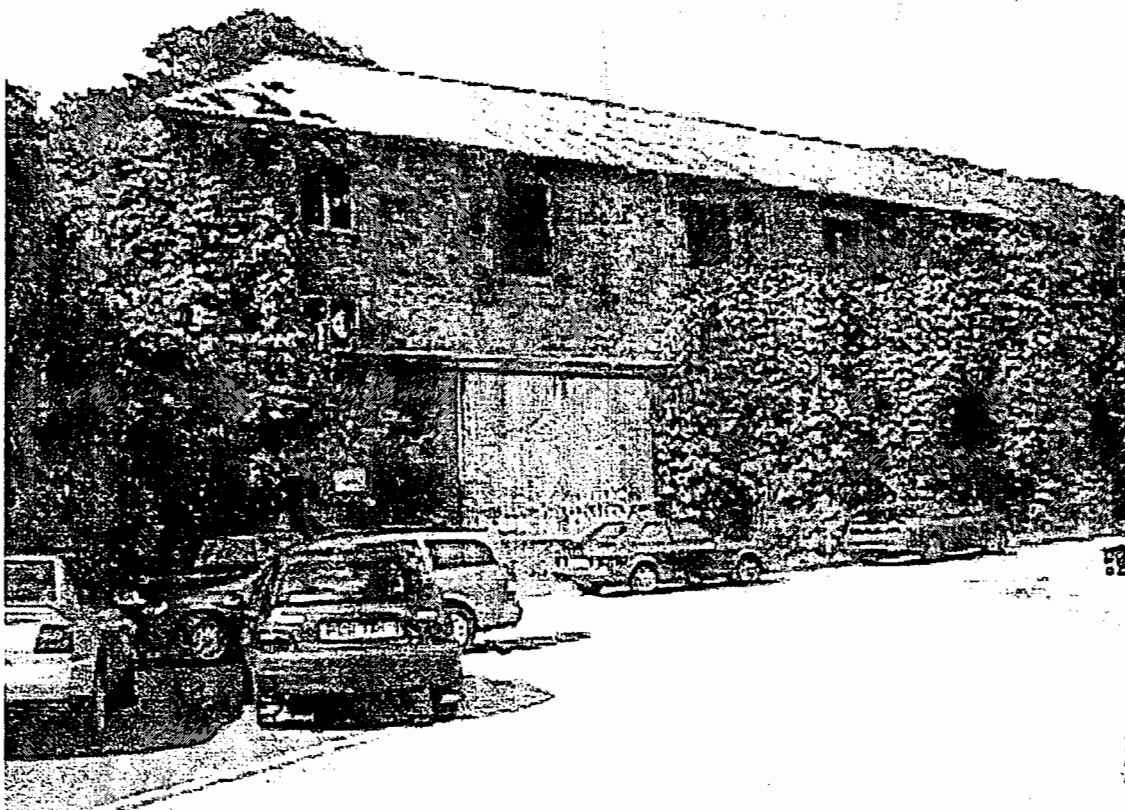


Plate 3 The pattern store in 1999 (PRN 138977)

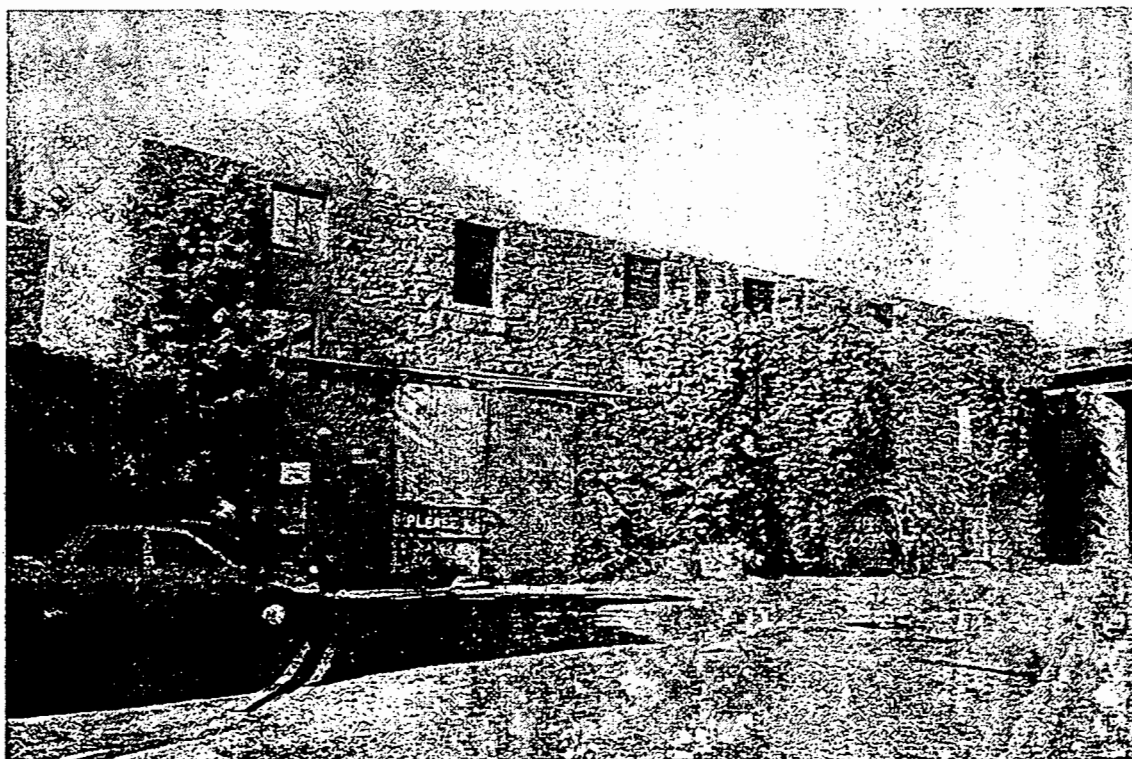


Plate 4 The pattern store, after fire damage and removal of remaining roof timbers (2000)



Plate 5 The stable yard complex including the stables/wagon house (PRN 138975), rear of the Foundry Barn (PRN 138974) and lean-to shed (to right) (1991)



Plate 6 Stables/wagon house (PRN 138975) prior to vegetation clearance (2000)



Plate 7 *Stables (PRN 138988) prior to vegetation clearance (2000)*

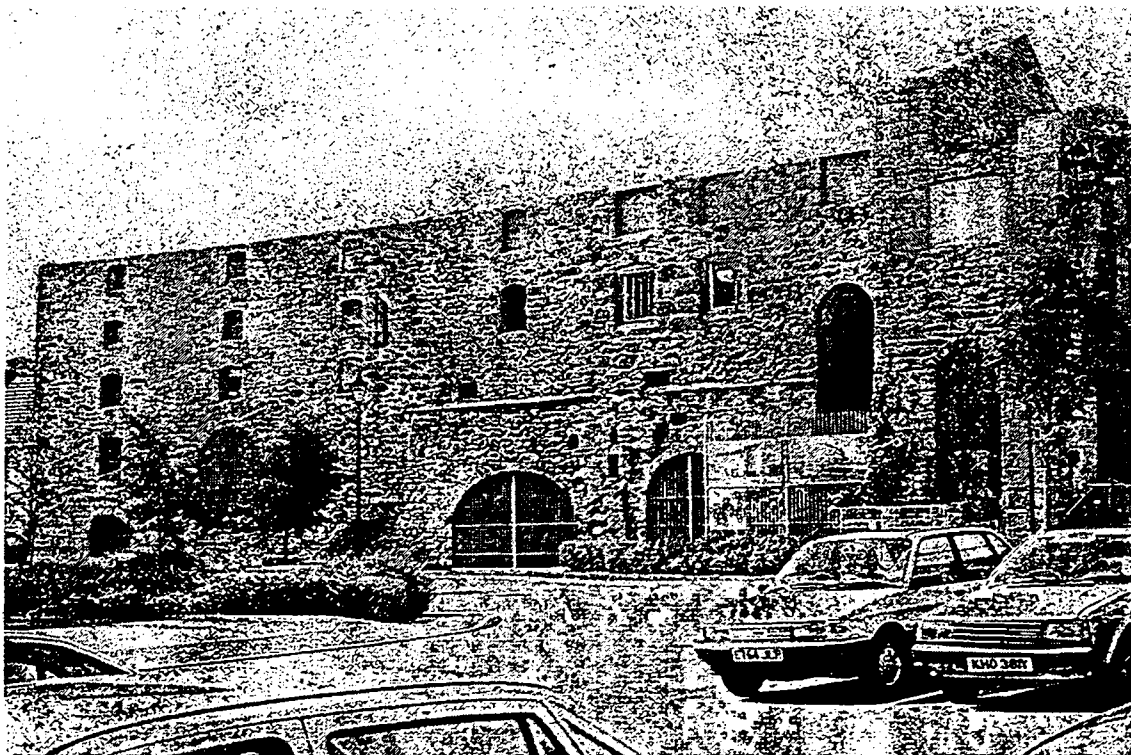


Plate 8 *Foundry Barn (PRN 138974), boiler/engine house (PRN 138984) and boring mill (PRN 138973) (2000)*



Plate 9 The fire engine shed (PRN 138989) after vegetation clearance (2000)



Plate 10 Stud wall with decaying slate hanging at the rear of the Foundry Barn (PRN 138974) (2000)

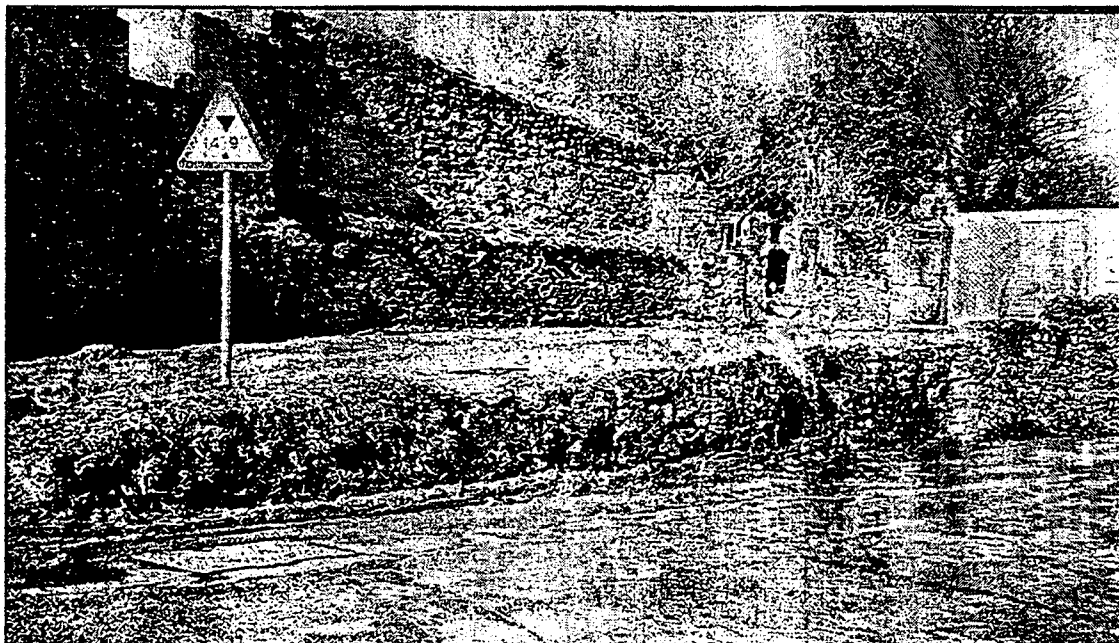


Plate 11 Ramp with former cattle houses (PRN 138987) above (2000)



Plate 12 Tunnel entrance (PRN 138981) in 1999

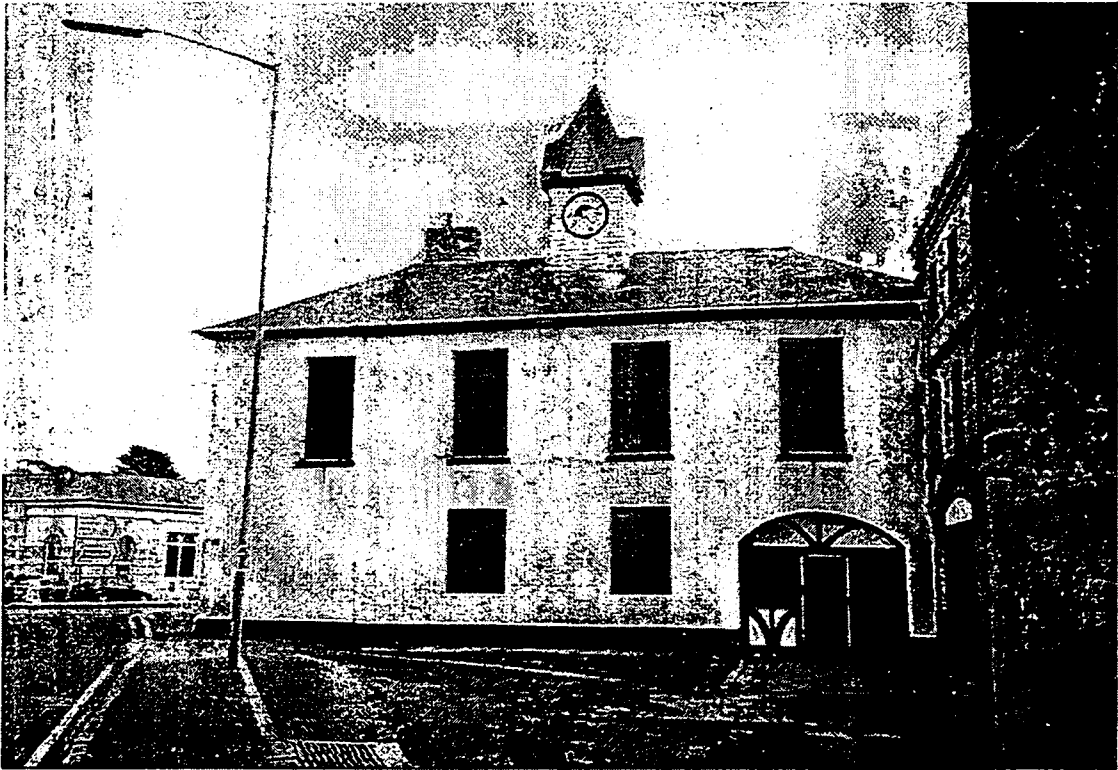


Plate 13 No 24 Foundry Square: Harvey and Company's former offices and clock tower
(PRN 138991)

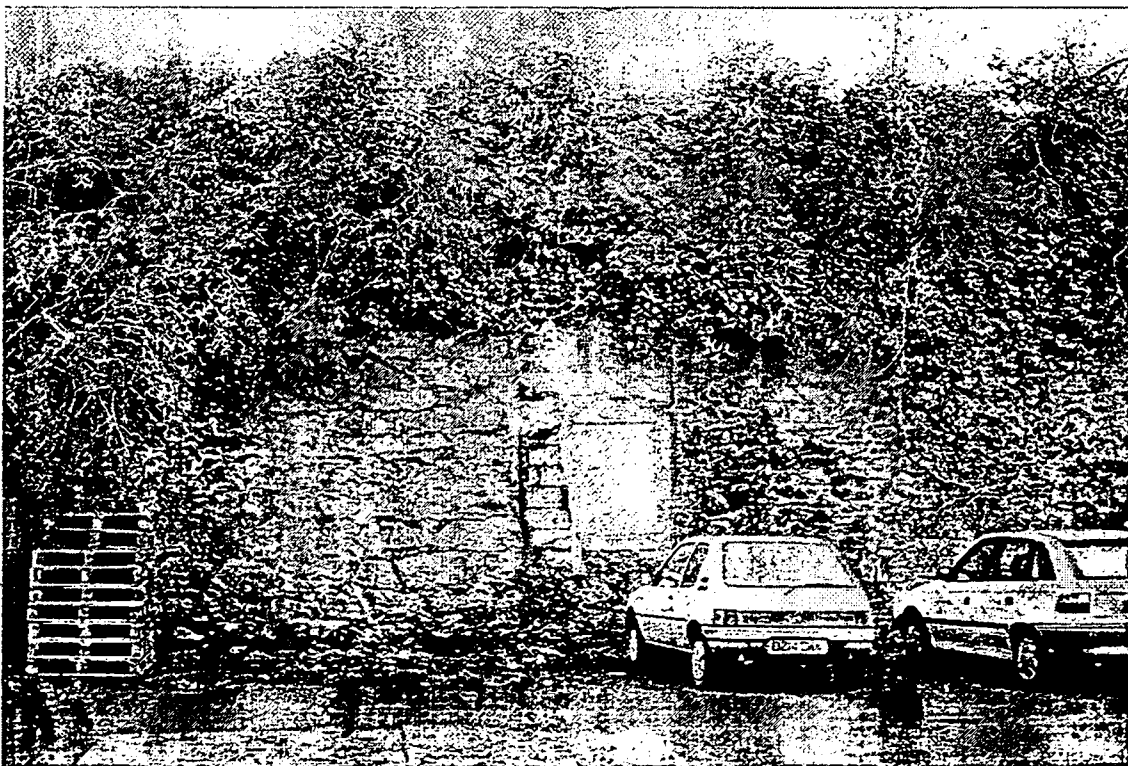


Plate 14 Retaining wall of upper part of the foundry site, with blocked opening

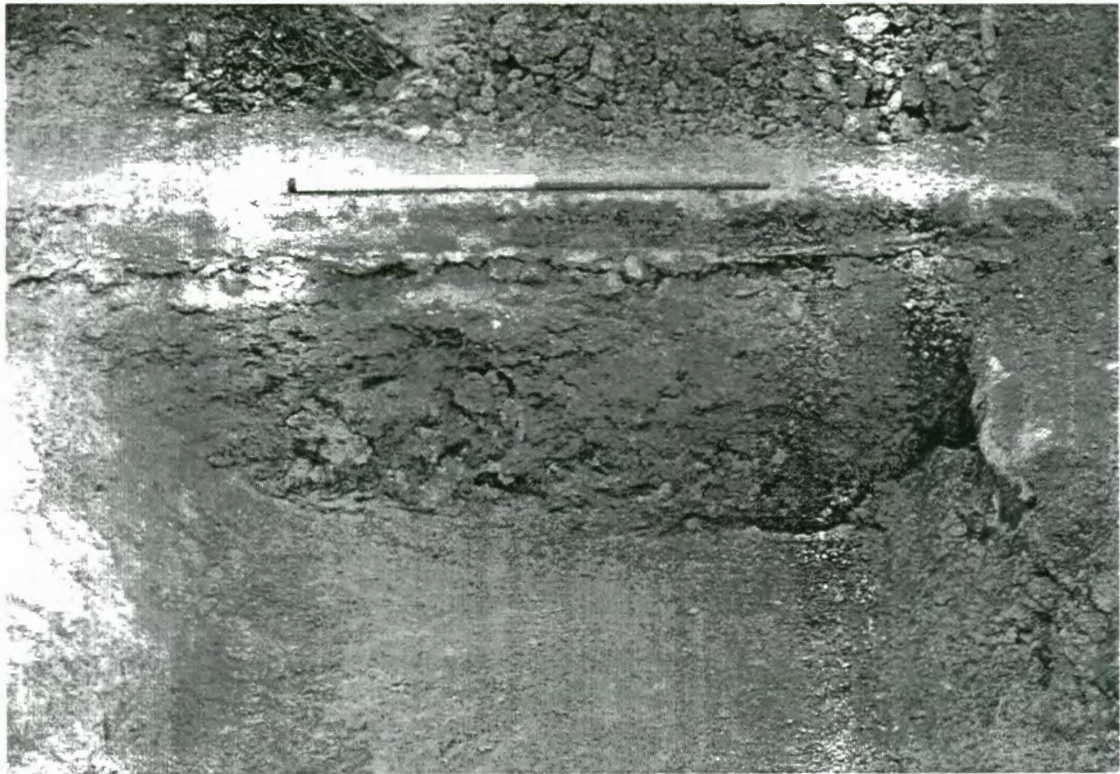


Plate 15 Evaluation Trench 2: section through possible ditch/quarry